# Table of Contents

What Is Amazon Pinpoint? ........................................................................................................ 1  
Amazon Pinpoint Features .................................................................................................... 1  
  Define Audience Segments .................................................................................................. 1  
  Engage Your Audience with Messaging Campaigns .............................................................. 1  
  Create User Journeys .......................................................................................................... 1  
  Provide Consistent Messaging with Templates ...................................................................... 1  
  Deliver Personalized Content .............................................................................................. 2  
  Analyze User Behavior ........................................................................................................ 2  
  Send Test Messages ............................................................................................................ 2  

Regional Availability ........................................................................................................... 2  
Get Started ............................................................................................................................... 2  

Getting Started .................................................................................................................. 3  
About This Tutorial ............................................................................................................... 3  
Step 1: Create a Project ........................................................................................................ 4  
Step 2: Import Data and Create a Segment ........................................................................ 5  
  Step 2.1: Download and Modify the Sample File ................................................................. 6  
  Step 2.2: Import a File that Contains Customer Data .......................................................... 6  
  Step 2.3: Create a Targeted Segment .................................................................................. 7  
Step 3: Create a Campaign .................................................................................................... 7  
  Step 3.1: Create the Campaign and Choose a Segment ...................................................... 8  
  Step 3.2: Create the Campaign Message .......................................................................... 8  
  Step 3.3: Schedule the Campaign ....................................................................................... 9  
Step 4: View Campaign Analytics ....................................................................................... 9  
  Step 4.1: Interact with Your Campaign ............................................................................. 10  
  Step 4.2: View Metrics for the Campaign ...................................................................... 10  

Next Steps .............................................................................................................................. 11  

Tutorials ................................................................................................................................ 12  
  Send an Email .................................................................................................................... 12  
    Step 1: Create a Project .................................................................................................... 12  
    Step 2: Upload Segment Members .................................................................................. 13  
    Step 3: Create a Segment ............................................................................................... 14  
    Step 4: Create a Campaign ............................................................................................. 14  
    Next Steps ....................................................................................................................... 15  
  Create a Segment ............................................................................................................... 17  
    Prerequisites .................................................................................................................. 17  
    Create the Segment ....................................................................................................... 18  
Channels ............................................................................................................................... 24  
  Push Notifications .............................................................................................................. 24  
    Setting Up ....................................................................................................................... 24  
    Monitoring ...................................................................................................................... 25  
    Managing ......................................................................................................................... 25  
Email .................................................................................................................................. 27  
    Setting Up ....................................................................................................................... 28  
    Monitoring ...................................................................................................................... 32  
    Managing ......................................................................................................................... 33  
    Sending Email ................................................................................................................ 37  
    Using Dedicated IP Addresses ....................................................................................... 39  
    Deliverability Dashboard .............................................................................................. 46  
Tips and Best Practices ....................................................................................................... 61  

SMS ....................................................................................................................................... 65  
  Limits and Restrictions ....................................................................................................... 65  
  Setting Up .......................................................................................................................... 69  
  Requesting SMS Support ................................................................................................. 70  
  Monitoring ......................................................................................................................... 82
<table>
<thead>
<tr>
<th>Machine Learning Models</th>
<th>222</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test Messages</td>
<td>171</td>
</tr>
<tr>
<td>Analytics</td>
<td>175</td>
</tr>
<tr>
<td>Chart Reference</td>
<td>175</td>
</tr>
<tr>
<td>Adding Recommendations to Messages</td>
<td>230</td>
</tr>
<tr>
<td>Removing Recommendations from Messages</td>
<td>231</td>
</tr>
<tr>
<td>Before You Begin</td>
<td>227</td>
</tr>
<tr>
<td>Setting Up Recommendations</td>
<td>226</td>
</tr>
<tr>
<td>Using Recommendations in Messages</td>
<td>229</td>
</tr>
<tr>
<td>Step 2: Add Attributes to the Model</td>
<td>228</td>
</tr>
<tr>
<td>Step 3: Review and Publish the Model</td>
<td>229</td>
</tr>
<tr>
<td>How Recommendations Work</td>
<td>223</td>
</tr>
<tr>
<td>Preparing to Use Recommendations</td>
<td>223</td>
</tr>
<tr>
<td>Amazon Personalize Campaigns</td>
<td>224</td>
</tr>
<tr>
<td>AWS Identity and Access Management Roles and Policies</td>
<td>225</td>
</tr>
<tr>
<td>AWS Lambda Functions</td>
<td>226</td>
</tr>
<tr>
<td>How Recommendations Work</td>
<td>223</td>
</tr>
<tr>
<td>Preparing to Use Recommendations</td>
<td>223</td>
</tr>
<tr>
<td>Amazon Personalize Campaigns</td>
<td>224</td>
</tr>
<tr>
<td>AWS Identity and Access Management Roles and Policies</td>
<td>225</td>
</tr>
<tr>
<td>AWS Lambda Functions</td>
<td>226</td>
</tr>
<tr>
<td>Setting Up Recommendations</td>
<td>226</td>
</tr>
<tr>
<td>Before You Begin</td>
<td>227</td>
</tr>
<tr>
<td>Step 1: Set Up the Model</td>
<td>227</td>
</tr>
<tr>
<td>Step 2: Add Attributes to the Model</td>
<td>228</td>
</tr>
<tr>
<td>Step 3: Review and Publish the Model</td>
<td>229</td>
</tr>
<tr>
<td>Using Recommendations in Messages</td>
<td>229</td>
</tr>
<tr>
<td>Adding Recommendations to Messages</td>
<td>230</td>
</tr>
<tr>
<td>Removing Recommendations from Messages</td>
<td>231</td>
</tr>
</tbody>
</table>
What Is Amazon Pinpoint?

Amazon Pinpoint is an AWS service that you can use to engage with your customers across multiple messaging channels. You can use Amazon Pinpoint to send push notifications, emails, SMS text messages, and voice messages.

The information in this user guide is intended for all Amazon Pinpoint users, including marketers, business users, and developers. This guide contains information that's especially helpful for users who mainly interact with Amazon Pinpoint by using the AWS Management Console. If you're new to Amazon Pinpoint, start by reading Getting Started (p. 3).

If you're an application developer, also refer to the Amazon Pinpoint Developer Guide and the Amazon Pinpoint API Reference. These documents provide information about using the features of Amazon Pinpoint programmatically. They also contain information about integrating Amazon Pinpoint features into your applications.

Amazon Pinpoint Features

This section describes the major features of Amazon Pinpoint and the tasks that you can perform by using them.

Define Audience Segments

Reach the right audience for your messages by defining audience segments (p. 108). A segment designates which users receive the messages that are sent from a campaign or journey. You can define dynamic segments based on data that's reported by your application, such as operating system or mobile device type. You can also import static segments that you define outside of Amazon Pinpoint.

Engage Your Audience with Messaging Campaigns

Engage your audience by creating a messaging campaign (p. 123). A campaign sends tailored messages on a schedule that you define. You can create campaigns that send push notifications, email, SMS text messages, and voice messages.

To experiment with alternative campaign strategies, set up your campaign as an A/B test, and analyze the results with Amazon Pinpoint analytics.

Create User Journeys

Create custom, multi-step experiences for your customers by designing and building journeys (p. 136). With journeys, you can send messages to your customers based on their attributes, behaviors, and activities. When you build a journey, you design an automated workflow of activities that perform a variety of different actions—for example, sending an email message to participants, waiting for a certain period of time, or splitting participants based on actions that they take, such as clicking a link in a message.

Provide Consistent Messaging with Templates

Design consistent messages and reuse content more effectively by creating and using message templates (p. 201). A message template contains content and settings that you want to reuse in
messages that you send for any of your Amazon Pinpoint projects. You can use message templates in email messages, push notifications, SMS messages, and voice messages.

**Deliver Personalized Content**

Send content that’s customized for each recipient of a message. Using message variables and attributes, you can deliver dynamic, personalized content in messages that you send from campaigns and journeys.

To streamline development, you can also use message variables and attributes to add personalized content to message templates (p. 208). With message templates, this content can come from attributes that you create directly in Amazon Pinpoint or a machine learning model that you create in Amazon Personalize. By connecting message templates to models in Amazon Personalize, you can use machine learning (p. 222) to send relevant promotions or recommendations to each recipient of a message.

**Analyze User Behavior**

Gain insight into your audience and the effectiveness of your campaigns and messaging activities by using the analytics (p. 175) that Amazon Pinpoint provides. You can view trends in your users’ level of engagement, purchase activity, demographics, and more. You can also monitor your message traffic by viewing metrics such as the total number of messages that you sent for a campaign or project. Through the Amazon Pinpoint API, your application can also report custom data, which Amazon Pinpoint makes available for analysis.

To analyze or store analytics data outside Amazon Pinpoint, configure Amazon Pinpoint to stream the data (p. 198) to Amazon Kinesis.

**Send Test Messages**

Test the design and deliverability of your messages by sending test messages (p. 171) before you send messages to your customers.

**Regional Availability**

Amazon Pinpoint is available in several AWS Regions in North America, Europe, Asia, and Oceania. In each Region, AWS maintains multiple Availability Zones. These Availability Zones are physically isolated from each other, but are united by private, low-latency, high-throughput, and highly redundant network connections. These Availability Zones enable us to provide very high levels of availability and redundancy, while also minimizing latency.

To learn more about AWS Regions, see Managing AWS Regions in the Amazon Web Services General Reference. For a list of all the Regions where Amazon Pinpoint is currently available and the endpoint for each Region, see AWS Service Endpoints in the Amazon Web Services General Reference. To learn more about the number of Availability Zones that are available in each Region, see AWS Global Infrastructure.

**Get Started**

Get started with Amazon Pinpoint by creating a new project (p. 3) or completing a tutorial (p. 12).
Getting Started with Amazon Pinpoint

To start sending targeted messages in Amazon Pinpoint, you have to complete a few steps. For example, you have to add customer contact information into Amazon Pinpoint, and then create segments that target certain customers. Next, you have to create your messages and schedule your campaigns. Finally, after you send your campaigns, you can use the analytics dashboards that are built into Amazon Pinpoint to see how well the campaigns performed.

This tutorial includes procedures for all of the steps that are involved in sending an email campaign to a segment of customers by using the Amazon Pinpoint console.

About This Tutorial

This section contains an overview of this tutorial.

Intended Audience

This tutorial is designed for marketing and business users.

If you're a software developer or system administrator, you might also find the tutorials in the Amazon Pinpoint Developer Guide to be useful.

Features Used

This tutorial shows you how to complete all of the following steps by using the Amazon Pinpoint console:

- Importing customer data from a file.
- Creating a segment that targets specific users based on their attributes.
- Creating an email campaign and scheduling it to be sent at a specific time.
- Viewing email delivery and response data by using the analytics dashboards that are built into Amazon Pinpoint.

Time Required

It should take about 30–45 minutes to complete this tutorial.

Regional Restrictions

There are no regional restrictions associated with using this solution.

Resource Usage Costs

There's no charge for creating an AWS account. However, by implementing this solution, you might incur some or all of the costs that are listed in the following table.

<table>
<thead>
<tr>
<th>Description</th>
<th>Cost (US Dollars)</th>
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</thead>
<tbody>
<tr>
<td>Message sending costs</td>
<td>You pay $0.0001 for each email that you send through Amazon Pinpoint.</td>
</tr>
<tr>
<td>Monthly targeted audience costs</td>
<td>You pay $0 for the first 5,000 endpoints that you target in Amazon Pinpoint each month.</td>
</tr>
</tbody>
</table>
Step 1: Create a Project

In Amazon Pinpoint, a project is a collection of settings, customer information, segments, and campaigns. If you’re new to Amazon Pinpoint, the first step you should take is to create a project.

Note
If you’ve used the Amazon Pinpoint API, you may have seen references to "applications." In Amazon Pinpoint, a project is the same as an application.

This section shows you how to create a project. As part of this procedure, you also verify an email address. You use this address to send email when you create your email campaign later in this tutorial.

If you’ve never created a project in your Amazon Pinpoint account, complete the steps in Option 1: Create and Configure a Project (New Amazon Pinpoint Users) (p. 4). If your Amazon Pinpoint account already contains one or more projects, complete the steps in Option 1: Create and Configure a Project (Existing Amazon Pinpoint Users) (p. 5) instead.

Option 1: Create and Configure a Project (New Amazon Pinpoint Users)

The procedures in this section show you how to create a project and verify an email address. If you’ve never created a project in Amazon Pinpoint, complete the procedures in this section.

If your Amazon Pinpoint account includes one or more existing projects, you should complete the steps in Option 2: Create and Configure a Project (Existing Amazon Pinpoint Users) (p. 5) instead.

To create a project and verify an email address

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. If this is your first time using Amazon Pinpoint, you see a page that introduces you to the features of the service.
   In the Get started section, enter a name for your project, and then choose Create a project.
   Note
   The project name can contain up to 64 characters.
3. On the Configure features page, next to Email, choose Configure.
4. For Email address, type an email address that you want to use to send email. For example, you can use your personal email address, or your work email address. Choose Verify.

If you use this tutorial to send 5 messages to 5 separate endpoints in one month, you incur charges of $0.0005.

For detailed information about the costs that you might incur using Amazon Pinpoint, see Amazon Pinpoint Pricing.

Next: Create and Configure a Project (p. 4)
5. Wait for 1–2 minutes, and then check the inbox for the email address that you specified in step 4. You should see an email from Amazon Web Services (no-reply-aws@amazon.com) with the subject line "Amazon Web Services – Email Address Verification Request in region RegionName", where RegionName is the name of the AWS Region that you're configuring Amazon Pinpoint in.

6. Open the email, and then click the link in the body of the email.

7. Return to the Amazon Pinpoint console in your browser. On the Set up email page, choose Save.

Option 2: Create and Configure a Project (Existing Amazon Pinpoint Users)

The procedures in this section show you how to create a project and verify an email address. If your Amazon Pinpoint account includes one or more existing projects, complete the procedures in this section.

If you've never created a project in Amazon Pinpoint, you should complete the steps in Option 1: Create and Configure a Project (New Amazon Pinpoint Users) (p. 4) instead.

To create a project and verify an email address

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.

2. On the All projects page, choose Create a project.

3. On the Create a project window, for Project name, enter a name for your project, and then choose Create.

   Note
   The project name can contain up to 64 characters.

4. On the Configure features page, next to Email, choose Configure.

5. For Email address, type an email address that you want to use to send email. For example, you can use your personal email address, or your work email address. Choose Verify.

6. Wait for 1–2 minutes, and then check the inbox for the email address that you specified in step 4. You should see an email from Amazon Web Services (no-reply-aws@amazon.com) with the subject line "Amazon Web Services – Email Address Verification Request in region RegionName", where RegionName is the name of the AWS Region that you're configuring Amazon Pinpoint in.

7. Open the email, and then click the link in the body of the email.

8. Return to the Amazon Pinpoint console in your browser. On the Set up email page, choose Save.

Your account is now ready to send email from the email address that you verified. You can add additional email addresses later.

You can also verify entire domains. When you verify a domain, you can send email from any address on that domain. For more information, see the section called “Verifying a Domain” (p. 30).

Next: Import Customer Data and Create a Segment (p. 5)

Step 2: Import Customer Data and Create a Segment

A segment is a group of your customers that share certain attributes. For example, a segment might contain all of your customers who use version 2.0 of your app on an Android device, or all customers who live in the city of Los Angeles.

When you create a campaign, you have to choose a segment to send the campaign to. You can send multiple campaigns to a single segment, and you can send a single campaign to multiple segments.
There are two types of segments that you can create in Amazon Pinpoint:

- **Dynamic segments** – Segments that are based on attributes that you define. Dynamic segments can change over time. For example, if you add new endpoints to Amazon Pinpoint, or if you modify or delete existing endpoints, the number of endpoints in that segment may increase or decrease. For more information about dynamic segments, see Building Segments (p. 108).

- **Imported segments** – Segments that are created outside of Amazon Pinpoint and saved in CSV or JSON format. Imported segments are static—that is, they never change. When you create a new segment, you can use an imported segment as a base segment, and then refine it by adding filters. For more information about importing segments, see Importing Segments (p. 113).

In this tutorial, you create an imported segment by uploading a file from your computer. Next, you create a dynamic segment that is based upon the imported segment.

**Step 2.1: Download and Modify the Sample File**

In this section, you download a file that contains fictitious customer data. You also modify the data to include your own contact information. Later in this tutorial, you use this data to create a segment.

1. In a web browser, download the sample file from https://raw.githubusercontent.com/awsdocs/amazon-pinpoint-user-guide/master/examples/Pinpoint_Sample_Import.csv. Save the file to your computer.
   
   **Tip**
   
   You can quickly save this file to your computer by right-clicking the link, and then choosing Save Link As.

2. Open the file in a text editor or spreadsheet application. On the last row of the file, replace the items in angle brackets (<...>) with your own contact information.
   
   In the Address column, provide the same email address that you verified in Step 1 (p. 4).

   In the User.UserAttributes.Company column, specify a company name that's different from the fictitious company names in the file. You'll use this unique company name when you define the criteria for your targeted segment in the next section.

   **Note**
   
   You don't have to provide your information for each column in the file. However, at a minimum, you have to provide information for the ChannelType, Address, and User.UserAttributes.Company columns. The email that you create later in this tutorial uses several of these fields to create a personalized message.

3. When you finish, save the file.

   **Note**
   
   If you used a spreadsheet application to modify the file, make sure that you save the modified file in Comma-Separated Values (.csv) format. Amazon Pinpoint can only import .csv and .json files.

**Step 2.2: Import a File that Contains Customer Data**

Now that you have a file that contains customer data, you can import it into Amazon Pinpoint. To import customer data, you have to create a new segment.

To create an imported segment

1. In the Amazon Pinpoint console, in the navigation pane, choose Segments.
2. Choose **Create a segment**.
3. On the **Create a segment** page, choose **Import a segment**.
4. In the **Specifications** section, under **Import method**, choose **Upload files from your computer**.
5. Select **Choose files**. Navigate to the **Pinpoint_Sample_Import.csv** file that you downloaded and modified in the previous section.
6. Choose **Create segment**. Amazon Pinpoint copies the file from your computer and creates a segment. Wait for about 1 minute while the import completes.

**Step 2.3: Create a Targeted Segment**

Your Amazon Pinpoint project now contains some customer data, as well as a segment that contains your entire customer list. It also contains your contact information.

In this section, you create a targeted segment. You add segment criteria that filter the segment so that you're the only member of the segment.

**To create the segment**

1. On the **Segments** page, choose **Create a segment**.
2. On the **Create a segment** page, choose **Build a segment**.
3. For **Name**, enter a name for the segment.
4. Under **Segment group 1**, do the following:
   a. Next to **Include endpoints that are in any of the following segments**, choose the **Pinpoint_Sample_Import** segment that you created in the previous step.
   b. Under **Add filters to refine your segment**, from the menu, choose **Filter by channel**.
   c. Next to **Endpoints that match**, choose **all**.
   d. For **Channel**, choose **EMAIL**.
   e. Under **Add filters to refine your segment**, from the menu, choose **Filter by user**.
   f. In the **User** filter, use the menu to choose **Company**. Next, use the **Choose values** menu to choose the unique company name that you specified for your own contact record in step 2.1 (p. 6).
   g. Choose **Add an attribute or metric**.
   h. In the new filter, use the menu to choose **First Name**. Next, use the **Choose values** menu to choose your first name.
   i. Choose **Create segment**.

**Next:** Create and Schedule a Campaign (p. 7)

**Step 3: Create and Schedule a Campaign**

A **campaign** is a messaging initiative that engages a specific audience segment. A campaign sends tailored messages on the days and times that you specify. You can use the console to create a campaign that sends messages through the email, push notification, or SMS channels.

In this section, you create an email campaign. You create a new campaign, choose your target segment, and create a responsive email message for the campaign. When you finish setting up the message, you choose the day and time when you want the message to be sent.
Step 3.1: Create the Campaign and Choose a Segment

When you create a segment, you first give the segment a name. Next, you choose the segment that the campaign applies to. In this tutorial, you choose the segment that you created in Step 2.3 (p. 6).

To create the campaign and choose segment

1. In a web browser, download the sample file from https://raw.githubusercontent.com/awsdocs/amazon-pinpoint-user-guide/master/examples/Pinpoint_Sample_Email.html. Save the file to your computer.

   **Tip**
   You can quickly save this file to your computer by right-clicking the link, and then choosing Save Link As.

2. Open the file that you just downloaded in a text editor, such as Notepad (Windows) or TextEdit (macOS). Press Ctrl+A (Windows) or Cmd+A (macOS) to select all of the text. Then, press Ctrl+C (Windows) or Cmd+C (macOS) to copy it.

3. In the Amazon Pinpoint console, in the navigation pane, choose Campaigns.

4. Choose Create a campaign.

5. Under Campaign details, for Campaign name, enter a name for the campaign.

6. For Campaign type, choose Standard campaign.

7. For Choose a channel for this campaign, choose Email.

8. Choose Next.

9. On the Choose a segment page, choose Use an existing segment. Then, for Segment, choose the targeted segment that you created in Step 2.3 (p. 7). Choose Next.

Step 3.2: Create the Campaign Message

After you specify a campaign name and choose a segment, you can create your message. This tutorial includes a link to an HTML file that you can use to create your message.

This sample file uses responsive HTML to create a message that renders properly on both computers and mobile devices. It uses inline CSS to provide compatibility with a wide variety of email clients. It also includes tags that are used to personalize the message with the recipient's name and other personal information.

To create the message

1. On the Create your message page, under Message content, choose Create a new message.

2. For Subject, enter a subject line for the email.

3. Under Message, erase the sample HTML code that's shown in the editor. Paste the HTML code that you copied in the first step in this section.

4. (Optional) Modify the content of the message to include a message that you want to send.

   You can personalize the message for each recipient by including the name of an attribute inside two sets of curly braces. For example, the sample message includes the following text: 
   `{{User.UserAttributes.FirstName}}`. This code represents the User.UserAttributes.FirstName attribute, which contains the recipient's first name. When you send the campaign, Amazon Pinpoint removes this attribute name and replaces it with the appropriate value for each recipient.
You can experiment with other attribute names. Refer to the column headers in the spreadsheet that you imported in Step 2.2 (p. 6) for complete list of attribute names that you can specify in your message.

Tip
You can use Design view to edit the content of the message without having to edit the HTML code. To use this view, choose Design from the view selector above the message editor, as shown in the following image.

5. Choose Next.

Step 3.3: Schedule the Campaign

The last step in creating the campaign is to choose when to send it. In Amazon Pinpoint, you can set up your campaigns so that they're sent immediately after you launch them. You can also schedule them to be sent in the future—anywhere from 15 minutes from the current time, to six months into the future. Finally, you can schedule your messages to be sent on a recurring basis (that is, hourly, daily, weekly, or monthly). Recurring campaigns are a great way to send account or status updates where the appearance of the campaign message stays the same over time, but is populated with information that changes dynamically.

In this section, you schedule your campaign to be sent immediately after you launch it.

To schedule the campaign

1. On the Choose when to send the campaign page, choose At a specific time. Then, under Choose when the campaign should be sent, choose Immediately. Finally, choose Next.
2. On the Review and launch page, review all of the details of the campaign. When you're ready to send it, choose Launch campaign.

Congratulations—you've created your first campaign with Amazon Pinpoint! Because you're the only member of the segment that you created in Step 2.3 (p. 7), you should receive the message in your inbox within a few seconds.

Next: View Campaign Analytics (p. 9)

Step 4: View Campaign Analytics

At this point, you've created a segment that you're a member of. You've also created an email campaign and sent it to yourself. In this section, you look at the delivery and response metrics for the campaign.
Step 4.1: Interact with Your Campaign

Before you can view the delivery and response metrics for your campaign, you have to interact with the message that you sent yourself in Step 3 (p. 7).

To interact with the email

1. In your email client, open the message that you sent yourself in Step 3 (p. 7).
2. If your email client automatically hides images by default, choose the Download pictures (or equivalent) button to load the images in the message.
3. Choose one or more of the links that are contained in the message.
4. Wait for a few minutes, and then proceed to the next section.

Step 4.2: View Metrics for the Campaign

After you interact with the email that you sent from the campaign, you can view the metrics for the campaign.

To view the campaign metrics

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you used to send the campaign.
3. In the navigation pane, under Analytics, choose Campaigns.
4. In the Campaigns section, choose the campaign that you created in Step 3 (p. 7).
5. (Optional) Use the date control to choose a date range for the reports on this page.

On the metrics page for your campaign, you see the following information:

- **Delivery count metrics** – This section provides information about the delivery of the messages that were sent from your campaign. It includes the following information:
  - **Messages sent** – The number of messages that were sent.
  - **Messages delivered** – The number of messages that were delivered to their recipients.
  - **Links clicked** – The number of times that links in the messages were clicked by recipients. If a single recipient clicks a link more than once, each click is represented in this section.
  - **Endpoint deliveries** – The average number of endpoints that the campaign was sent to, for each day in the chosen date range. The chart shows the number of endpoints that the campaign was delivered to, for each day in the chosen date range.

- **Delivery rate metrics** – This section shows the overall delivery and response rates for the messages that were sent from your campaign. It includes the following information:
  - **Delivery rate** – The percentage of messages that were delivered to recipients, of the total number of endpoints that you targeted in the segment that you sent this campaign to.
  - **Email open rate** – The percentage of messages that were opened by recipients, of the total number of messages that were delivered.
  - **Bounce rate** – The percentage of messages that weren't delivered to recipients because they bounced. This value includes only hard bounces—that is, messages that bounced because of a permanent issue. For example, hard bounces could occur when the recipient's email address doesn't exist, or when the recipient permanently rejects email from your domain.
  - **Campaign runs** – This section shows information that's specific to each time the campaign ran. Because you can use Amazon Pinpoint to create recurring campaigns, this section can show information for several campaign runs. However, if you completed the procedures in this tutorial, this section contains information for only one campaign run because you ran the campaign only
once. This section contains the following metrics, in addition to the metrics that are defined in the preceding sections:

- **Endpoints targeted** – The number of endpoints that were targeted by the segment that was associated with the campaign run. This number includes endpoints that were part of the segment, but didn't receive the message.

- **Total email opened** – The total number of times that messages sent from the campaign run were opened. For example, if a message was opened two times by one recipient, both of those opens are counted.

Next: Next Steps (p. 11)

### Next Steps

We hope that you use this tutorial as a starting point as you discover the additional capabilities of Amazon Pinpoint. For example:

- You can improve the delivery of your email campaigns by making sure that your campaigns align with industry best practices. For more information, see Tips and Best Practices (p. 61).

- You can verify an entire domain, which allows you to send email from any address on that domain. For more information about verifying domains, see Verifying a Domain (p. 30).

- You can obtain dedicated IP addresses for sending your email. Dedicated IP addresses are a great option for sending email in certain use cases. For more information, see Using Dedicated IP Addresses with Amazon Pinpoint (p. 39).

- You can enable the Amazon Pinpoint Deliverability dashboard. The Deliverability dashboard helps you identify issues that could impact the delivery of your emails. For more information, see The Amazon Pinpoint Deliverability Dashboard (p. 46).

- You can send messages through other channels, such as SMS or push. Before you can use these channels, you have to enable and configure them on the Settings page. For more information about using the Settings page to enable and configure channels, see Amazon Pinpoint Settings (p. 236).

- You can send data about your campaigns outside of Amazon Pinpoint. For example, you can send delivery and response data for your campaigns to Amazon S3 for long-term storage. You can also send data to Amazon Redshift to perform custom analyses. For more information about sending your data outside of Amazon Pinpoint, see Event Stream Settings (p. 249).

- You can integrate Amazon Pinpoint with your apps, or interact with Amazon Pinpoint programmatically, by using an AWS SDK. For more information, see the Amazon Pinpoint Developer Guide.
Amazon Pinpoint Tutorials

The tutorials in this section are intended to show Amazon Pinpoint users how to complete several important tasks. If you're new to Amazon Pinpoint, or if you're just unfamiliar with certain features, these tutorials are a great place to start.

Topics in this section:
- Send an Email Using Amazon Pinpoint (p. 12)
- Create a Segment (p. 17)

Send an Email Using Amazon Pinpoint

This tutorial contains a complete set of procedures for using Amazon Pinpoint to send an email to a predefined segment of customers.

This tutorial is intended to be used by marketers, people who are new to Amazon Pinpoint, or existing Amazon Pinpoint customers who want to send email by using the Amazon Pinpoint console.

Topics in this section:
- Step 1: Create a New Amazon Pinpoint Project (p. 12)
- Step 2: Upload a List of Segment Members to Amazon S3 (p. 13)
- Step 3: Create a Segment (p. 14)
- Step 4: Create a Campaign (p. 14)
- Conclusion and Next Steps (p. 15)

Step 1: Create a New Amazon Pinpoint Project

Before you can send email using Amazon Pinpoint, you first have to create a project. A project is a collection of settings, segments, campaigns, and analytics for a specific set of customer engagements.

Part of creating an email campaign involves verifying an identity. In Amazon Pinpoint, an identity is an email address or domain that you use to send email. Before you can send email using Amazon Pinpoint, you must verify each identity that you plan to use as a "From", "Source", "Sender", or "Return-Path" address to prove that you own it. If your account is still in the Amazon Pinpoint sandbox, you also need to verify the identities that you plan to send emails to.

The procedure in this section shows you how to create a new email project by using the Amazon Pinpoint console.

To create a new Amazon Pinpoint project and verify an email address
1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose Create a project.
3. For Project name, enter a name, and then choose Create.
Step 2: Upload Segment Members to Amazon S3

To create a segment of customers that you can use with this tutorial in Amazon Pinpoint, you first have to upload a spreadsheet that contains those customers’ contact details to an Amazon S3 bucket.

In Amazon S3, a bucket is a container that you use to store files and folders. Each bucket can have its own permission settings. For example, you can set up a bucket so that its contents are accessible to anyone who has the address of the bucket. Or you could set it up so that its contents are only available to you. To learn more about Amazon S3, see Introduction to Amazon S3 in the Amazon Simple Storage Service Developer Guide.

To create a list of contacts and upload it to Amazon S3

1. In a spreadsheet application, create a spreadsheet that contains information about the contacts that you want to send email to. Use the following template as an example. Change the values in the Address, User.UserAttributes.FirstName, and User.UserAttributes.LastName fields to represent the people who you want to contact. Don’t change the column headings or the values in the ChannelType column.

<table>
<thead>
<tr>
<th>ChannelType</th>
<th>Address</th>
<th>User.UserAttributes.FirstName</th>
<th>User.UserAttributes.LastName</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMAIL</td>
<td><a href="mailto:john.stiles@example.com">john.stiles@example.com</a></td>
<td>John</td>
<td>Stiles</td>
</tr>
<tr>
<td>EMAIL</td>
<td><a href="mailto:wang.xiulan@example.com">wang.xiulan@example.com</a></td>
<td>Wang</td>
<td>Xiulan</td>
</tr>
<tr>
<td>EMAIL</td>
<td><a href="mailto:carlos.salazar@example.com">carlos.salazar@example.com</a></td>
<td>Carlos</td>
<td>Salazar</td>
</tr>
</tbody>
</table>

2. Replace the values in the template with names and email addresses of people you want to contact.

Important
If this is your first time using Amazon Pinpoint, your account is in the sandbox. When your account is in the sandbox, you can only send email to verified identities. If you want to send email to identities you haven’t verified, complete the procedure in Requesting Production Access for Email (p. 32).

When you finish, save the file to your computer in comma-separated values (CSV) format.

3. Open the Amazon S3 console at https://console.aws.amazon.com/s3/.

4. Choose Create bucket.
5. On the Create bucket dialog box, for Bucket name, type a name for the bucket, and then choose Create.
6. In the list of buckets, choose the bucket that you created in the previous step.
7. Choose Create folder. Type a name for the folder, and then choose Save.
   Make a note of both the name of the bucket and the name of the folder (you need to provide both of these values in a later step).
8. In the folder you just created, choose Upload, and then choose Add files. Upload the spreadsheet that you created earlier in this section.

Next: Create a Segment » (p. 14)

Step 3: Create a Segment

Now that you've uploaded a spreadsheet that contains the contact information for your customers, you can use that spreadsheet to create a new segment in Amazon Pinpoint.

A segment is a group of customers that you want to target for a campaign. Usually, members of a segment have certain characteristics in common with each other. For example, segment members might all live in the same city, or they might have purchased the same item from you in the past.

When you create a segment in Amazon Pinpoint, you can reuse it later in a different campaign.

To create a segment based on a spreadsheet that's stored in Amazon S3
1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. Choose the project that you created in the first section of this topic.
3. In the navigation pane, choose Segments, and then choose Create a segment.
4. On the Create a segment page, do the following:
   a. Choose Import a segment.
   b. For Segment name, enter a name for the segment.
   c. For Amazon S3 URL, enter the following:

      \s3://bucketName/folderName

   Replace bucketName with the name of the Amazon S3 bucket that you created in the previous section. Replace folderName with the name of the folder that you created in the previous section.
   d. Under IAM role, choose Automatically create a role, and then type a name for the role.
   e. Under What type of file are you importing?, choose Comma-Separated Values (CSV).
   f. Choose Create segment. The Scheduled imports page appears.
5. Wait for a few minutes, and then refresh the page. If the value in the Import status column is Completed, proceed to the next section. Otherwise, repeat this step until the segment import process is complete.

Next: Create a Campaign » (p. 14)

Step 4: Create a Campaign

After you create a segment, you can create a campaign and schedule Amazon Pinpoint to send it to your segment.
In Amazon Pinpoint, a campaign refers to a single message that you send to a segment. If you've used other digital user engagement tools in the past, you might have used phrases like "tactics" or "campaign elements" to refer to the same concept.

To create a new campaign

1. In the navigation pane, choose Campaigns, and then choose Create a campaign.
2. For Campaign name, enter a name for the campaign.
3. Under Campaign type, choose Standard campaign, and then choose Next.
4. On the Choose a segment page, choose Use an existing segment. Then, for Segment, choose the segment that you created in the previous section. Choose Next step.
5. On the Create your message page, do the following:
   a. Under Choose a channel for this campaign, choose Email.
   b. Under Email details, for Message content, choose Create a new message.
   c. For Subject, enter the subject line of the email.
   d. For Message, enter the body of the email.
   Tip
   You can enter the email body by using either HTML or Design view. In the HTML view, you can manually enter HTML content for the email body, including formatting, links, and other features that you want to include in the message. In the Design view, you can use a rich text editor to enter the content, and you can use the formatting toolbar to apply formatting and add links and other features to the content. To switch views, choose HTML or Design from the view selector above the message editor.
   You can also include personalized content in your message. You do this by adding the name of an attribute from the spreadsheet that you imported into Amazon Pinpoint. When you specify an attribute in this way, surround the attribute name with two sets of curly braces. For example, you could include the recipient's first name in the body of the message by typing {{User.UserAttributes.FirstName}} in the body of the message.
   e. When you finish, choose Next.
6. On the Schedule your campaign page, for How often should this campaign be sent?, choose Immediately, and then choose Next.
   Note
   You can also choose to schedule the delivery of your message for a specific date and time. To schedule the delivery of your message, choose Once, and then specify the date and time when you want Amazon Pinpoint to send the email.
   If you want to send the message on a recurring basis, choose one of the other schedule options, such as Daily or Weekly, and then specify the start and end times.
7. On the Review and launch page, confirm that the campaign is set up correctly, and then choose Launch campaign.

Next: Next Steps » (p. 15)

Conclusion and Next Steps

By completing this tutorial, you've accomplished the following:

- Created a new Amazon Pinpoint project.
- Verified an email address or domain that you can use to send email from Amazon Pinpoint.
- Created a spreadsheet that contains contact information for a list of contacts, and then uploaded that spreadsheet to Amazon S3.
• Created a new segment that uses the contact information in the spreadsheet that you uploaded to Amazon S3.
• Created a new email campaign and sent it to your segment.
• Reviewed the delivery and response metrics for your campaign.

What's Next?

Now that you know how to send an email in Amazon Pinpoint, you're ready for some more advanced steps. The following sections provide information about other Amazon Pinpoint features that you can explore.

Get Out of the Sandbox

New Amazon Pinpoint customers are placed in a "sandbox" environment. When your account is in the sandbox, you can only send email to verified email addresses. Additionally, you can send a maximum of 200 messages in a 24-hour period, and a maximum of 1 message per second.

We put new accounts in the sandbox in order to prevent unscrupulous users from creating multiple accounts and using them to send unsolicited or malicious email. In order to have your account removed from the sandbox, you have to demonstrate that you follow industry best practices, and that your email sending practices abide by the policies in the AWS Service Terms and AWS Acceptable Use Policy documents.

For information about having your account removed from the sandbox, see Managing Email Sending Quotas (p. 34).

View Your Response Metrics

After you send a message, Amazon Pinpoint automatically monitors how your customers interact with that message. For example, when you send email to a segment of customers, Amazon Pinpoint keeps track of how many emails were delivered. It also tracks the number of customers that opened the email, and the number who unsubscribed after receiving the email. You can view these metrics directly in the Amazon Pinpoint console.

To view the response metrics for your campaign

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. Choose the project that you want to view response metrics for.
3. In the navigation pane, under Analytics, choose Campaigns.
4. In the list of campaigns at the bottom of the page, choose a campaign. The campaign details page appears. This page tells you how many messages were sent, how many were delivered, how many bounced, and how many were opened. It also tells you the date and time when each campaign run occurred. If you sent the message once, you see information for only one campaign run. If you sent a message on a recurring basis, you see information for each time Amazon Pinpoint sent the message.

Send Messages in Other Channels

If your customers consent to being contacted by other channels, such as SMS or push notifications, you can use Amazon Pinpoint to send messages through those channels as well. The process for sending through other channels is similar to the process that you used to send email in this tutorial.

When you send messages by using other channels, you need to modify a few of the procedures in this tutorial:
• When you create a new project, specify a different channel type.
When you upload a list of segment members, include their mobile phone numbers (for SMS messages) or their app tokens (for push notifications).

For more information about other messaging channels in Amazon Pinpoint, see Amazon Pinpoint Channels (p. 24).

Create a Segment

This tutorial contains a complete set of procedures for using Amazon Pinpoint to create a segment. The segment you create in this tutorial includes several attributes. It also excludes customers who are members of a separate “blacklist” segment.

It can be helpful to create blacklist segments when you have groups of users that you consistently need to exclude from your communications. For example, you might want to send a message to all users of your app, except for those who use version 4.2.

Topics in this section:
- Prerequisites (p. 17)
- Create the Segment (p. 18)

Prerequisites

You can use Amazon Pinpoint to create segments based on certain criteria that you define. These criteria can be things such as the date an endpoint was last active, the device type and operating system, and even custom attributes that are specific to your project.

Before you create your segment, you should understand some of the terms and concepts involved in creating segments. You also have to create the base segments that serve as the foundation for the segment you’re building.

Segmentation Terms

You should familiarize yourself with several terms and concepts before you start creating segments in Amazon Pinpoint.

Segment Group

A segment group consists of two parts: base segments and filters. Base segments are the segments that define the potential population of the segment. Filters are criteria that you apply on top of the base segments to further refine the segment. In the Amazon Pinpoint console, you can create up to two segment groups. Segment groups can be joined together using AND or OR logic. You can add several different filters within each segment group.

Filters

Each segment group contains one or more filters. These filters can be based on channel, endpoint or user attributes. For instance, if you wanted to send an email campaign, you can create a filter that makes it so that the segment only includes endpoints in the Email channel. The other filters types (endpoints and users) help you further refine the segment based on the attributes of the user and the user's device.

Filter logic

When you add more than one filter to a segment group, you can choose how the filters are related to each other. Filters can be connected by using the following operators:
• **All** – When you choose this option, the segment contains only the members of the base segments that meet all of the filter criteria. For example, if you filter users whose favorite coffee drink is a latte AND whose favorite kind of donut is chocolate, your segment only contains users who meet both criteria.

• **Any** – When you choose this option, the segment contains members of the base segments that meet any one of the filter criteria. For example, if you filter users whose favorite coffee drink is a latte OR whose favorite kind of donut is chocolate, your segment contains users who meet one or both of the criteria.

• **None** – When you choose this option, the segment contains only the members of the base segments that don't meet any of the filter criteria. For example, if you filter users whose favorite coffee drink is NOT a latte, your segment contains users whose favorite coffee drink is every other type of drink except for a latte.

**Segment group logic**

If your segment contains two segment groups, you can choose how the two groups are connected. You can connect segment groups using the following operators:

• **AND** – When you choose this option, the segment contains only the members that meet the criteria of both segment groups.

• **OR** – When you choose this option, the segment contains the members who meet the criteria in either of the segment groups.

**Create Your Base Segment**

To complete this tutorial, you need to create at least two base segments. The first base segment includes the entire universe of customers that you might want to contact. The second segment contains the list of customers that you explicitly don't want to contact (your blacklist segment).

There are two ways to create segments in Amazon Pinpoint. The fastest method is to create a spreadsheet that contains the endpoint information for the segment. For more information about importing segments, see Importing Segments (p. 113).

The other method of creating a segment is to integrate Amazon Pinpoint with your apps, and then create dynamic segments based on the usage data that your apps report to Amazon Pinpoint. For more information about creating dynamic segments, see Building Segments (p. 108). For more information about integrating your apps with Amazon Pinpoint, see Integrating Amazon Pinpoint with Your Application in the *Amazon Pinpoint Developer Guide*.

**Create the Segment**

There are two steps involved in creating a dynamic segment. First, you set up the segment. Next, you set up the segment groups for the segment.

**Step 1: Set Up the Segment**

To start building your segment, you first create a new segment and give it a name. You also have to choose whether you’re creating a dynamic segment or importing one. In this tutorial, you create a new dynamic segment.

**To create a segment**

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. On the **All projects** page, choose the project that you want to create the segment in.
3. In the navigation pane, choose **Segments**.
4. Choose **Create a segment**.
5. Under **Create a segment**, choose **Build a segment**.

![Create a segment](image)

6. For **Name**, enter a name for the segment to make it easy to recognize later.

**Step 2: Add the First Segment Group**

Now that you’ve created your segment, you can add the first segment group to it. The first segment group should contain all of the customers who should be eligible for the segment. In the section after this, you’ll specify your blacklist segment in order to exclude certain recipients.

1. Under **Segment Group 1**, next to **Include endpoints that are in**, choose one of the following options:
   - **any** – If you use more than one segment as a base segment, your new segment contains endpoints that are in at least one of the segments you select.
   - **all** – If you use more than one segment as a base segment, your new segment only contains endpoints that are in all of the selected segments.
2. Next to **of the following segments**, choose the segment or segments that you want to use as base segments, as shown in the following image.

   **Tip**
   The menu doesn’t close when you select the first base segment. If you want to use several base segments, you can continue to select segments as necessary. When you’re done choosing segments, choose an area outside the menu to close it.

![Segment group 1](image)

3. For **Add a filter**, choose the type of filter that you want to add to the segment. You can choose from the following options:
• **Filter by channel** – Use this option to filter the segment based on the channel of the recipient's endpoint. For example, when you choose **EMAIL**, your segment only contains endpoints that can receive email.

• **Filter by endpoint** – Use this option to filter by endpoint-specific attributes. When you select this option, you specify how recently the endpoint was active, or how long it's been inactive. After that, you can optionally specify additional attributes associated with that endpoint. For example, this filter could include all customers who were active within the past 7 days and used an iPhone to access your app, as shown in the following image.

![Filter example](image)

You can add several attributes to this filter. To add another attribute, choose **Choose an endpoint attribute**.

• **Filter by user** – Use this option to filter the segment based on user attributes. User attributes are those attributes that are specific to the actual customers, as opposed to endpoint attributes, which focus more on the specific endpoints that customers use to interact with your app. For example, you could set up this filter to include all users who are female, as shown in the following image.

![Filter example](image)

You can add several attributes to this filter. To add another attribute, choose **Choose a user attribute**.

You can add several filters to a single segment group, and each filter can include several attributes.

If the segment group includes more than one filter, you can specify how the filters are related to each other. For example, you can set up the filter section to include customers who meet any of the filter criteria you specified, or to include only those customers who meet all of the specified criteria, or even to include only those customers who meet none of the specified criteria. To change this setting, change the value next to **Endpoints that match**, as shown in the following image.
Step 3: Add the Blacklist Segment Group

Now that you've specified which customers should be added to the segment, you can create another segment that excludes your blacklist.

Note
If you use an imported segment as the base segment for your first segment group, you can't create a second segment group.

1. When you finish setting up the first segment group, choose **Add another segment group**. When you add another segment group, you have to specify how it relates to the first segment group, as shown in the following image. For this example, choose **AND**, as shown in the following image.
2. Next to **Include endpoints that are in**, choose **none**. Then, next to **of the following segments**, choose the segment that you want to exclude. These steps are shown in the following image.
3. Choose Create segment.
Amazon Pinpoint Channels

A channel represents the platform through which you engage your audience segment with messages. For example, to send push notifications to users of your apps, you must have an Amazon Pinpoint project in which the push notifications channel is enabled. Amazon Pinpoint supports the following channels:

- Push notifications (p. 24)
- Email (p. 27)
- SMS (p. 65)
- Voice (p. 100)

In addition to these channels, you can also extend the capabilities to meet your specific use case by creating custom channels (p. 107).

Before you can use Amazon Pinpoint to engage your audience, you have to create an Amazon Pinpoint project. After you create a project, you can use it to send campaigns. To engage your customers using campaigns, start by defining the audience segment (p. 108) that you want to engage. Next, define that campaign (p. 123) that you want to send to the segment.

Topics in this section
- Amazon Pinpoint Push Notification Channels (p. 24)
- Amazon Pinpoint Email Channel (p. 27)
- Amazon Pinpoint SMS Channel (p. 65)
- Amazon Pinpoint Voice Channel (p. 100)
- Custom Channels in Amazon Pinpoint (p. 107)

Amazon Pinpoint Push Notification Channels

With Amazon Pinpoint, you can engage your mobile app users by sending push notifications through a push notification channel. You can send push notifications to Android and iOS apps using separate channels for the following push notification services:

- Firebase Cloud Messaging (FCM)
- Apple Push Notification service (APNs)
- Baidu Cloud Push
- Amazon Device Messaging (ADM)

Topics
- Setting Up Amazon Pinpoint Mobile Push Channels (p. 24)
- Monitoring Push Notification Activity with Amazon Pinpoint (p. 25)
- Managing Mobile Push Channels with Amazon Pinpoint (p. 25)

Setting Up Amazon Pinpoint Mobile Push Channels

Before you can use Amazon Pinpoint to send push notifications to your app, you first have to create a project and enable the push notifications channel. After you create a project in Amazon Pinpoint, you can
update your push notification credentials on the **Push notifications** settings page. For more information, see *Push Notification Settings* (p. 247).

**To create a new Amazon Pinpoint project and enable the push notifications channel**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the **All projects** page, choose **Create a project**.
3. For **Project name**, enter a name, and then choose **Create**.
   - **Note**
     The project name can contain up to 64 alphanumeric characters. It can also include the following characters: comma (,), period (.), at sign (@), underscore (_), equals sign (=), and plus sign (+).
4. Under **Push notifications**, choose **Configure**.
5. Under **Push notification services**, choose the push notification services that you want to enable for this project. Provide the required credentials for the services you selected.
6. When you finish, choose **Save**.

**Monitoring Push Notification Activity with Amazon Pinpoint**

For push notifications that you send as part of a campaign, Amazon Pinpoint provides options for monitoring your push notification activity.

- **Note**
  To monitor push notification activity, you must use a campaign. You can't monitor push notification activity outside a campaign.

**Amazon Pinpoint Analytics**

The Analytics pages on the Amazon Pinpoint console provide charts and metrics that show trends related to user engagement, campaign outreach, revenue, and more. For example, you can view the number of endpoints that you can send push notifications to, the number of endpoints that you've already sent push notifications to, and the open rates for push notifications that you've already sent. You can view these charts and metrics across all of your campaigns, or for individual campaigns.

**To view campaign analytics in the Amazon Pinpoint console**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the **All projects** page, choose the project that you want to view analytics data for.
3. In the navigation pane, under **Analytics**, choose **Campaigns**.
4. (Optional) Choose a campaign from the **Campaigns** table to view metrics that are specific to that campaign.

For more information, see *Amazon Pinpoint Analytics* (p. 175).

**Managing Mobile Push Channels with Amazon Pinpoint**

Using the console, you can update the credentials that allow Amazon Pinpoint to send push notifications to iOS and Android devices. You can provide credentials for the following push notification services, each of which is supported by an Amazon Pinpoint channel:
To update push notification settings

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to manage push notification settings for.
3. In the navigation pane, under Settings, choose Push notifications.
4. Next to Push notifications, choose Edit.
5. On the Edit push notifications page, you can update your credentials for the following services:
   - **APNs** – Requires an authentication token signing key or a TLS certificate, which you get from your Apple developer account. For more information, see the next section, Managing APNs Settings.
   - **FCM** – Requires a Web API Key (also referred to as an API_KEY or server key), which you get from the Firebase console. For more information about obtaining FCM credentials, see Credentials in the Firebase documentation.
   - **Baidu Cloud Push** – Requires an API key and a secret key, which you get from your Baidu Cloud Push project.
   - **Amazon Device Messaging** – Requires the OAuth credentials (Client ID and Client Secret) from your Amazon Developer account. For more information, see Obtain Credentials in the Amazon Device Messaging developer documentation.
6. When you finish, choose Save.

Managing APNs Settings

On the Push notifications settings page for APNs, you can authorize Amazon Pinpoint to send push notifications to your iOS app by providing information about your APNs key or certificate:

**Key**

A private signing key used by Amazon Pinpoint to cryptographically sign APNs authentication tokens. You obtain the signing key from your Apple developer account.

If you provide a signing key, Amazon Pinpoint uses a token to authenticate with APNs for every push notification that you send. With your signing key, you can send push notifications to APNs production and sandbox environments.

Unlike certificates, your signing key doesn't expire. You only provide your key once, and you don't need to renew it later. You can use the same signing key for multiple apps. For more information, see Communicate with APNs using authentication tokens in Xcode Help.

**Certificate**

A TLS certificate that Amazon Pinpoint uses to authenticate with APNs when you send push notifications. An APNs certificate can support both production and sandbox environments, or it can support only the sandbox environment. You obtain the certificate from your Apple developer account.

A certificate expires after one year. When this happens, you must create a new certificate, which you then provide to Amazon Pinpoint to renew push notification deliveries. For more information, see Communicate with APNs using a TLS certificate in Xcode Help.
To manage APNs settings

1. For Authentication type, choose Key credentials or Certificate credentials to manage the settings for that type.
   • If you choose Key credentials, provide the following information from your Apple developer account. Amazon Pinpoint requires this information to construct authentication tokens.
     • Key ID – The ID that's assigned to your signing key. To find this value, choose Certificates, IDs & Profiles, and choose your key in the Keys section.
     • Bundle identifier – The ID that's assigned to your iOS app. To find this value, choose Certificates, IDs & Profiles, choose App IDs in the Identifiers section, and choose your app.
     • Team identifier – The ID that's assigned to your Apple developer account team. This value is provided on the Membership page.
     • Authentication key – The .p8 file that you download from your Apple developer account when you create an authentication key. Apple allows you to download your authentication key only once.
   • If you choose Certificate credentials, provide the following information:
     • SSL certificate – The .p12 file for your TLS certificate. You can export this file from Keychain Access after you download and install your certificate from your Apple developer account.
     • Certificate password – If you assigned a password to your certificate, specify it here.

2. For Production support, choose Yes if your certificate supports sending push notifications to the APNs production environment.
   Important
   Don't enable this option if your certificate only supports the sandbox environment.

3. For Default authentication type, choose whether Amazon Pinpoint authenticates with APNs using your signing key or your TLS certificate by default. Amazon Pinpoint uses this default for every APNs push notification that you send using the console. You can override the default when you send a message programmatically by using the Amazon Pinpoint API, the AWS Command Line Interface (AWS CLI), or an AWS SDK. If your default authentication type fails, Amazon Pinpoint doesn't attempt to use the other authentication type.

4. When you finish, choose Save.

Amazon Pinpoint Email Channel

To engage your user segment with email campaigns and messages, enable the email channel in Amazon Pinpoint.

When you initially enable the email channel, your AWS account has access only to the email sandbox. With sandbox access, you can send 200 emails per 24-hour period at a maximum rate of one email per second. In addition, you can send email only to addresses that you verify. To increase these sending quotas and to send email to unverified email addresses, request production access for email (p. 32).

You can monitor your email activity (p. 32) by viewing analytics in the Amazon Pinpoint console or by streaming email events to Kinesis.

As your email needs change, you can manage your email channel by updating your email address or domain (p. 33) or requesting an increase to your sending quotas (p. 34).

Topics
• Setting Up the Amazon Pinpoint Email Channel (p. 28)
• Monitoring Email Activity with Amazon Pinpoint (p. 32)
• Managing the Amazon Pinpoint Email Channel (p. 33)
Setting Up the Amazon Pinpoint Email Channel

To set up the Amazon Pinpoint email channel, you start by creating a new project. Then you specify and verify the email address that you want to use when you send email from that project.

When you enable the email channel for the first time, Amazon Pinpoint doesn't immediately provide production access for email messaging. Instead, your AWS account has access only to the email sandbox, which imposes restrictions on your email traffic. To gain production access, submit a request (p. 32) to AWS Support.

Topics
- Creating an Amazon Pinpoint Project with Email Support (p. 28)
- Verifying Email Identities (p. 29)
- Requesting Production Access for Email (p. 32)
- Tracking Open and Click Events in Email (p. 32)

Creating an Amazon Pinpoint Project with Email Support

To send email with Amazon Pinpoint, you create an Amazon Pinpoint project, enable the email channel for that project, and then specify and verify the email address that you want to use when you send email from the project.

There are two ways to create an Amazon Pinpoint project. You can use the Amazon Pinpoint console or the Amazon Pinpoint API. This section shows you how to create a project by using the console. To learn how to create a project by using the Amazon Pinpoint API, see the Amazon Pinpoint Developer Guide.

After you create a new project, you enable the email channel for the project, and then specify and verify the email identity that you want to use. In Amazon Pinpoint, an identity is an email address or domain that you use to send email. Before you can send email using Amazon Pinpoint, you must verify each identity that you plan to use as a "From", "Source", "Sender", or "Return-Path" address to prove that you own the identity. If your account is still in the Amazon Pinpoint sandbox, you also need to verify the identities that you plan to send email to.

To create a new Amazon Pinpoint project and verify an email address

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose Create a project.
3. For Project name, enter a name, and then choose Create.
   
   **Note**
   The project name can contain up to 64 alphanumeric characters. It can also include the following characters: comma (,), period (.), at sign (@), underscore (_), equals sign (=), and plus sign (+).

4. Under Email, choose Configure.

5. For Email address, enter the email address that you want to use when you send email from the project, and then choose Verify. Amazon Pinpoint sends an email to the address that you entered. Open the email, and then click the link in the message to verify the email address.
Verifying Email Identities

In Amazon Pinpoint, an identity is an email address or domain that you use to send email. Before you can send email by using Amazon Pinpoint, you must verify each identity that you plan to use as a "From," "Source," "Sender," or "Return-Path" address to prove that you own it. If your account is still in the Amazon Pinpoint sandbox, you also need to verify the identities that you plan to send email to.

Before you verify an identity, you have to create a project and enable the email channel for the project. For more information, see Creating an Amazon Pinpoint Project with Email Support (p. 28).

Topics in this section
- Verifying an Email Address (p. 29)
- Verifying a Domain (p. 30)

Verifying an Email Address

If you've already created a project for sending email, you might have already verified an email address. You can verify a different email address by using the Amazon Pinpoint console.

To verify an email address

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to verify an identity for.
3. In the navigation pane, under Settings, choose Email.
4. On the Identities tab, choose Edit.
5. Select Enable the email channel for this project.
6. Under Identity type, choose Email address, and then choose Verify a new email address.
7. For Email address, enter the email address that you want to verify. The email address must be an address that you can access and is able to receive mail.
8. Choose Verify email address.
9. Choose Save.
10. Check the inbox of the address that you entered and look for an email from no-reply-aws@amazon.com. Open the email and click the link in the email to complete the verification process for the email address.

Note
You should receive the verification email within five minutes. If you don't receive the email, do the following:

- Make sure you typed the address correctly.
- Make sure the email address that you're attempting to verify can receive email. You can test this by using another email address to send a test email to the address that you want to verify.
- Check your junk mail folder.

The link in the verification email expires after 24 hours. To resend the verification email, choose Send verification email again.

When you verify an email address, consider the following:

- Amazon Pinpoint has endpoints in multiple AWS Regions and the verification status of an email address is separate for each Region. If you want to send email from the same identity in more than one
Region, you must verify that identity in each Region. You can verify as many as 10,000 identities (email addresses and domains, in any combination) in each AWS Region.

- The local part of the email address, which is the part that precedes the at sign (@), is case sensitive. For example, if you verify user@example.com, you can't send email from USER@example.com unless you verify that address too.

- Domain names are case insensitive. For example, if you verify user@example.com, you can also send email from user@EXAMPLE.com.

- You can apply labels to verified email addresses by adding a plus sign (+) followed by a string of text after the local part of the address and before the at sign (@). For example, to apply label1 to the address user@example.com, use user+label1@example.com. You can use as many labels as you want for each verified address. You can also use labels in the "From" and "Return-Path" fields to implement Variable Envelope Return Path (VERP).

  **Note**
  When you verify an unlabeled address, you are verifying all addresses that could be formed by adding a label to the address. However, if you verify a labeled address, you can't use other labels with that address.

**Verifying a Domain**

When you verify a domain, you verify all the email addresses that are associated with that domain. Therefore, you don't need to verify individual email addresses from the domain. For example, if you verify the example.com domain, you can send email from carlos@example.com, jane@example.com, and any other address from the example.com domain.

Before you can use Amazon Pinpoint to send email from a domain, you have to verify the domain to confirm that you own it and to prevent others from using it.

  **Note**
  To complete the verification process, you have to be able to modify the DNS settings for the domain. The procedures for modifying the DNS settings for a domain vary depending on the DNS or web hosting provider. For information about changing the DNS settings for your domain, see the documentation for your provider.

**To verify a domain**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to verify an identity for.
3. In the navigation pane, under Settings, choose Email.
4. On the Identities tab, choose Edit.
5. Under Identity type, choose Domain, and then choose Verify a new domain.
6. For Domain, enter the domain that you want to verify.
7. For Default sender address, enter the email address that you want to use by default when you send email from this domain. When you send email, you can specify a different address. However, if you don't specify a different address for specific email, Amazon Pinpoint sends the email from this default address.
8. Choose Verify domain.
9. Under DNS records for domain verification, copy the three CNAME records and save them to a location on your computer. Or, to download and save the values in a .csv file, choose Download record set.
10. Log in to the management console for your DNS or web hosting provider, and then create three new CNAME records that contain the values that you saved in the previous step. See the next section for links to the documentation for several common providers.
It usually takes 24–48 hours for changes to DNS settings to propagate. As soon as Amazon Pinpoint detects all three of these CNAME records in the DNS configuration of your domain, the verification process is complete. You can't send email from a domain until the verification process is complete.

When you verify a domain, consider the following:

- You can send email from any subdomain of the verified domain, without verifying the subdomain specifically. For example, if you verify example.com, you don't need to verify a.example.com or a.b.example.com.
- As specified in RFC 1034, each DNS label can have up to 63 characters. In addition, the whole domain name must not exceed a total length of 255 characters.
- Amazon Pinpoint has endpoints in multiple AWS Regions and the verification status of a domain is separate for each Region. If you want to send email from the same identity in more than one Region, you must verify that identity in each Region. You can verify as many as 10,000 identities (domains and email addresses, in any combination) in each AWS Region.

Instructions for Configuring DNS Records for Various Providers

The procedures for updating the DNS records for a domain vary depending on which DNS or web hosting provider you use. The following table lists links to the documentation for several common providers. This list isn't exhaustive and inclusion in this list isn't an endorsement or recommendation of any company's products or services. If your provider isn't listed in the table, you can probably use the domain with Amazon Pinpoint.

<table>
<thead>
<tr>
<th>DNS/Hosting Provider</th>
<th>Documentation Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon Route 53</td>
<td>Creating Records by Using the Amazon Route 53 Console</td>
</tr>
<tr>
<td>GoDaddy</td>
<td>Add a CNAME record (external link)</td>
</tr>
<tr>
<td>Dreamhost</td>
<td>How do I add custom DNS records? (external link)</td>
</tr>
<tr>
<td>Cloudflare</td>
<td>Managing DNS records in Cloudflare (external link)</td>
</tr>
<tr>
<td>HostGator</td>
<td>Manage DNS Records with HostGator/eNom (external link)</td>
</tr>
<tr>
<td>Namecheap</td>
<td>How do I add TXT/SPF/DKIM/DMARC records for my domain? (external link)</td>
</tr>
<tr>
<td>Names.co.uk</td>
<td>Changing your domains DNS Settings (external link)</td>
</tr>
<tr>
<td>Wix</td>
<td>Adding or Updating CNAME Records in Your Wix Account (external link)</td>
</tr>
</tbody>
</table>

Domain Verification Tips and Troubleshooting

If you completed the preceding steps but your domain isn't verified after 72 hours, check the following:

- Make sure that you entered the values for the DNS records in the correct fields. Some providers refer to the Name/host field as Host or Hostname. In addition, some providers refer to the Record value field as Points to or Result.
• Make sure that your provider didn’t automatically append your domain name to the Name/host value that you entered in the DNS record. Some providers append the domain name without indicating that they’ve done so. If your provider appended your domain name to the Name/host value, remove the domain name from the end of the value. You can also try adding a period to the end of the value in the DNS record. This period indicates to the provider that the domain name is fully qualified.

• The underscore character (_) is required in the Name/host value of each DNS record. If your provider doesn’t allow underscores in DNS record names, contact the provider’s customer support department for additional assistance.

• The validation records that you have to add to the DNS configuration for your domain are different for each AWS Region. If you want to use a domain to send email from multiple AWS Regions, you have to verify the domain in each of those Regions.

Requesting Production Access for Email

We use a sandbox environment to help protect our customers from fraud and abuse. The sandbox environment also helps you establish your sender reputation with ISPs and email recipients. New Amazon Pinpoint email user accounts are placed in the sandbox environment. While your account is in the sandbox, you have full access to Amazon Pinpoint email sending methods, with the following restrictions:

• You can send email only from verified addresses and domains.
• You can send email only to addresses that you have verified or addresses that are associated with the mailbox simulator.
• You can send a maximum of 200 messages per 24-hour period.
• You can send a maximum of one message per second.

To learn how to remove these restrictions, see Requesting a Quota Increase (p. 35).

Tracking Open and Click Events in Email

Amazon Pinpoint automatically tracks how many of your emails were opened or clicked by their recipients. In order to track the number of opens and clicks, Amazon Pinpoint makes minor changes to the emails that you send.

First, Amazon Pinpoint adds a tiny, transparent image to the end of each email that you send. This image is hosted on an AWS server. The file name of this image is unique for each recipient. When a recipient opens an email, their email client downloads this file from our servers. When an email client downloads a tracking image from our servers, we count it as an open event.

Second, Amazon Pinpoint replaces all links in your emails with links that refer to a domain that is hosted by AWS. This link includes a parameter that is unique for each recipient. When a recipient clicks one of these links, they are first sent to the AWS-hosted domain, and then immediately redirected to their intended destination. When a recipient visits one of these redirect links, we count it as a click event.

If a user opens an email multiple times or clicks the same link in an email multiple times, we count each open or click separately. In other words, if a recipient opens an email three times, we count three separate open events.

In order to view open and click events, you have to set up event streaming. For more information about creating event streams, see Event Stream Settings (p. 249).

Monitoring Email Activity with Amazon Pinpoint

For email that you send for a project, Amazon Pinpoint provides options for monitoring your email activity.
Amazon Pinpoint Analytics

The Analytics pages on the Amazon Pinpoint console provide many email-related metrics for the campaigns and transactional messages that you send for a project. For example, you can view the number of email endpoints that you can send messages to, and the number of endpoints that you’ve already sent messages to. Also, you can view the open, click, and opt-out rates for messages that you’ve already sent. For campaign messages, you can view these metrics across all of your campaigns or for individual campaigns. To learn more about these metrics and how to view them, see Analytics (p. 175).

Amazon Pinpoint provides similar metrics for email that you send for a journey. For example, you can view the number of messages that were opened by participants in each activity of a journey. After you publish a journey, you can view the data for these metrics by using the Journey metrics pane in the journey workspace. To learn more about these metrics, see the section called “View Journey Metrics” (p. 158).

Streaming Email Event Data

To monitor data, such as successful and failed email deliveries, configure Amazon Pinpoint to stream email event data to Amazon Kinesis Data Streams or Amazon Kinesis Data Firehose. Then, you can use the Kinesis platform to analyze this email data. For more information, see Streaming Amazon Pinpoint Events to Kinesis (p. 199).

For examples of the event data that Amazon Pinpoint streams to Kinesis, see Email Events in the Amazon Pinpoint Developer Guide.

Managing the Amazon Pinpoint Email Channel

You have the following options for managing your email channel with Amazon Pinpoint:

- To enable the email channel for an existing project, or to update your email address or domain, you can use the Amazon Pinpoint console.
- To increase your email sending quotas, you can open a quota increase case with AWS Support.

Topics

- Updating Email Settings (p. 33)
- Managing Email Sending Quotas (p. 34)
- Global Suppression List (p. 37)

Updating Email Settings

You can use the Amazon Pinpoint console to update the email settings for a project. For example, you can change the verified identity that’s associated with the project or verify a new identity for the project.

To update your email settings

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to update email settings for.
3. In the navigation pane, under Settings, choose Email.
4. On the Identities tab, choose Edit.
5. Under Identity type, choose the type of identity that you want to add or update: Email address or Domain.
6. Choose whether you want to update an existing identity or verify a new identity.
7. Enter the email address or domain, and then choose Verify.
   
   If you enter an email address, Amazon Pinpoint sends a verification email to the address that you entered. Follow the instructions in the email to complete the verification process.
   
   If you enter an email domain, the console displays a TXT record that you have to add to the DNS settings for your domain.
8. Follow the instructions shown on the console. For more information about verifying an email address or domain, see Verifying Email Identities (p. 29).
9. When you finish, choose Save.

Managing Email Sending Quotas

To regulate the number of email messages that you can send and the rate at which you can send them, your AWS account has sending quotas. These quotas benefit all Amazon Pinpoint users because they help to maintain the trusted relationship between Amazon Pinpoint and Internet service providers (ISPs). They help you gradually ramp up your sending activity. They decrease the likelihood that ISPs will block your emails because of sudden, unexpected spikes in your email sending volume or rate.

Amazon Pinpoint provides the following sending quotas for email:

Daily Sending Quota

The maximum number of emails that you can send during a 24-hour period. This quota reflects a rolling time period. Every time you try to send an email, Amazon Pinpoint checks how many emails you sent during the previous 24 hours. If the total number of emails that you have sent is less than your quota, your send request is accepted and your email is sent. If you have already sent your full quota, your send request is rejected with a throttling exception. For example, if your daily sending quota is 50,000, and you sent 15,000 emails during the previous 24 hours, then you can send another 35,000 emails right away. If you have already sent 50,000 emails during the previous 24 hours, you cannot send more emails until some of the previous sending rolls out of its 24-hour window.

Maximum Sending Rate

The maximum number of emails that Amazon Pinpoint can accept from your account per second. You can exceed this quota for short bursts, but not for a sustained period of time.

Note

The rate at which Amazon Pinpoint accepts your messages might be less than the maximum sending rate.

When your account is in the Amazon Pinpoint sandbox, your sending quota is 200 messages per 24-hour period and your maximum sending rate is one message per second. To increase these values, you can request production access for email (p. 32). After your account moves out of the sandbox and you start sending emails, you can increase your quotas further by submitting a quota increase request to AWS Support.

Increasing Your Sending Quotas

When your account is out of the sandbox, your sending quotas increase if you are sending high-quality content and we detect that your utilization is approaching your current quotas. Often, the system automatically increases your quotas, and no further action is needed.

If your existing quotas are not adequate for your needs and the system did not increase your quotas automatically, you can open an Amazon Pinpoint quota increase case in AWS Support Center.
Important

- Plan ahead. Be aware of your sending quotas and try to stay within them. If you anticipate needing higher quotas than the system allocated, open an Amazon Pinpoint quota increase case well before the date when you need the higher quotas.
- If you anticipate needing to send more than one million emails per day, you must open an Amazon Pinpoint quota increase case.

For Amazon Pinpoint to increase your sending quotas, use the following guidelines:

- **Send high-quality content** – Send content that recipients want and expect.
- **Send real production content** – Send your actual production email. This enables Amazon Pinpoint to accurately evaluate your sending patterns, and verify that you are sending high-quality content.
- **Send near your current daily quota** – If your volume stays close to your daily sending quota without exceeding it, Amazon Pinpoint detects this usage pattern and can automatically increase your quota.
- **Have low bounce and complaint rates** – Try to minimize the numbers of bounces and complaints. High numbers of bounces and complaints can adversely affect your sending quotas.

Important

If you send test emails to your own email addresses, they may adversely affect your bounce and complaint metrics, or appear as low-quality content to our filters. Whenever possible, use the Amazon Simple Email Service (Amazon SES) mailbox simulator to test your system. Emails that are sent to the mailbox simulator do not count toward your sending metrics or your bounce and complaint rates. For more information, see Testing Email Sending in Amazon SES.

Requesting a Quota Increase

To request higher sending quotas for Amazon Pinpoint, open a case in AWS Support Center by using the following instructions.

**To request a sending quota increase**

2. On the **Support** menu, choose **Support Center**.
3. On the **My support cases** tab, choose **Create case**.
4. Choose **Service quota increase**.
5. Under **Case classification**, complete the following sections:
   - For **Quota type**, choose **Pinpoint Email**.
   - For **Mail Type**, choose the type of email that you send. If multiple values apply, choose the option that applies to the majority of the email that you send.
   - For **Website URL**, enter the URL of your website. Providing this information helps us better understand the type of content that you send.
   - For **Describe in detail how you will only send to recipients who have specifically requested your mail**, explain how you ensure that you send email only to recipients who want to receive email from you.
   - For **Describe in detail the process that you will follow when you receive bounce and complaint notifications**, explain how you process bounces and complaints about the email that you send.
   - For **Will you comply with AWS Service Terms and AUP**, choose the option that applies to your use case.
6. Under **Requests**, complete the following sections:
• For **Region**, choose the AWS Region that your request applies to.
• For **Quota**, choose one of the following options:
  • To increase the number of messages that you can send per day, choose **Desired Daily Email Sending Quota**.
  • To increase the number of messages you can send per second, choose **Desired Maximum Email Send Rate**.
• For **New quota value**, enter the new amount that you are requesting for the quota. Request only the amount that you think you’ll need. We can’t guarantee that you’ll receive the amount that you request. The larger your request, the more justification you need to provide to have your request granted.

  **Note**
  Your request applies only to the AWS Region that you chose at the beginning of this step. To request a quota increase for another AWS Region, choose **Add another request**. Then complete the **Region**, **Quota**, and **New quota value** fields for the additional Region. Repeat this process for each Region that you want to request a quota increase for.

7. Under **Case description**, for **Use case description**, describe how you send email using Amazon Pinpoint, in as much detail as possible. For example, describe the type of emails that you send and how they fit into your business. The more you indicate that you send high-quality email messages to recipients who want and expect them, the more likely we are to approve your request.

8. Under **Contact options**, for **Preferred contact language**, choose whether you want to receive communications for this case in **English** or **Japanese**.

9. When you finish, choose **Submit**.

The AWS Support team provides an initial response to your request within 24 hours.

In order to prevent our systems from being used to send unsolicited or malicious content, we have to consider each request carefully. If we’re able to do so, we'll grant your request within this 24-hour period. However, if we need to obtain additional information from you, it might take longer to resolve your request.

We might not be able to grant your request if your use case doesn't align with our policies.

**Checking the Status of Your Request**

After you submit your request, we review your case. To check the status of your request, complete the following steps.

**To check the status of your quota increase request**

2. On the **Support** menu, choose **Support Center**.
3. On the **My support cases** tab, choose **View all support cases**.
4. Under **Case history**, choose the sending quota increase request case.
5. Review the messages in the **Correspondence** section. The messages in this section tell you if your request was accepted or rejected. If your request was accepted, the message specifies your daily and per-second sending quotas.

If your account is in the email sandbox and you are granted a sending quota increase, your account is automatically taken out of the sandbox. After your account is out of the sandbox, you can send email to non-verified addresses. However, you must still verify your sending addresses and domains.

Over time, we will gradually increase your sending quotas. If your needs exceed the gradual increase, you can open another request to increase your sending quotas.
Global Suppression List

When an Amazon Pinpoint customer sends an email, and that email results in a hard bounce, Amazon Pinpoint adds the destination email address to a suppression list. This suppression list is *global* because it applies equally to all Amazon Pinpoint accounts in all AWS Regions.

When you attempt to send a message to an address that's on the suppression list, Amazon Pinpoint accepts the message, but immediately counts it as a hard bounce, and doesn't attempt to send it.

If an email address is on the global suppression list, but you know that the address is valid, you can complete the procedure in this section to remove the address from the suppression list.

**Note**

This capability isn't available in the Amazon Pinpoint console in the Asia Pacific (Mumbai) and Europe (Frankfurt) AWS Regions. However, because the same suppression list applies to all Regions, you can access the Amazon Pinpoint console from a different Region, and then use the following steps to remove email addresses from the suppression list.

**To remove an address from the suppression list**

1. Open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. On the **All projects** page, choose a project that uses the email channel.
3. In the navigation pane, under **Settings**, choose **Email**.
4. On the **Suppression list** tab, choose **Submit a removal request**.
5. For **Email address to remove**, enter the email address that you want to remove from the suppression list.
6. Complete the verification test, and then choose **Submit**.

When you submit your request, the address is immediately removed from the suppression list in all AWS Regions where Amazon Pinpoint is available. However, the email address can be added to the suppression list again if it produces a hard bounce in the future.

Sending Email in Amazon Pinpoint

There are several types of email that you can send using Amazon Pinpoint: campaign-based email, journey-based email, and transactional email. **Campaign-based emails** are messages that are sent either one time or on a recurring schedule, and that target customers based on their attributes. **Journey-based emails** are messages that are sent when participants in a journey arrive at an email activity as part of a larger workflow. **Transactional emails** are sent one time only, and are typically sent in response to another action occurring. For example, you can use transactional messages to send an email when a customer chooses the "Forgot my password" link in your app, or to send a confirmation when a customer places an order on your site.

In Amazon Pinpoint, you typically use the web-based management console to send campaign-based emails and journey-based emails, whereas transactional emails are usually sent from applications that use an AWS SDK or call the Amazon Pinpoint API directly.

When you send a campaign-based email, you first create a **segment** (p. 108). A segment is a group of recipients for the campaign. Next, you create a campaign. In Amazon Pinpoint, a campaign consists of one or more target segments, a message, and a delivery schedule for that message. To learn about creating campaigns, see **Campaigns** (p. 123).

When you send a journey-based email, you also start by creating a **segment** (p. 108). A segment is a group of participants in the journey. Next, you create an email template for each message that you want activities in the journey to send. Then, you create the journey. To learn about creating journeys, see **Journeys** (p. 136).
To send a transactional email, you can use the `SendMessage` operation of the Amazon Pinpoint API. To learn more about using the Amazon Pinpoint API, see the Amazon Pinpoint API Reference. You can also send transactional email by using the Amazon Pinpoint SMTP interface (p. 38).

### Sending Email by Using the Amazon Pinpoint SMTP Interface

The Amazon Pinpoint SMTP interface allows you to send email by using any application or library that can use the SMTP protocol to send email.

For example, you can use common programming libraries, such as the `System.Net.Mail` library in .NET or the `smtplib` library in Python, to send email using the SMTP interface. This solution is useful in situations where you want to be able to send email from an application, but you don't want to integrate an AWS SDK into your app.

You can also configure email server applications, such as Postfix or Sendmail, to send email through the Amazon Pinpoint SMTP interface. This solution can be useful if you want to use your existing email server, but you also want to use the features of Amazon Pinpoint, such as bounce and complaint event publishing or the analytics charts in the Amazon Pinpoint console.

You might also be able to configure desktop email applications, such as Mozilla Thunderbird, to send email using the Amazon Pinpoint SMTP interface. However, this solution is only useful in certain situations, because most email clients require you to set up an incoming mail server, which Amazon Pinpoint doesn't offer. See the documentation for your email client to determine if it requires you to enter the address of an incoming mail server, also referred to as an IMAP server.

### Obtaining SMTP Credentials

To send email using the SMTP interface, you need to create a set of SMTP credentials. These credentials are the user name and password that you use to connect to an Amazon Pinpoint SMTP endpoint. You can quickly create these credentials by using the Amazon SES console.

#### To create SMTP credentials

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the **All projects** page, choose any project.
3. In the navigation pane, under **Settings**, choose **Email**.
4. On the **Sending methods** tab, choose **Send email by using the SMTP interface**.
5. Under **SMTP credentials**, choose **Generate SMTP credentials**.
6. For **IAM User Name**, enter the user name for the SMTP user, or use the default name. Choose **Create**.
7. Choose **Show User SMPT Security Credentials**. Copy the SMTP Username and SMTP Password and save it on your computer. Alternatively, choose **Download Credentials** to download the user name and password to your computer.
   
   **Note**  
   This is the only opportunity that you'll have to view these credentials. If you close this page without saving these credentials, you have to use the IAM console to delete the SMTP user, and then repeat steps 1–7 above.

8. When you finish, choose **Close**.

### Connecting to the SMTP Interface

To send email using the SMTP interface, you have to connect your application to an SMTP endpoint. You can use the endpoints shown in the following table to send email.
The Amazon Pinpoint SMTP endpoint requires all connections to be encrypted using Transport Layer Security (TLS). Amazon Pinpoint supports two mechanisms for establishing a TLS-encrypted connection: STARTTLS and TLS Wrapper. Check the documentation for your software to determine whether it supports STARTTLS, TLS Wrapper, or both.

If you use STARTTLS authentication, you can connect to the Amazon Pinpoint SMTP interface on port 25, 587, or 2587. If you use TLS Wrapper authentication, you can connect to the Amazon Pinpoint SMTP interface on port 465 or 2465.

When you connect your application or library to the SMTP interface, use the SMTP user name and password that you created in Obtaining SMTP Credentials (p. 38).

### Using Dedicated IP Addresses with Amazon Pinpoint

When you create a new Amazon Pinpoint account, your emails are sent from IP addresses that are shared with other Amazon Pinpoint users. For an additional monthly charge, you can lease dedicated IP addresses that are reserved for your exclusive use. Both of these options offer unique benefits and drawbacks, which are summarized in the following table. Choose an item in the Benefit column to see more information about that benefit.

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Shared IP Addresses</th>
<th>Dedicated IP Addresses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ready to use with no additional setup (p. 40)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Reputation managed by AWS (p. 40)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Good for customers with continuous, predictable sending patterns (p. 40)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Good for customers with less predictable sending patterns (p. 40)</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Good for high-volume senders (p. 41)</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Good for low-volume senders (p. 41)</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
### Benefit

<table>
<thead>
<tr>
<th>Shared IP Addresses</th>
<th>Dedicated IP Addresses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional monthly costs (p. 41)</td>
<td>No</td>
</tr>
<tr>
<td>Complete control over sender reputation (p. 41)</td>
<td>No</td>
</tr>
<tr>
<td>Isolates reputation by email type, recipient, or other factors (p. 41)</td>
<td>No</td>
</tr>
<tr>
<td>Provides known IP addresses that never change (p. 41)</td>
<td>No</td>
</tr>
</tbody>
</table>

**Important**

If you don’t plan to send large volumes of email on a regular and predictable basis, we recommend that you use shared IP addresses. If you use dedicated IP addresses in use cases that involve sending low volumes of mail, or if your sending patterns are highly irregular, you might experience deliverability issues.

**Ease of Setup**

If you choose to use shared IP addresses, then you don’t need to perform any additional configuration. Your Amazon Pinpoint account is ready to send email as soon as you verify an email address and move out of the sandbox.

If you choose to lease dedicated IP addresses, you have to determine how many dedicated IP addresses you need, submit a request, and optionally create dedicated IP pools (p. 45).

**Reputation Managed by AWS**

IP address reputations are based largely on historical sending patterns and volume. An IP address that sends consistent volumes of email over a long period of time usually has a good reputation.

Shared IP addresses are used by several Amazon Pinpoint customers. Together, these customers send a large volume of email. AWS carefully manages this outbound traffic in order to maximize the reputations of the shared IP addresses.

If you use dedicated IP addresses, it’s your responsibility to maintain your sender reputation by sending consistent and predictable volumes of email.

**Predictability of Sending Patterns**

An IP address with a consistent history of sending email has a better reputation than one that suddenly starts sending out large volumes of email with no prior sending history.

If your email sending patterns are irregular—that is, they don’t follow a predictable pattern—then shared IP addresses are probably a better fit your needs. When you use shared IP addresses, you can increase or decrease your email-sending patterns as the situation demands.

If you use dedicated IP addresses, you have to warm up those addresses by sending an amount of email that gradually increases every day. The process of warming up new IP addresses is described in Warming Up Dedicated IP Addresses (p. 44). After your dedicated IP addresses are warmed up, you must then maintain a consistent sending pattern.
Volume of Outbound Email

Dedicated IP addresses are best suited for customers who send large volumes of email. Most internet service providers (ISPs) only track the reputation of a given IP address if they receive a significant volume of mail from that address. For each ISP with which you want to cultivate a reputation, you should send several hundred emails within a 24-hour period at least once per month.

In some cases, you may be able to use dedicated IP addresses if you don't send large volumes of email. For example, dedicated IP addresses may work well if you send to a small, well-defined group of recipients whose mail servers accept or reject email using a list of specific IP addresses, rather than IP address reputation.

Additional Costs

The use of shared IP addresses is included in the standard Amazon Pinpoint pricing. Leasing dedicated IP addresses incurs an extra monthly cost beyond the standard costs that are associated with sending email using Amazon Pinpoint. Each dedicated IP address incurs a separate monthly charge. For pricing information, see the Amazon Pinpoint pricing page.

Control over Sender Reputation

When you use dedicated IP addresses, your Amazon Pinpoint account is the only one that is able to send email from those addresses. For this reason, the sender reputation of the dedicated IP addresses that you lease is determined by your email-sending practices.

Ability to Isolate Sender Reputation

By using dedicated IP addresses, you can isolate your sender reputation for different components of your email program. If you lease more than one dedicated IP address for use with Amazon Pinpoint, you can create dedicated IP pools—groups of dedicated IP addresses that can be used for sending specific types of email. For example, you can create one pool of dedicated IP addresses for sending marketing email, and another for sending transactional email. To learn more, see Creating Dedicated IP Pools (p. 45).

Known, Unchanging IP Addresses

When you use dedicated IP addresses, you can find the values of the addresses that send your mail in the Dedicated IPs page of the Amazon Pinpoint console. Dedicated IP addresses don't change.

With shared IP addresses, you don't know the IP addresses that Amazon Pinpoint uses to send your mail, and they can change at any time.

Requesting and Relinquishing Dedicated IP Addresses

This section describes how to request and relinquish dedicated IP addresses by submitting a request in the AWS Support Center. We charge your account an additional monthly fee for each dedicated IP address that you lease for use with Amazon Pinpoint. For more information about the costs associated with dedicated IP addresses, see Amazon Pinpoint Pricing.

Best Practices for Working with Dedicated IP Addresses

Although there's no minimum commitment, we recommend that you lease more than one dedicated IP address in each AWS Region where you use Amazon Pinpoint. Each AWS Region consists of multiple physical locations, called Availability Zones. When you lease more than one dedicated IP address, we distribute those addresses as evenly as possible across the Availability Zones in the AWS Region that you specified in your request. Distributing your dedicated IP addresses across Availability Zones in this way increases the availability and redundancy of your dedicated IP addresses.
For a list of all the Regions where Amazon Pinpoint is currently available, see Amazon Pinpoint Endpoints and Quotas in the Amazon Web Services General Reference. To learn more about the number of Availability Zones that are available in each Region, see AWS Global Infrastructure.

**Requesting Dedicated IP Addresses**

The following steps show how to request dedicated IP addresses by creating a case in the AWS Support Center. You can use this process to request as many dedicated IP addresses as you need.

**To request dedicated IP addresses**

2. On the **Support** menu, choose **Support Center**, as shown in the following image.
3. On the **My support cases** tab, choose **Create case**.
4. Under **Create case**, choose **Service quota increase**.
5. Under **Case classification**, complete the following sections:
   - For **Quota type**, choose Pinpoint Email.
   - For **Mail Type**, choose the type of email that you plan to send using your dedicated IP addresses. If multiple values apply, choose the option that applies to the majority of the email that you plan to send.
   - For **Website URL**, enter the URL of your website. Providing this information helps us better understand the type of content that you plan to send.
   - For **Describe in detail how you will only send to recipients who have specifically requested your mail**, explain how you will ensure that you use your dedicated IP addresses to send email only to recipients who want to receive email from you.
   - For **Describe in detail the process that you will follow when you receive bounce and complaint notifications**, explain how you will process bounces and complaints about the email that you plan to send using your dedicated IP addresses.
   - For **Will you comply with AWS Service Terms and AUP**, choose the option that applies to your use case.
6. Under **Requests**, complete the following sections:
   - For **Region**, choose the AWS Region that your request applies to.
   - For **Quota**, choose **Desired Maximum Email Send Rate**.
   - For **New quota value**, enter the maximum number of messages that you need to be able to send per second. We use this value to calculate the number of dedicated IP addresses that you need to implement for your use case. For this reason, the estimate that you provide should be as accurate as possible.

   **Note**
   A single dedicated IP address can be used only in the AWS Region that you choose in this step. If you want to request dedicated IP addresses for use in another AWS Region, choose **Add another request**. Then complete the **Region**, **Quota**, and **New quota value** fields for the additional Region. Repeat this process for each Region that you want to use dedicated IP addresses in.

7. Under **Case description**, for **Use case description**, state that you want to request dedicated IP addresses. If you want to request a specific number of dedicated IP addresses, mention that as well. If you don't specify a number of dedicated IP addresses, we provide the number of dedicated IP addresses that are necessary to meet the sending rate requirement that you specified in the previous step.

   Next, describe how you plan to use dedicated IP addresses to send email using Amazon Pinpoint. Include information about why you want to use dedicated IP addresses instead of shared IP addresses. This information helps us better understand your use case.

8. Under **Contact options**, for **Preferred contact language**, choose whether you want to receive communications for this case in **English** or **Japanese**.

9. When you finish, choose **Submit**.

After you submit the form, we evaluate your request. If we grant your request, we reply to your case in Support Center to confirm that your new dedicated IP addresses are associated with your account.

### Relinquishing Dedicated IP Addresses

If you no longer need dedicated IP addresses that are associated with your account, you can relinquish them by completing the following steps.

**Important**

The process of relinquishing a dedicated IP address can't be reversed. If you relinquish a dedicated IP address in the middle of a month, we prorate the monthly dedicated IP usage fee, based on the number of days that have elapsed in the current month.

**To relinquish dedicated IP addresses**

2. On the **Support** menu, choose **Support Center**.
3. On the **My support cases** tab, choose **Create case**.
4. Under **Create case**, choose **Service quota increase**.
5. Under **Case classification**, complete the following sections:
   - For **Quota type**, choose **Pinpoint Email**.
   - For **Mail Type**, choose any value.
   - For **Will you comply with the AWS Service Terms and AUP**, choose the option that applies to your use case.
6. Under **Requests**, complete the following sections:
• For **Region**, choose the AWS Region that your request applies to.

  **Note**
  Dedicated IP addresses are unique to each AWS Region, so it’s important to select the Region that the dedicated IP address is associated with.

• For **Quota**, choose **Desired Maximum Email Send Rate**.

• For **New quota value**, enter any number. The number that you enter here isn’t important—you specify the number of dedicated IP addresses that you want to relinquish in the next step.

  **Note**
  A single dedicated IP address can be used in only a single AWS Region. If you want to relinquish dedicated IP addresses that you used in other AWS Regions, choose **Add another request**. Then complete the **Region**, **Quota**, and **New quota value** fields for the additional Region. Repeat this process for each dedicated IP address that you want to relinquish.

7. Under **Case Description**, for **Use case description**, indicate that you want to relinquish existing dedicated IP addresses. If you currently lease more than one dedicated IP address, include the number of dedicated IP addresses that you want to relinquish.

8. Under **Contact options**, for **Preferred contact language**, choose whether you want to receive communications for this case in **English** or **Japanese**.

9. When you finish, choose **Submit**.

After we receive your request, we send you a message that asks you to confirm that you want to relinquish your dedicated IP addresses. After you confirm that you want to relinquish the IP addresses, we remove them from your account.

**Warming Up Dedicated IP Addresses**

When determining whether to accept or reject a message, email service providers consider the reputation of the IP address that sent it. One of the factors that contributes to the reputation of an IP address is whether the address has a history of sending high-quality email. Email providers are less likely to accept mail from new IP addresses that have little or no history. Email sent from IP addresses with little or no history might end up in recipients’ junk mail folders, or might be blocked altogether.

When you start sending email from a new IP address, you should gradually increase the amount of email you send from that address before using it to its full capacity. This process is called **warming up** the IP address.

The amount of time that’s required to warm up an IP address varies between email providers. For some email providers, you can establish a positive reputation in around two weeks, while for others it might take up to six weeks. When warming up a new IP address, you should send emails to your most active users to ensure that your complaint rate remains low. You should also carefully examine your bounce messages and send less email if you receive a high number of blocking or throttling notifications.

**Automatically Warm Up Dedicated IP Addresses**

When you request dedicated IP addresses, Amazon Pinpoint automatically warms them up to improve the delivery of emails you send. The automatic IP address warm-up feature is enabled by default.

The steps that happen during the automatic warm-up process depend on whether you already have dedicated IP addresses:

• When you request dedicated IP addresses for the first time, Amazon Pinpoint distributes your email sending between your dedicated IP addresses and a set of addresses that are shared with other Amazon Pinpoint customers. Amazon Pinpoint gradually increases the number of messages sent from your dedicated IP addresses over time.
• If you already have dedicated IP addresses, Amazon Pinpoint distributes your email sending between your existing dedicated IPs (which are already warmed up) and your new dedicated IPs (which aren’t warmed up). Amazon Pinpoint gradually increases the number of messages that are sent from your new dedicated IP addresses over time.

After you warm up a dedicated IP address, you should send around 1,000 emails every day to each email provider that you want to maintain a positive reputation with. You should perform this task on each dedicated IP address that you use with Amazon Pinpoint.

You should avoid sending large volumes of email immediately after the warm-up process is complete. Instead, slowly increase the number of emails you send until you reach your target volume. If an email provider sees a large, sudden increase in the number of emails being sent from an IP address, they might block or throttle the delivery of messages from that address.

Creating Dedicated IP Pools

If you purchased several dedicated IP addresses to use with Amazon Pinpoint, you can create groups of those addresses. These groups are called dedicated IP pools. A common scenario is to create one pool of dedicated IP addresses for sending marketing communications, and another for sending transactional emails. Your sender reputation for transactional emails is then isolated from that of your marketing emails. In this scenario, if a marketing campaign generates a large number of complaints, the delivery of your transactional emails isn’t impacted.

This section contains procedures for creating dedicated IP pools. To complete these procedures, you have to use the AWS Command Line Interface (AWS CLI). For information about installing and configuring the AWS CLI, see Installing the AWS CLI and Configuring the AWS CLI in the AWS Command Line Interface User Guide.

Note
You can only use dedicated IP pools if you send email by using the Amazon Pinpoint Email API, or the Amazon Pinpoint Email operations in one of the AWS SDKs. Currently, you can’t use dedicated IP pools if you send email by using the Amazon Pinpoint console.

Creating a Dedicated IP Pool

Before you can use a dedicated IP pool, you have to create the pool itself and assign it to a configuration set.

To create a dedicated IP pool by using the AWS CLI

1. If you haven't already done so, complete the procedures in Requesting Dedicated IP Addresses (p. 42) to request a dedicated IP address for your Amazon Pinpoint account. You can only complete this procedure if we've already approved your request for dedicated IP addresses, and associated the dedicated IP addresses with your Amazon Pinpoint account.
2. At the command line, enter the following command to create a dedicated IP pool:

   ```bash
   aws pinpoint-email create-dedicated-ip-pool --pool-name MyIpPool
   ```

   In the preceding command, replace `MyIpPool` with the name that you want to assign to the dedicated IP pool. As a best practice, we recommend that you use a name that describes the intended purpose of the IP pool, so that you can easily identify the pool when you add it to a configuration set.
3. At the command line, enter the following command to associate a dedicated IP address with the dedicated IP pool:

   ```bash
   aws pinpoint-email put-dedicated-ip-in-pool --ip 203.0.113.0 --destination-pool-name MyIpPool
   ```
In the preceding command, replace **203.0.113.0** with the IP address that you want to add to the pool. Also, replace **MyIpPool** with the name of the pool that you created in the previous step.

4. In a text editor, create a new file. Paste the following code into the file:

```json
{
  "ConfigurationSetName": "MyConfigurationSet",
  "DeliveryOptions": {
    "SendingPoolName": "MyIpPool"
  }
}
```

Replace **MyConfigurationSet** with the name that you want to give the configuration set. Also, replace **MyIpPool** with the name of the dedicated IP pool that you created in step 2.

Save the file as `createConfigurationSet.json`.

5. At the command line, enter the following command to create the configuration set:

```
aws pinpoint-email create-configuration-set --cli-input-json file://path/to/createConfigurationSet.json
```

In the preceding command, replace **path/to/createConfigurationSet.json** with the path to the `createConfigurationSet.json` file that you created in the previous step.

**Sending Email Using a Dedicated IP Pool**

After you create a dedicated IP pool, you can start using that pool to send email. To send email using a dedicated IP pool, you have to specify the configuration set that's associated with the pool when you send the email.

To send an email that uses a configuration set, you have to use the Amazon Pinpoint Email API. The most common way to send email using the Amazon Pinpoint Email API is to use an AWS SDK. For more information about using AWS SDKs to send email by using the Amazon Pinpoint Email API, see **Send Email by Using the Amazon Pinpoint Email API** in the **Amazon Pinpoint Developer Guide**.

**The Amazon Pinpoint Deliverability Dashboard**

The Deliverability dashboard helps you identify and address issues that could impact the delivery of the emails that you send. By addressing the issues that the Deliverability dashboard identifies, you can increase the chances that the emails you send from Amazon Pinpoint and Amazon Simple Email Service (Amazon SES) arrive in your customers' inboxes, instead of their junk mail folders.

**Important**

There are additional fees associated with using the Deliverability dashboard. To learn more about these fees, see the **Amazon Pinpoint Pricing page**.

You can access the Deliverability dashboard by using the Amazon Pinpoint console.

**To view the Deliverability dashboard**

1. Open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. In the navigation pane, choose **Deliverability dashboard**.

The Deliverability dashboard is made up of six parts, which are described in the following sections:

- **Domain Reputation** (p. 47)
- **IP Reputation** (p. 51)
Domain Reputation

The Domain reputation page contains information about the domains that you use to send email, including their engagement rates, inbox placement rates, and blacklist activities.

Choose a domain from the Domain menu to see information about that domain, as shown in the following image.

Summary

This section contains information about the percentage of emails from a specific domain that arrived in your customers' inboxes. It also provides information about the percentage of emails that your customers engaged with by opening them or by clicking links in them. Finally, it shows the number of blacklists that the IP addresses associated with the domain are on.

Note

The information in this section contains general guidance, as opposed to exact metrics. If you need precise metrics related to the delivery of your mail and engagement with it, you should set up event streams (p. 249).

To view data in this section, choose a subscribed domain, as shown in the following image. When you choose a domain, data appears in the Summary, Inbox placement by email provider, and Blacklist activities sections.

When you choose a domain and a date range, the Deliverability overview section shows the following information:

- Engagement rate – The percentage of email sent from the selected domain that recipients opened or clicked links in. When determining whether to deliver your email to recipient’s inboxes, many email providers (especially larger ones) consider how often recipients engaged with email sent from your
domain in the past month or two. For this reason, you should try to maintain an engagement rate of at least 25%.

- **Inbox placement rate** – The percentage of email sent from the selected domain that arrived in recipients’ inboxes. An inbox placement rate of around 80% is considered average.
- **Blacklist activities** – The number of blacklists that IP addresses associated with the domain appear on. To learn more about blacklists, see Blacklist Activities (p. 50).

### Alarms

On the Alarms tab, you can create alarms that send you notifications for any of the metrics in the Summary section.

#### To create an alarm

1. On the Alarms tab, choose Create alarm.
2. On the Create alarm page, do the following:
   a. For **Alarm name**, enter a name that helps you easily identify the alarm.
   b. For **Send notification when the**, choose one of the following options:
      - **Inbox placement rate** – When you choose this option, the alarm considers the inbox placement rate across all email providers.
      - **Inbox placement rate** – When you choose this option, the alarm considers the inbox placement rate for specific email providers, such as Gmail or Yahoo. When you choose this option, you also have to choose the email provider that the alarm applies to.
   c. Configure the values that cause the alarm to be triggered. For example, if you want to be notified when the inbox placement rate for your account is 75% or less, choose <=. Then enter a value of 75, as shown in the following image.

   ![Send a notification when the Inbox placement rate](image)

   d. Specify the amount of time that has to elapse before the alarm is triggered. For example, you can configure the alarm so that it only sends a notification when the inbox placement rate goes below a certain rate and stays below that rate for more than 2 days. In this example, next to **for at least**, enter a value of 2. Then, next to **consecutive period(s) of**, choose 1 day, as shown in the following image.

   ![for at least 2 consecutive period(s) of 1 day](image)

   e. Under **Notification method**, choose one of the following options:
      - **Use an existing SNS topic** – Choose this option if you’ve already created an Amazon SNS topic and subscribed endpoints to it.
      - **Create a new topic** – Choose this option if you haven’t yet created an Amazon SNS topic, or if you want to create a new topic.
Note
When you create a new topic, you have to subscribe one or more endpoints to it. For more information, see Subscribing an Endpoint to a Topic in the Amazon Simple Notification Service Developer Guide.

f. (Optional) You can choose or create more than one Amazon SNS topic. To add a topic, choose Notify an additional SNS topic.

g. When you finish, choose Create.

Inbox Placement by Email Provider

This section shows you how different email providers handled the email that was sent from your domain during the selected time period. The email providers analyzed in this section include Gmail, Hotmail, Yahoo, and AOL. This section also contains a category called Others. This category includes internet service providers and regional providers. When combined, the delivery metrics in this section represent a vast majority of all consumer email sent worldwide.

This section includes average rates for inbox placement and spam folder placement for each email provider. It also includes a chart, shown in the following image, that displays the inbox placement rate for each provider for every day in the analysis period. You can use the information in this chart to help identify campaigns that resulted in poor delivery rates.

Note
You can use the date filter to choose a date range that contains up to 30 days.
Blacklist Activities

This section helps you to quickly identify blacklist events that could impact the delivery of emails sent from your domain. A blacklist is a list of IP addresses that are suspected of sending unsolicited or malicious email. Different blacklist providers have different criteria for adding IP addresses to their lists, and for removing ("delisting") IP addresses from their lists. Additionally, each email provider uses a different blacklist or set of blacklists. Also, each provider weighs blacklisting events differently. If one of your dedicated IP addresses is listed in this section, it doesn’t necessarily mean that there will be any impact on the delivery of your email.

If one of your dedicated IP addresses appears in this section, you should contact the organization that manages the blacklist, and request that your IP address be removed. The following table includes a list of
blacklist operators that are considered in this section, and includes links to their procedures for delisting an IP address.

<table>
<thead>
<tr>
<th>Blacklist Operator</th>
<th>Link to Delisting Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spamhaus</td>
<td>Spamhaus website</td>
</tr>
<tr>
<td>Barracuda</td>
<td>Barracuda website</td>
</tr>
<tr>
<td>Cloudmark Sender Intelligence (CSI)</td>
<td>Cloudmark Sender Intelligence website</td>
</tr>
<tr>
<td>Composite Blocking List (CBL)</td>
<td>Composite Blocking List website</td>
</tr>
<tr>
<td>LashBack</td>
<td>LashBack website</td>
</tr>
<tr>
<td>Passive Spam Block List (PSBL)</td>
<td>Passive Spam Block List website</td>
</tr>
<tr>
<td>SORBS</td>
<td>SORBS website</td>
</tr>
<tr>
<td>SpamCop</td>
<td>SpamCop website</td>
</tr>
</tbody>
</table>

Domain Authentication

This section contains information about the various methods that you can use to authenticate your domains. To configure DKIM or SPF authentication for a domain, you need to add specific records to the DNS configuration for the domain. To view these records, choose View the DNS record.

The procedures for updating the DNS records for a domain vary depending on which DNS or web hosting provider you use. See your provider's documentation for more information about adding DNS records.

IP Reputation

The IP address reputation page contains information about the blacklist activities for the dedicated IP addresses that you use to send email by using Amazon Pinpoint and Amazon Simple Email Service (Amazon SES).

Overview

The Overview tab lists every dedicated IP address that's associated with your Amazon Pinpoint and Amazon SES accounts, as shown in the following image.
If the value in the **Reputation** column is *High*, then there are no blacklist activities that impact the reputation of that IP address. If the IP address does appear on a blacklist, the name of that blacklist is shown in the **Blacklist name** column.

If one of your dedicated IP addresses appears in this section, you should contact the organization that manages the blacklist, and request that your IP address be removed. The following table includes a list of blacklist operators that are considered in this section, and includes links to their procedures for delisting an IP address.

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<thead>
<tr>
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<td>Spamhaus</td>
<td><a href="#">Spamhaus website</a></td>
</tr>
<tr>
<td>Barracuda</td>
<td><a href="#">Barracuda website</a></td>
</tr>
<tr>
<td>Invaluement</td>
<td><a href="#">Invaluement website</a></td>
</tr>
<tr>
<td>LashBack</td>
<td><a href="#">LashBack website</a></td>
</tr>
<tr>
<td>Passive Spam Block List (PSBL)</td>
<td><a href="#">Passive Spam Block List website</a></td>
</tr>
<tr>
<td>SORBS</td>
<td><a href="#">SORBS website</a></td>
</tr>
</tbody>
</table>

**Alarms**

On the **Alarms** tab, you can create alarms that send you notifications when your dedicated IPs are added to major blacklists.

**To create an alarm**

1. On the **Alarms** tab, choose **Create alarm**.
2. On the **Create alarm** page, do the following:

   a. For **Alarm name**, enter a name that helps you easily identify the alarm.

   b. Configure the values that cause the alarm to be triggered. For example, if you want to be notified when the blacklisted IP rate for your account is 5% or greater, choose >=. Then enter a value of 5, as shown in the following image.

   ![Send a notification when the Blacklisted IP rate is >= 5 percent](image)

   c. Specify the amount of time that has to elapse before the alarm is triggered. For example, you can configure the alarm so that it only sends a notification when the blacklisted IP rate exceeds a certain rate and stays at that rate for more than 2 hours. In this example, next to **for at least**, enter a value of 2. Then, next to **consecutive period(s) of**, choose 1 hour, as shown in the following image.

   ![for at least 2 consecutive period(s) of 1 hour](image)

   d. Under **Notification method**, choose one of the following options:

      - **Use an existing SNS topic** – Choose this option if you've already created an Amazon SNS topic and subscribed endpoints to it.
      - **Create a new topic** – Choose this option if you haven't yet created an Amazon SNS topic, or if you want to create a new topic.

         **Note**
         When you create a new topic, you have to subscribe one or more endpoints to it. For more information, see [Subscribing an Endpoint to a Topic](link) in the Amazon Simple Notification Service Developer Guide.

   e. (Optional) You can choose or create more than one Amazon SNS topic. To add a topic, choose **Notify an additional SNS topic**.

   f. When you finish, choose **Create**.

### Bounce and Complaint Rates

On the **Bounce and complaint rates** page, you can find important metrics related to the bounce and complaint rates for your combined Amazon Pinpoint and Amazon Simple Email Service (Amazon SES) account.

A **bounce** occurs when an email that you send can’t be delivered because of a permanent issue. For example, a bounce might occur if the recipient's address doesn't exist, or the recipient's email provider is blocking email from your domain or IP address. Email providers consider a high bounce rate to be a negative sign. This is because it indicates that you're sending email to people who haven't explicitly opted to receive messages from you. A high bounce rate could have a negative impact on the delivery of your emails.

A **complaint** occurs when a customer receives an email from you and reports it to their email provider as an unwanted email (for example, by using the **Report Spam** feature in their email client). Email providers
consider complaints to be a serious sign that your domain is sending unsolicited email. For this reason, a high complaint rate can have a very negative impact on the delivery of your email.

High bounce and complaint rates often indicate that a sender is sending unsolicited email to their recipients. For this reason, email providers carefully consider your bounce and complaint rates when they determine whether to send your email to the inbox or to the junk mail folder.

You can use the **Bounce and complaint rates** page to keep track of these account-wide metrics. On this page, you can also create alarms that notify you when your bounce or complaint rates reach certain thresholds.

**Overview**

The **Overview** tab contains information about the bounce and complaint rates for account.

**Note**

This page shows bounce and complaint metrics for your entire AWS account in the current AWS Region. If you use both Amazon Pinpoint and Amazon SES to send email, this page shows the combined bounce and complaint metrics for both services.

**Summary**

This section shows the status of your account. The following is a list of possible values:

- **Healthy** – There are no issues currently impacting your account.
- **Under review** – Your account is under review. If the issues that caused us to place your account under review aren't resolved by the end of the review period, we might pause your account's ability to send email.
- **Pending end of review decision** – Your account is under review. Because of the nature of the issues that caused us to place your account under review, we need to perform a manual review of your account before we take any further action.
- **Sending paused** – We've paused your account's ability to send email. While your account's ability to send email is paused, you aren't able to send email using Amazon Pinpoint or Amazon SES. You can request that we review this decision.
- **Pending sending pause** – Your account is under review. The issues that caused us to place your account under review haven't been resolved. In this situation, we typically pause your account's ability to send email. However, because of the nature of your account, we need to review your account before any further action is taken.

The number that's shown under **Emails sent** is the number of emails that we considered in making this determination. The number under **Sent over period** is the period of time during which you sent those emails.

To learn more about each status value and how we work with you to address issues that impact your account, see the sending review process FAQs in the *Amazon Simple Email Service Developer Guide*.

**Bounce Rate**

This section shows the current bounce rate for your account. The bounce rate for your account should remain below 5%. If the bounce rate for your account exceeds 10%, we might temporarily pause your account's ability to send email.

This section contains the following information:

- **Eligible emails sent** – The number of emails that were considered in calculating the bounce rate.
- **Sent over period** – The time period that we considered to calculate the bounce rate.
- **Bounce rate** – The percentage of emails you sent during the analysis period that bounced.
• **Overall status** – Indicates the health of the metric. The status could be one of the following:
  • **Healthy** – The bounce rate for your account is within normal levels.
  • **Almost healed** – Your account was placed under review because the bounce rate was too high. Since the review period began, the bounce rate has stayed below the maximum rate. If the bounce rate remains below the maximum rate, the status of this metric changes to Healthy at the end of the review period.
  • **Under review** – Your account was placed under review because the bounce rate was too high. Since your account was placed under review, the bounce rate hasn't improved. If the issue that caused the bounce rate to exceed 5% isn't resolved by the end of the review period, we might pause your account's ability to send email.
  • **Sending pause** – Your account's ability to send email was paused because the bounce rate was too high. While your account's ability to send email is paused, you can't send email. You can request that we review this decision.
  • **Pending sending pause** – The metric caused us to place your account under review. The issues that caused this review period haven't been resolved. These issues might cause us to pause your account's ability to send email. A member of our team has to review your account before we take any further action.

To learn more about each status value and how we work with you to address issues that impact your account, see the sending review process FAQs in the *Amazon Simple Email Service Developer Guide*.

**Complaint Rate**

This section shows the current complaint rate for your account. The complaint rate for your account should remain below 0.1%. If the complaint rate for your account exceeds 0.1%, we might temporarily pause your account's ability to send email.

This section contains the following information:

• **Eligible emails sent** – The number of emails that were considered in calculating the complaint rate.
• **Sent over period** – The time period that we considered to calculate the complaint rate.
• **Bounce rate** – The percentage of emails you sent during the analysis period that resulted in complaints.
• **Overall status** – Indicates the health of the metric. The status could be one of the following:
  • **Healthy** – The complaint rate for your account is within normal levels.
  • **Almost healed** – Your account was placed under review because the complaint rate was too high. Since the review period began, the complaint rate has stayed below the maximum rate. If the complaint rate remains below the maximum rate, the status of this metric changes to Healthy at the end of the review period.
  • **Under review** – Your account was placed under review because the complaint rate was too high. Since your account was placed under review, the complaint rate hasn't improved. If the issue that caused the complaint rate to exceed 0.1% isn't resolved by the end of the review period, we might pause your account's ability to send email.
  • **Sending pause** – Your account's ability to send email was paused because the complaint rate was too high. While your account's ability to send email is paused, you can't send email. You can request that we review this decision.
  • **Pending sending pause** – Your account was placed under review because the complaint rate was too high. The issues that caused this review period haven't been resolved. These issues might cause us to pause your account's ability to send email. A member of our team has to review your account before we take any further action.

To learn more about each status value and how we work with you to address issues that impact your account, see the sending review process FAQs in the *Amazon Simple Email Service Developer Guide*. 

55
Alarms

On the Alarms tab, you can create alarms that send you notifications when the bounce or complaint rates for your account exceed certain levels.

To create an alarm

1. On the Alarms tab, choose Create alarm.
2. On the Create alarm page, do the following:
   a. For Alarm name, enter a name that helps you easily identify the alarm.
   b. For Send a notification when the, choose one of the following options:
      • Bounce rate
      • Complaint rate
   c. Configure the values that cause the alarm to be triggered. For example, if you want to be notified when the bounce rate for your account is 5% or greater, choose \( \geq \). Then enter a value of 5, as shown in the following image.

   ![Image of Send a notification when the bounce rate is \( \geq \) 5 percent]

   d. Specify the amount of time that has to elapse before the alarm is triggered. For example, you can configure the alarm so that it only sends a notification when the bounce rate exceeds a certain rate and stays at that rate for more than 2 hours. In this example, next to for at least, enter a value of 2. Then, next to consecutive period(s) of, choose 1 hour, as shown in the following image.

   ![Image of for at least 2 consecutive period(s) of 1 hour]

   e. Under Notification method, choose one of the following options:
      • Use an existing SNS topic – Choose this option if you've already created an Amazon SNS topic and subscribed endpoints to it.
      • Create a new topic – Choose this option if you haven't yet created an Amazon SNS topic, or you want to create a new topic.

         **Note**
         When you create a new topic, you have to subscribe one or more endpoints to it.
         For more information, see Subscribing an Endpoint to a Topic in the Amazon Simple Notification Service Developer Guide.

   f. (Optional) You can choose or create more than one Amazon SNS topic. To add a topic, choose Notify an additional SNS topic.
   g. When you finish, choose Create.
Campaign Delivery Metrics

The **Campaign delivery metrics** section contains information about inbox placement rates for the email that you sent from your domains. However, unlike the Domain reputation (p. 47) page, the **Campaign delivery metrics** page contains information about specific email campaigns, as opposed to information for entire domains.

When you choose a domain and a date range, you see a table that contains the following information:

- **Preview** – A small image that shows the content of the email. Pause on the image to see a larger preview.
- **Last send date** – The date and time when the message was last sent.
- **Subject** – The subject line of the email.
- **Sender address** – The sender (“From”) address for the message.
- **ESP** – The email provider (such as Gmail or Yahoo) that the metrics apply to.
- **Inbox rate** – The percentage of emails sent from the campaign that arrived in recipients’ inboxes (as opposed to their junk mail folders).
- **Open rate** – The percentage of emails sent from the campaign that were opened by their recipients.

When you choose a campaign in this table, you see a details page for the campaign. Campaign details pages contain two sections: **Details** and **Sending IP addresses**.

**Details**

This section contains the following information about the campaign:

- **Latest sent date** – The date and time when the message was last sent.
- **First sent date** – The date and time when the message was first sent.
- **Subject** – The subject line of the email.
- **Sender address** – The sender (“From”) address for the message.
- **Sender domain** – The domain that the message was sent from.
- **ESP** – The email provider (such as Gmail or Yahoo) that the metrics apply to.
- **Estimated volume** – The approximate number of recipients that were sent this campaign.
- **Inbox placement** – The percentage of emails sent from the campaign that arrived in recipients’ inboxes (as opposed to their junk mail folders).
- **Spam placement** – The percentage of emails sent from the campaign that arrived in recipients’ junk mail folders.
- **Read** – The percentage of emails that were opened by their recipients.
- **Read and deleted** – The percentage of emails that were opened by their recipients and then deleted.
- **Deleted** – The percentage of emails that were deleted by their recipients without being read.

The campaign details page also includes a larger preview of body of the email. Amazon Pinpoint automatically removes identifying information from this preview image.

**Sending IP Addresses**

This section lists all the IP addresses that Amazon Pinpoint and Amazon SES used when sending the selected message to your recipients.
Inbox Placement Tests

On the **Inbox placement tests** page of the Deliverability dashboard, you can perform tests that can help you predict how specific messages are handled by over 95 major email providers around the world. When you perform an inbox placement test, you provide a sample message that contains the content that you plan to send to your customers. Amazon Pinpoint then sends that message to special email addresses on several major email domains. After about 24 hours, the test is complete, and you can view the results.

**Important**
When you perform an inbox placement test, we send your message to a third party for delivery testing and analysis. We impose our standard security requirements on this third party, and the contents of your emails are encrypted during transfer. However, because it isn't necessary to use real data when you perform these tests, we recommend that you avoid sending sensitive, confidential, or personally identifiable information in the messages that you use in these tests.

Inbox placement tests show you how different email providers handle specific messages. The test results tell you how many of your messages arrived in test recipients' inboxes on the various email providers. It also tells you how many messages were sent to recipients' junk mail folders, and how many weren't delivered at all. Performing inbox placement tests help you identify deliverability problems that could arise as a result of the content of your email.

Your monthly Deliverability dashboard subscription includes 25 inbox placement tests per month. You can purchase more tests for an additional fee. For more information, see Amazon Pinpoint Pricing.

**To create a new email placement test**

1. In the navigation pane of the Deliverability dashboard, choose **Inbox placement tests**.
2. Choose **Create a test**.
3. For **Name**, enter a name that helps you easily identify this specific test.
4. For **From address**, choose either an **Email address** or a **Domain**, and then specify the email address that you plan to use to send the email.
5. For **Subject**, enter the subject line for the email.
6. For **HTML content**, enter the HTML-formatted content of the message.
7. Choose **Create**.

It takes approximately 24 hours for the test to complete. When the test is finished, complete the following steps to view the results.

**To view the results of an inbox placement test**

1. In the navigation pane of the Deliverability dashboard, choose **Inbox placement tests**.
2. Confirm that the value in the **Test status** column is **Complete** for the test that you want to review. If it is, choose the test, and then choose **View test results**, as shown in the following image.
Each inbox placement test contains two sections: **Deliverability overview** and **ISP overview**.

The **Deliverability overview** section contains the following information about the message that you sent in the inbox placement test:

- **Test name** – The name that you provided when you created the test.
- **Report ID** – A unique identifier for the test.
- **From identity** – The email address that the test email was sent from.
- **Subject** – The subject line of the test email.
- **Inbox** – The percentage of emails that arrived in test recipients' email inboxes.
- **Spam** – The percentage of emails that arrived in test recipients' spam folders.
- **Missing** – The percentage of emails that didn't reach the recipient.
- **DKIM rate** – The percentage of messages that were verified using DKIM.
- **SPF rate** – The percentage of messages that were verified using SPF.

You can view the contents of the test email by expanding the **View HTML content** section.

The **ISP overview** section contains a list of over 95 major email providers located in countries around the world. For each provider, this table includes the following metrics:

- **Inbox** – The percentage of emails that arrived in test recipients' email inboxes on the provider's domain.
- **Spam** – The percentage of emails that arrived in test recipients' spam folders on the provider's domain.
- **Missing** – The percentage of emails that didn't reach the recipient.
- **SPF** – The percentage of messages that were verified by the provider using SPF.
- **DKIM** – The percentage of messages that were verified by the provider using DKIM.

**Test Results**

Inbox placement tests contain two sections: a **Deliverability overview** and an **ISP Overview**.
This section contains a summary of the inbox placement test. It includes the following information:

- **From identity** – The sender email address for the test email.
- **Subject** – The subject line of the email.
- **Inbox** – The percentage of test messages that arrived in recipients' inboxes.
- **Spam** – The percentage of test messages that were sent to recipients' junk mail folders.
- **Missing** – The percentage of test messages that weren't delivered to recipients at all.
- **DKIM rate** – The percentage of test messages that were authenticated by the recipient's mail providers by using DomainKeys Identified Mail.
- **SPF rate** – The percentage of test messages that were authenticated by the recipient's mail provider by using Sender Policy Framework.

You can also view the body of the email by choosing View HTML content.
ISP Overview

This section contains a list of all of the email providers that we sent your test message to during the test. For each provider in this list, we provide the same five metrics shown in the Deliverability overview section (Inbox, Spam, Missing, SPF, and DKIM).

Dashboard Settings

On the Dashboard settings page, you can change several settings that are related to the Deliverability dashboard. You can also find information that tells you about your usage of the Deliverability dashboard for the current month.

Subscription Overview

The Subscription overview section contains information about the status of your Deliverability dashboard subscription. It also tells you how many days remain in the current billing cycle.

Your subscription to the Deliverability dashboard is billed each month. We aren't able to offer subscriptions for a portion of a billing period. If you cancel your subscription before the end of a billing period, we continue to charge you for the remaining days in the billing period. However, we don't charge you for the next billing period. To cancel your subscription, choose Cancel subscription.

Monthly usage

The Monthly usage section provides information about your usage of the Deliverability dashboard for the current month.

In the Domain reputation tracking section, you can choose which domains are monitored on the Domain reputation and Deliverability by campaign pages. Your subscription to the Deliverability dashboard lets you monitor up to five domains per month. You can monitor more than five domains for an additional monthly charge. To add or remove domains to the Deliverability dashboard, choose Edit in the Subscribed domains section.

Note
You can only monitor domains that you've verified. For more information about verifying domains, see Verifying a Domain (p. 30).

The Predictive inbox placement tests section shows you how many Predictive inbox placement tests you've performed in the current month. Your subscription includes 25 tests. You can purchase additional tests for an additional fee.

For more information about Deliverability dashboard pricing, see Amazon Pinpoint Pricing.

Tips and Best Practices

Even when you have your customers' best interests in mind, you may still encounter situations that impact the deliverability of your messages. The following sections contain recommendations to help ensure that your email communications reach your intended audience.

General Recommendations

- Put yourself in your customer's shoes. Ask yourself if the message you're sending is something you would want to receive in your own inbox. If the answer is anything less than an enthusiastic "yes!" then you probably shouldn't send it.
- Some industries have a reputation for poor quality or even malicious email practices. If you're involved in the following industries, you must monitor your reputation very closely and resolve issues immediately:
• Home mortgage
• Credit
• Pharmaceuticals and supplements
• Alcohol and tobacco
• Adult entertainment
• Casinos and gambling
• Work-from-home programs

Domain and "From" Address Considerations

• Think carefully about the addresses you send email from. The "From" address is one of the first pieces of information your recipients see, and therefore can leave a lasting first impression. Additionally, some ISPs associate your reputation with your "From" address.

• Consider using subdomains for different types of communications. For example, assume you’re sending email from the domain example.com, and you plan to send both marketing and transactional messages. Rather than sending all of your messages from example.com, send your marketing messages from a subdomain such as marketing.example.com, and your transactional messages from a subdomain such as orders.example.com. Unique subdomains develop their own reputations. Using subdomains reduces the risk of damage to your reputation if, for example, your marketing communications land in a spam trap or trigger a content filter.

• If you plan to send a large number of messages, don’t send those messages from an ISP-based address such as sender@hotmail.com. If an ISP notices a large volume of messages coming from sender@hotmail.com, that email is treated differently than an email that comes from an outbound email sending domain that you own.

• Work with your domain registrar to ensure that the WHOIS information for your domain is accurate. Maintaining an honest and up-to-date WHOIS record demonstrates that you value transparency, and allows users to quickly identify whether or not your domain is legitimate.

• Avoid using a no-reply address, such as no-reply@example.com, as your "From" or "Reply-to" address. Using a no-reply@ email address sends your recipients a clear message: that you aren't offering them a way to contact you, and that you're not interested in their feedback.

Building and Maintaining Your Lists

• Implement a double opt-in strategy. When users sign up to receive email from you, send them a message with a confirmation link, and don't start sending them email until they confirm their address by clicking that link. A double opt-in strategy helps reduce the number of hard bounces resulting from typographical errors.

• When collecting email addresses with a web-based form, perform minimal validation on those addresses upon submission. For example, ensure that the addresses you collect are well-formed (that is, they are in the format recipient@example.com), and that they refer to domains with valid MX records.

• Use caution when allowing user-defined input to be passed to Amazon SES unchecked. Forums registrations and form submissions present unique risks because the content is completely user-generated, and spammers can fill out forms with their own content. It's your responsibility to ensure that you only send email with high-quality content.

• It's highly unlikely that a standard alias (such as postmaster@, abuse@, or noc@) will ever sign up for your email intentionally. Ensure that you only send messages to real people who actually want to receive them. This rule is especially true for standard aliases, which are customarily reserved for email watchdogs.
Compliance

- Be aware of the email marketing and anti-spam laws and regulations in the countries and regions you send email to. You're responsible for ensuring that the email you send complies with these laws. This guide doesn't cover these laws, so it's important that you research them. For a list of laws, see Email Spam Legislation by Country on Wikipedia.
- Always consult an attorney to obtain legal advice.

Bounces

A bounce occurs when an email can't be delivered to the intended recipient. There are two types of bounces: hard bounces and soft bounces. A hard bounce occurs when the email can't be delivered because of a persistent issue, such as when an email address doesn't exist. A soft bounce occurs when a temporary issue prevents the delivery of an email. Soft bounces can occur when a recipient's inbox is full, or when the receiving server is temporarily unavailable. Amazon Pinpoint handles soft bounces by attempting to re-deliver soft bounced emails for a certain period of time.

It's essential that you monitor the number of hard bounces in your email program, and that you remove hard-bouncing email addresses from your recipient lists. When email receivers detect a high rate of hard bounces, they assume that you don't know your recipients well. As a result, a high hard bounce rate can negatively impact the deliverability of your email messages.

The following guidelines can help you avoid bounces and improve your sender reputation:

- Try to keep your hard bounce rate below 5%. The fewer hard bounces in your email program, the more likely ISPs will see your messages as legitimate and valuable. This rate should be considered a reasonable and attainable goal, but isn't a universal rule across all ISPs.
- Never rent or buy email lists. These lists may contain large numbers of invalid addresses, which could cause your hard bounce rates to increase dramatically. Furthermore, these lists could contain spam traps—email addresses specifically used to catch illegitimate senders. If your messages land in a spam trap, your delivery rates and sender reputation could be irrevocably damaged.
- Keep your list up to date. If you haven't emailed your recipients in a long time, try to validate your customers' statuses through some other means (such as website login activity or purchase history).
- If you don't have a method of verifying your customers' statuses, consider sending a win-back email. A typical win-back email mentions that you haven't heard from the customer in a while, and encourages the customer to confirm that they still want to receive your email. After sending a win-back email, purge all of the recipients who did not respond from your lists.

When you receive bounces, it's vital that you respond to them appropriately by observing the following rules:

- If an email address hard bounces, immediately remove that address from your lists. Don't attempt to re-send messages to hard-bouncing addresses. Repeated hard bounces add up, and ultimately harm your reputation with the recipient's ISP.
- Make sure that the address you use to receive bounce notifications is able to receive email.
- If your inbound email comes to you from an ISP, instead of through your own internal servers, an influx of bounce notifications can land in your spam folder or be dropped completely. Ideally, you shouldn't use a hosted email address to receive bounces. If you must, however, then check the spam folder often, and don't mark the bounce messages as spam. In Amazon Pinpoint, you can specify the address that bounce notifications are sent to.
- Usually, a bounce provides the address of the mailbox refusing delivery. However, if you need more granular data to map a recipient address to a particular email campaign, include an X-header with a value you can trace back to your internal tracking system.
Complaints

A complaint occurs when an email recipient clicks the "Mark as Spam" (or equivalent) button in their web-based email client. If you accumulate a large number of these complaints, the ISP assumes that you are sending spam. This has a negative impact on your deliverability rate and sender reputation. Some, but not all, ISPs will notify you when a complaint is reported; this is known as a feedback loop. Amazon Pinpoint automatically forwards complaints from ISPs that offer feedback loops to you.

The following guidelines can help you avoid complaints and improve your sender reputation:

- Try to keep your complaint rate below 0.1%. The fewer complaints in your email program, the more likely ISPs will see your messages as legitimate and valuable. This rate should be considered a reasonable and attainable goal, but isn’t a universal rule across all ISPs.
- If a customer complains about a marketing email, you should immediately stop sending that customer marketing emails. However, if your email program also includes other types of emails (such as notification or transactional emails), it may be acceptable to continue to send those types of messages to the recipient who issued the complaint.
- As with hard bounces, if you have a list that you haven't sent email to in a while, ensure that your recipients understand why they’re receiving your messages. We recommend that you send a welcome message reminding them of who you are and why you’re contacting them.

When you receive complaints, it's vital that you respond to them appropriately by observing the following rules:

- Make sure that the address you use to receive complaint notifications is able to receive email.
- Make sure that your complaint notifications aren't being marked as spam by your ISP or mail system.
- Complaint notifications usually contain the body of the email; this is different from bounce notifications, which only include the email headers. However, in complaint notifications, the email address of the individual who issued the complaint is removed. Use custom X-headers or special identifiers embedded in the email body so that you can identify the email address that issued the complaint. This technique makes it easier to identify addresses that complained so that you can remove them from your recipient lists.

Message Quality

Email receivers use content filters to detect certain characteristics of messages and determine whether a message is legitimate. These content filters automatically review the content of messages to identify common traits of unwanted to malicious messages. Amazon Pinpoint uses content filtering technologies to help detect and block messages that contain malware before they are sent.

If an email receiver's content filters determine that your message has characteristics of spam or malicious email, your message will most likely be flagged and diverted from recipients' inboxes.

Remember the following when designing your email:

- Modern content filters are intelligent, continuously adapting and changing. They don't rely on a predefined set of rules. Third-party services such as ReturnPath or Litmus can help identify content in your email that may trigger content filters.
- If your email contains links, check the URLs for those links against blacklists, such as those found at URIBL.com and SURBL.org.
- Avoid using link shorteners. Malicious senders may use link shorteners to hide the actual destination of a link. When ISPs notice that link shortening services—even the most reputable ones—are being used for nefarious purposes, they may blacklist those services altogether. If your email contains a link to a blacklisted link shortening service, it won’t reach your customers’ inboxes, and the success of your email campaign suffers.
• Test every link in your email to ensure that it points to the intended page.
• Make sure your website includes Privacy Policy and Terms of Use documents, and that these documents are up to date. It's a good practice to link to these documents from each email you send. Providing links to these documents demonstrates that you have nothing to hide from your customers, which can help build a relationship of trust.
• If you plan to send high-frequency content (such as “daily deals” messages), ensure that the content of your email is different with each deployment. When you send messages with high frequency, you must ensure that those messages are timely and relevant, rather than repetitive and annoying.

Amazon Pinpoint SMS Channel

You can use the SMS channel in Amazon Pinpoint to send SMS messages (text messages) to your customers’ mobile devices. Amazon Pinpoint can send SMS messages to recipients in over 200 countries and regions (p. 89). In some countries and regions, you can also receive messages from your customers by using the two-way SMS feature.

To send text messages using Amazon Pinpoint, you have to enable the SMS channel in your project (p. 69). Depending on how you use Amazon Pinpoint to send SMS messages, you might also need to initiate a request with AWS Support (p. 70) to request that certain SMS options are enabled or modified for your account. For example, you can request an increase to your SMS spending quota, or request a short code to use when sending and receiving messages.

To receive text messages using Amazon Pinpoint, you should first obtain a dedicated short code (p. 73) or long code (p. 77). When you have a dedicated number, you can enable two-way SMS for it (p. 87). Finally, you can specify the messages that Amazon Pinpoint sends to customers when it receives incoming messages (p. 243).

In the SMS and voice settings section (p. 243) of the Amazon Pinpoint console, you can manage SMS channel settings for your use case and budget. For example, you can set your monthly SMS spending quota, or change your default message type.

Note
When you configure SMS channel settings in Amazon Pinpoint, your changes apply to other AWS services that send SMS messages, such as Amazon SNS.

Topics
• SMS Limits and Restrictions in Amazon Pinpoint (p. 65)
• Setting Up the Amazon Pinpoint SMS Channel (p. 69)
• Requesting Support for SMS Messaging with Amazon Pinpoint (p. 70)
• Monitoring SMS Activity with Amazon Pinpoint (p. 82)
• Managing the Amazon Pinpoint SMS Channel (p. 84)
• Originating Identities for SMS Messages (p. 84)
• Using Two-Way SMS Messaging in Amazon Pinpoint (p. 87)
• Supported Countries and Regions (SMS Channel) (p. 89)
• SMS Best Practices (p. 96)

SMS Limits and Restrictions in Amazon Pinpoint

The SMS protocol is subject to several limitations and restrictions. For example, there are technical limitations that limit the length of each SMS message. There are also restrictions on the type of content that you can send using SMS. This topic discusses several of these limitations and restrictions.
When you send SMS messages using Amazon Pinpoint, you should consider these limitations and restrictions. For best results, you should also implement the techniques discussed in SMS Best Practices (p. 96).

**Character Limits**

A single SMS message can contain up to 140 bytes of information. The number of characters you can include in a single SMS message depends on the type of characters the message contains.

If your message only uses characters in the GSM 03.38 character set (p. 66), also known as the GSM 7-bit alphabet, it can contain up to 160 characters. If your message contains any characters that are outside the GSM 03.38 character set, it can have up to 70 characters. When you send an SMS message, Amazon Pinpoint automatically determines the most efficient encoding to use.

When a message contains more than the maximum number of characters, the message is split into multiple parts. When messages are split into multiple parts, each part contains additional information about the message part that precedes it. When the recipient’s device receives message parts that are separated in this way, it uses this additional information to ensure that all of the message parts are displayed in the correct order. Depending on the recipient’s mobile carrier and device, multiple messages might be displayed as a single message, or as a sequence of separate messages. As a result of splitting, the number of characters in each message part is reduced to 153 (for messages that only contain GSM 03.38 characters) or 67 (for messages that contain other characters). You can estimate how many message parts your message contains before you send it by using SMS length calculator tools, several of which are available online.

To view the number of message parts for each message that you send, you should first enable event streaming (p. 249). When you do, Amazon Pinpoint produces an _SMS.SUCCESS event when the message is delivered to the recipient’s mobile provider. The _SMS.SUCCESS event record contains an attribute called attributes.number_of_message_parts. This attribute specifies the number of message parts that the message contained.

**Important**

When you send a message that contains more than one message part, you’re charged for the number of message parts contained in the message.

**GSM 03.38 Character Set**

The following table lists all of the characters that are present in the GSM 03.38 character set. If you send a message that only includes the characters shown in the following table, then the message can contain up to 160 characters.

<table>
<thead>
<tr>
<th>GSM 03.38 Standard Characters</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
</tr>
<tr>
<td>N</td>
</tr>
<tr>
<td>a</td>
</tr>
<tr>
<td>n</td>
</tr>
<tr>
<td>à</td>
</tr>
<tr>
<td>Ø</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>$</td>
</tr>
</tbody>
</table>
GSM 03.38 Standard Characters

| £ | ? | “ | ) | § | ; | ' | / | _ | ¥ | Δ | Φ | Γ |
| Λ | Ω | Π | Ψ | Σ | Θ | Ξ | |

The GSM 03.38 character set includes several symbols in addition to those shown in the preceding table. However, each of these characters is counted as two characters because it also includes an invisible escape character:

- `^`
- `{`
- `}`
- `\`
- `[`
- `]`
- `~`
- `|`
- `€`

Finally, the GSM 03.38 character set also includes the following non-printed characters:

- A space character.
- A line feed control, which signifies the end of one line of text and the beginning of another.
- A carriage return control, which moves to the beginning of a line of text (usually following a line feed character).
- An escape control, which is automatically added to the characters in the preceding list.

**Example Messages**

This section contains several example SMS messages. For each example, this section shows the total number of characters, as well as the number of message parts for the message.

**Example 1: A long message that only contains characters in the GSM 03.38 alphabet**

The following message only contains characters that are in the GSM 03.38 alphabet.

Hello Carlos. Your Example Corp. bill of $100 is now available. Autopay is scheduled for next Thursday, April 9. To view the details of your bill, go to https://example.com/bill1.

The preceding message contains 180 characters, so it has to be split into multiple message parts. When a message is split into multiple message parts, each part can contain 153 GSM 03.38 characters. As a result, this message is sent as 2 message parts.

**Example 2: A message that contains multi-byte characters**

The following message contains several Chinese characters, all of which are outside of the GSM 03.38 alphabet.

```
**************************************************************************
```

67
The preceding message contains 71 characters. However, because almost all of the characters in the message are outside of the GSM 03.38 alphabet, it's sent as two message parts. Each of these message parts can contain a maximum of 67 characters.

**Example 3: A message that contains a single non-GSM character**

The following message contains a single character that isn't part of the GSM 03.38 alphabet. In this example, the character is a closing single quote (‘), which is a different character from a regular apostrophe (’). Word processing applications such as Microsoft Word often automatically replace apostrophes with closing single quotes. If you draft your SMS messages in Microsoft Word and paste them into Amazon Pinpoint, you should remove these special characters and replace them with apostrophes.

John: Your appointment with Dr. Salazar’s office is scheduled for next Thursday at 4:30pm. Reply YES to confirm, NO to reschedule.

The preceding message contains 130 characters. However, because it contains the closing single quote character, which isn't part of the GSM 03.38 alphabet, it's sent as two message parts.

If you replace the closing single quote character in this message with an apostrophe (which is part of the GSM 03.38 alphabet), then the message is sent as a single message part.

**Restrictions for Specific Countries or Regions**

Amazon Pinpoint is currently unable to send SMS messages to a small number of countries, including Cuba, Iran, North Korea, Syria, and Sudan. For a complete list of countries and regions that you can send SMS messages to, see Supported Countries and Regions (SMS Channel) (p. 89).

Most countries and regions place restrictions on the type of content that you can send using SMS. These restrictions vary, but the following types of content are restricted in most countries or regions:

- Pornographic content
- Content that is profane or hateful
- Content that depicts or endorses violence
- Content that endorses illegal drugs

In many countries and regions, if a customer receives restricted content and complaints to a mobile carrier or regulatory agency, the sender might be subject to fines and penalties. Governments of a few countries and regions actively filter all incoming messages to remove content that they deem offensive or inappropriate. Always familiarize yourself with the laws and regulations about sending commercial SMS messages for the countries and regions where your customers are located.

**Originating Numbers**

In Amazon Pinpoint, an originating number or originating ID is the phone number or sender ID that appears on customers' devices when they receive messages from you. You can use Amazon Pinpoint to send SMS messages from the following types of originating IDs: short codes, long codes, and sender IDs. The appropriate type of originating ID to use depends on the rules related to sending commercial SMS messages in the countries and regions where your customers are located. For more information about originating IDs, see Originating Identities for SMS Messages (p. 84).

Each country or region has different rules related to the originating number or ID that commercial senders use when sending SMS messages. For example, in the United States and Canada, application-to-person (A2P) messages must be sent using a short code. In India, A2P messages must be sent using a six-digit sender ID that's preregistered with mobile carriers.
Setting Up the Amazon Pinpoint SMS Channel

To send SMS messages with Amazon Pinpoint, you need an Amazon Pinpoint project in which the SMS channel is enabled.

You can also enable the SMS channel for an existing project by using the SMS and voice settings page on the Amazon Pinpoint console. For more information, see Managing the Amazon Pinpoint SMS Channel (p. 84).

Creating a New Project by Using the Amazon Pinpoint Console

The first step in setting up the SMS channel in Amazon Pinpoint is to create a new project. Next, you enable the SMS channel for that project.

To create a new Amazon Pinpoint project and enable the SMS channel

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose Create a project.
3. For Project name, enter a name, and then choose Create.
   
   Note
   The project name can contain up to 64 alphanumeric characters. It can also include the following characters: comma (,), period (.), at sign (@), underscore (_), equals sign (=), and plus sign (+).

4. Under Project features, in the SMS and voice section, choose Configure.
5. Choose Enable the SMS channel for this project.
6. Under Account-level settings, you can optionally change the following settings:
   
   • Default message type – The category of messages that you plan to send. Choose Transactional for time-sensitive content, such as alerts and one-time passwords, or choose Promotional for marketing-related content.
   
   • Account spending limit – The maximum amount of money, in US Dollars, that you want to spend sending SMS messages per calendar month. If your monthly spending exceeds this value, Amazon Pinpoint and other AWS services stop sending SMS messages from your account.
   
   Note
   If you haven’t used Amazon Pinpoint or Amazon SNS to send SMS messages from your AWS account, your account will have a default spending quota of $1.00 (USD). You can request an increase to this account-wide quota. For more information, see Requesting Increases to Your Monthly SMS Spending Quota for Amazon Pinpoint (p. 70).

   • Default sender ID – The identity that appears on recipients’ devices when they receive messages. Support for sender ID capabilities varies by country or region.

   Important
   These settings apply to your entire AWS account. When you change these settings, they apply to all other Amazon Pinpoint projects in your account, and to other AWS services that you use to send SMS messages, such as Amazon SNS.

6. When you finish, choose Save changes.

Next Steps

You've created a project that's enabled for SMS messaging. Now you can use Amazon Pinpoint to send SMS messages.
Some SMS options, such as dedicated origination numbers or sender IDs, are unavailable until you contact AWS Support. For more information, see Requesting Support for SMS Messaging with Amazon Pinpoint (p. 70).

To engage an audience segment with an SMS campaign, see Amazon Pinpoint Campaigns (p. 123).

To send an SMS message directly to a limited audience without creating a campaign, see Send Test Messages with Amazon Pinpoint (p. 171).

Requesting Support for SMS Messaging with Amazon Pinpoint

Certain SMS options with Amazon Pinpoint are unavailable until you contact AWS Support. Open a case in the AWS Support Center to request any of the following:

- An increase to your monthly SMS spending threshold
  
  By default, the monthly spending threshold is $1.00 (USD). Your spending threshold determines the volume of messages that you can send with Amazon Pinpoint. Request a spending threshold that meets the expected monthly message volume for your SMS use case.

- A dedicated number (short code or long code)
  
  Your dedicated origination number is assigned to your AWS account, and it’s available exclusively to you. If you don’t have a dedicated number, Amazon Pinpoint assigns a number to your messages. This number is shared with other Amazon Pinpoint users, and it varies based upon destination and message type (transactional or promotional). By reserving a short code or long code, you can send your messages with a persistent origination number. This makes it easier for your audience to recognize that your organization is the source of your messages. A dedicated long code or short code is required if you want to enable two-way SMS with Amazon Pinpoint. Long codes are supported only for two-way SMS.

- A dedicated sender ID
  
  A sender ID is a custom ID that is shown as the sender on the recipient's device. For example, you can use your business brand to make the message source easier to recognize. Support for sender IDs varies by country or region. For more information, see Supported Countries and Regions (SMS Channel) (p. 89).

When you create your case in the AWS Support Center, include all the information that’s required for the type of request you’re submitting. Otherwise, AWS Support contacts you to obtain this information before proceeding. By submitting a detailed case, you help ensure that your case is fulfilled without delays. For the details that are required for specific types of SMS requests, see the following topics.

Topics

- Requesting Increases to Your Monthly SMS Spending Quota for Amazon Pinpoint (p. 70)
- Requesting Dedicated Short Codes for SMS Messaging with Amazon Pinpoint (p. 73)
- Requesting Dedicated Long Codes for SMS Messaging with Amazon Pinpoint (p. 77)
- Requesting Sender IDs for SMS Messaging with Amazon Pinpoint (p. 79)

Requesting Increases to Your Monthly SMS Spending Quota for Amazon Pinpoint

Your spending quota determines how much money you can spend sending SMS messages through Amazon Pinpoint each month. When Amazon Pinpoint determines that sending an SMS message would
incur a cost that exceeds your spending quota for the current month, it stops publishing SMS messages within minutes.

**Important**
Because Amazon Pinpoint is a distributed system, it stops sending SMS messages within minutes of the spending quota being exceeded. During this period, if you continue to send SMS messages, you might incur costs that exceed your quota.

We set the spending quota for all new accounts at $1.00 (USD) per month. This quota is intended to let you test the message-sending capabilities of Amazon Pinpoint. This quota also helps to reduce the risk of sending large campaigns before you're actually ready to use Amazon Pinpoint for your production workloads. Finally, this quota is necessary to prevent malicious users from abusing Amazon Pinpoint.

To request an increase to the SMS spending quota for your account, open a quota increase case in the AWS Support Center.

**Step 1: Open an Amazon Pinpoint SMS Case**

You can request an increase to your monthly spending quota by opening a quota increase case in the AWS Support Center.

**Note**
Some of the fields on the request form are marked as "optional." However, AWS Support requires all of the information that's mentioned in the following steps in order to process your request. If you don't provide all of the required information, you may experience delays in processing your request.

**To request a spending quota increase**

2. On the **Support** menu, choose **Support Center**.
3. On the **My support cases** tab, choose **Create case**.
4. Choose **Service quota increase**.
5. Under **Case classification**, do the following:
   a. For **Quota type**, choose **Pinpoint SMS**.
   b. For **Provide a link to the site or app which will be sending SMS messages**, enter the URL of the website for your service or application.
   c. For **What type of messages do you plan to send**, choose the type of SMS messages that you plan to send:
      - **One Time Password** – Messages that provide passwords that your customers use to authenticate with your website or application.
      - **Promotional** – Noncritical messages that promote your business or service, such as special offers or announcements.
      - **Transactional** – Important informational messages that support customer transactions, such as order confirmations or account alerts. Transactional messages can’t contain promotional or marketing content.
   d. For **Which countries do you plan to send messages to**, specify the countries that you plan to send SMS messages to. For more information, see Supported Countries and Regions (SMS Channel) (p. 89). If your list of countries exceeds the number of characters that you can enter in this box, you can instead list the countries in the **Use case description** box.
6. Under **Requests**, do the following:
   a. For **Resource Type**, choose **General Quotas**.
   b. For **Quota**, choose **Account Spend Threshold Increase**.

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71
c. For **New quota value**, enter the maximum amount (in USD) that you can spend on SMS messages each calendar month.

d. (Optional) If you want to include more than one request in this support case, choose **Add another request**. Then, specify the type of request.

If you include multiple requests, provide the required information for each. For the required information, see the other sections within Requesting Support for SMS Messaging with Amazon Pinpoint (p. 70).

7. Under **Case description**, for **Use case description**, provide the following details:

   - The website or app of the company or service that's sending SMS messages.
   - The service that's provided by your website or app, and how your SMS messages contribute to that service.
   - How users sign up to voluntarily receive your SMS messages on your website, app, or other location.

   If your requested spending quota (the value you specified for **New quota value**) exceeds $10,000 (USD), provide the following additional details for each country that you're messaging:

   - Whether you're using a sender ID or short code. If you're using a sender ID, provide:
     - The sender ID.
     - Whether the sender ID is registered with wireless carriers in the country.
   - The maximum expected transactions-per-second (TPS) for your messaging.
   - The average message size.
   - The template for the messages that you send to the country.
   - (Optional) Character encoding needs, if any.

8. When you finish, choose **Submit**.

The AWS Support team provides an initial response to your request within 24 hours.

In order to prevent our systems from being used to send unsolicited or malicious content, we have to consider each request carefully. If we're able to do so, we'll grant your request within this 24-hour period. However, if we need to obtain additional information from you, it might take longer to resolve your request.

We might not be able to grant your request if your use case doesn't align with our policies.

**Step 2: Update Your SMS Settings on the Amazon Pinpoint Console**

After we notify you that your monthly spending quota has been increased, you have to adjust the spending quota for your account on the Amazon Pinpoint console.

**To adjust your spending quota on the console**

1. Open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. On the **All projects** page, choose a project that uses the SMS channel.
3. In the navigation pane, under **Settings**, choose **SMS and voice**.
4. In the **SMS and voice** section, choose **Edit**.
5. Under **Account-level settings**, for **Account spending limit**, enter the maximum amount, in US Dollars, that you want to spend on SMS messages each calendar month. You can specify a value that's less than or equal to the total monthly spending quota provided by AWS Support. By setting a lower value, you can control your monthly spending while still retaining the capacity to scale up if necessary.
6. Choose **Save changes**.

**Requesting Dedicated Short Codes for SMS Messaging with Amazon Pinpoint**

A short code is a number that you can use for high-volume SMS message sending. Short codes are often used for application-to-person (A2P) messaging, two-factor authentication (2FA), and marketing. A short code typically contains between three and seven digits, depending on the country or region that it's based in.

You can only use short codes to send messages to recipients in the same country where the short code is based. If your use case requires you to use short codes in more than one country, you have to request a separate short code for each country that your recipients are located in.

For information about short code pricing, see [Amazon Pinpoint Pricing](#).

**Important**

If you're new to SMS messaging with Amazon Pinpoint, request a monthly SMS spending threshold that meets the expected demands of your SMS use case. By default, your monthly spending threshold is $1.00 (USD). You can request to increase your spending threshold in the same support case that includes your request for a short code. Or, you can use a separate case. For more information, see [Requesting Increases to Your Monthly SMS Spending Quota for Amazon Pinpoint](#).

In addition, if you're requesting a dedicated short code to send messages that will or may contain Protected Health Information (PHI), you should identify this purpose in your Case description when you open a support case, as detailed below.

**Step 1: Open a Support Case**

Open a case with AWS Support by completing the following steps.

**To request a dedicated short code**

2. On the **Support** menu, choose **Support Center**, as shown in the following image.
3. On the My support cases tab, choose Create case.
4. Choose Service quota increase.
5. Under Case classification, complete the following sections:
   - For Quota type, choose Pinpoint SMS.
   - For Provide a link to the site or app which will be sending SMS messages, provide information about the website, application, or service that will send SMS messages.
   - For What type of messages do you plan to send, choose the type of messages that you plan to send using your short code.
   - For Which countries do you plan to send messages to, enter the country or region that you want to purchase short codes in.
6. Under Requests, complete the following sections:
   - For Resource Type, choose Dedicated SMS Short Codes.
   - For Quota, choose the type of messages that you plan to send using this short code.
   - For New quota value, enter the number of short codes that you want to purchase.
7. Under Case description, for Use case description, provide the following information:

   Company information:
   - Company name.
   - Company mailing address.
   - Name and phone number for the primary contact for your request.
   - Email address and toll-free number for support at your company.
   - Company tax ID.
   - Name of your product or service.
User sign-up process:

- Company website, or the website that your customers will sign up on to receive messages from your short code.
- How users will sign up to receive messages from your short code. Specify one or more of the following options:
  - **Text messages.**
  - **Website.**
  - **Mobile app.**
  - **Other.** If other, explain.
- The text for the option to sign up for messages on your website, app, or elsewhere.
- The sequence of messages that you plan to use for double opt-in. Provide all of the following:
  1. The SMS message that you plan to send when a user signs up. This message asks for the user's consent for recurring messages. For example: *ExampleCorp: Reply YES to receive account transaction alerts. Msg&data rates may apply.*
  2. The opt-in response that you expect from the user. This is typically a keyword, such as *YES.*
  3. The confirmation message that you want to send when customers send this keyword to your short code. For example: *You are now registered for account alerts from ExampleCorp. Msg&data rates may apply. Txt STOP to cancel or HELP for info.*

The purpose of your messages:

- The purpose of the messages that you plan to send with your short code. Specify one of the following options:
  - **Promotions and marketing.**
  - **Location-based services.**
  - **Notifications.**
  - **Information on demand.**
  - **Group chat.**
  - **Two-factor authentication (2FA).**
  - **Polling and surveys.**
  - **Sweepstakes or contests.**
  - **Other.** If other, explain.
- Whether you plan to use your short code to send promotional or marketing messages for a business other than your own.
- Whether you plan to use your short code to send messages that will or may contain Protected Health Information (PHI), as defined by the Health Insurance Portability and Accountability Act (HIPAA) and associated legislation and regulations.

Message content:

- The message that you plan to send when customers opt in to your messages by sending you a specific keyword. Be careful when you specify this keyword and message—it may take several weeks to change this message. When we create your short code, we register the keyword and message with the mobile phone carriers in the country where you use the short code. Your message might resemble the following example: *Welcome to ProductName alerts! Msg&data rates apply. 2 msgs per month. Reply HELP for help, STOP to cancel.*
- The response that you want to send when customers reply to your messages with the keyword *HELP.* This message has to include customer support contact information. For example:
Requesting SMS Support

**ProductName** Alerts: Help at example.com/help or (800) 555-0199. Msg&data rates apply. 2 msgs per month. Reply STOP to cancel.

- The response that you want to send when customers reply to your messages with the keyword **STOP**. This message has to confirm that the user will no longer receive messages from you. For example: *You are unsubscribed from **ProductName** Alerts. No more messages will be sent. Reply HELP for help or (800) 555-0199.*

- The text that you plan to send as a periodic reminder that the user is subscribed to your messages. For example: *Reminder: You’re subscribed to account alerts from ExampleCorp. Msg&data rates may apply. Txt STOP to cancel or HELP for info.*

- An example of each type of message that you plan to send using your short code. Provide at least three examples. If you plan to send more than three types of messages, provide examples for all of them.

**Important**
Mobile carriers require us to provide all of the information listed above in order to provision short codes. We can't process your request until you provide all of this information.

8. Under **Contact options**, for **Preferred contact language**, choose whether you want to receive communications for this case in **English** or **Japanese**.

9. When you finish, choose **Submit**.

After we receive your request, we provide an initial response within 24 hours. We might contact you to request additional information. If we’re able to provide you with a short code, we send you information about the costs associated with obtaining a short code in the country or region that you specified in your request. We also provide an estimate of the amount of time that's required to provision a short code in your country or region. It usually takes several weeks to provision a short code, although this delay can be much shorter or much longer depending on the country or region where the short code is based.

**Note**
The fees associated with using short codes begin immediately after we initiate your short code request with carriers. You’re responsible for paying these charges, even if the short code hasn't been completely provisioned yet.

In order to prevent our systems from being used to send unsolicited or malicious content, we have to consider each request carefully. We might not be able to grant your request if your use case doesn’t align with our policies.

**Step 2: Update Your SMS Settings in the Amazon Pinpoint Console**

After we notify you that your short code has been provisioned, complete the following steps.

**Note**
You can’t complete this steps until we’ve obtained the short code and associated it with your account.

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.

2. On the **All projects** page, choose a project that the SMS channel is enabled in.

3. In the navigation pane, under **Settings**, choose **SMS and voice**.

4. Under **Number settings**, choose the short code.

5. Under **Default keywords**, verify that the responses for the **HELP** and **STOP** keywords match the values that you specified in your request.

6. Under **Registered keyword**, verify that the opt-in keyword and response match the values that you specified in your request.
7. (Optional) If you want to specify additional keyword responses, or if you want to process inbound messages outside of Amazon Pinpoint, you can enable two-way SMS. For more information, see Two-Way SMS Settings (p. 245).

8. When you finish, choose Save.

Next Steps

You've registered a short code with wireless carriers and reviewed your settings in the Amazon Pinpoint console. Now you can use Amazon Pinpoint to send SMS messages with your short code as the origination number.

To engage an audience segment with an SMS campaign, see Amazon Pinpoint Campaigns (p. 123).

Requesting Dedicated Long Codes for SMS Messaging with Amazon Pinpoint

A long code (also referred to as a long virtual number, or LVN) is a standard phone number that contains up to 12 digits, depending on the country that it's based in. Long codes are typically meant for low-volume, person-to-person communication. However, you can also use long codes for sending test messages, or for sending low volumes of messages to your customers.

Note
In the United States and Canada, sending rates for long codes are restricted to 1 message per second. This restriction is set by the phone carriers, and isn't a limitation of Amazon Pinpoint. This restriction might be higher or lower in other countries and regions. If you send a large volume of messages from a long code, wireless carriers might begin to block your messages. If you send SMS messages programmatically, your applications should limit the number of messages that they send each second.

After we receive your request, we send you information about the costs associated with obtaining a long code in your country or region. We also provide an estimate of the amount of time that's required to provision a long code in your country or region.

Note
If you're new to SMS messaging with Amazon Pinpoint, you should also request a monthly SMS spending threshold that meets the expected demands of your SMS use case. By default, your monthly spending threshold is $1.00 (USD). For more information, see Requesting Increases to Your Monthly SMS Spending Quota for Amazon Pinpoint (p. 70).

Step 1: Open a Support Case

Open a case with AWS Support by completing the following steps.

To request a dedicated long code

2. On the Support menu, choose Support Center, as shown in the following image.
3. On the My support cases tab, choose Create case.

4. Under Create case, choose Service quota increase.

5. Under Case classification, complete the following sections:
   - For Quota type, choose Pinpoint SMS.
   - For Provide a link to the site or app which will be sending SMS messages, provide information about the website, application, or service that will send SMS messages.
   - For What type of messages do you plan to send, choose the type of messages that you plan to send using your long codes.
   - For Which countries do you plan to send messages to, enter the country or region that you want to purchase long codes in.

6. Under Requests, complete the following sections:
   - For Resource Type, choose Dedicated SMS Long Codes.
   - For Quota, choose the type of messages that you plan to send using this long code.
   - For New quota value, enter the number of long codes that you want to purchase.

7. Under Case description, for Use case description, provide the following information:
   - The AWS Region that you use Amazon Pinpoint in.
   - A description of your use case. Include information about the content that you plan to send, how you obtained your customers' contact information, why you requested the number of long codes that you specified earlier, and whether you plan to use the long codes that you obtain to send two-way SMS messages.
   - The response that Amazon Pinpoint should automatically send to customers when they respond to your messages with the keyword HELP.
   - The response that Amazon Pinpoint should automatically send to customers when they respond to your messages with the keyword STOP.
The keyword that customers can send to your long code to opt in to receiving your messages, and the response that Amazon Pinpoint should automatically send to customers when they send this keyword to your long code.

8. Under **Contact options**, for **Preferred contact language**, choose whether you want to receive communications for this case in **English** or **Japanese**.

9. When you finish, choose **Submit**.

After we receive your request, we provide an initial response within 24 hours. We might contact you to request additional information.

If we're able to provide you with a long code, we send you information about the costs associated with obtaining it. We also provide an estimate of the amount of time that's required to provision the long code. In many countries, we can provide you with a dedicated long code within 24 hours. However, in some countries and regions, it can take several weeks to obtain a dedicated long code for the SMS channel.

In order to prevent our systems from being used to send unsolicited or malicious content, we have to consider each request carefully. We might not be able to grant your request if your use case doesn't align with our policies.

**Step 2: Update Your SMS Settings on the Amazon Pinpoint Console**

After AWS notifies you that your long codes have been registered, complete the following steps.

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. On the **All projects** page, choose a project that the SMS channel is enabled in.
3. In the navigation pane, under **Settings**, choose **SMS and voice**.
4. Under **Number settings**, choose the long code.
5. Under **Default keywords**, verify that the responses for the **HELP** and **STOP** keywords match the values that you specified in your request.
6. Under **Registered keyword**, verify that the opt-in keyword and response match the values that you specified in your request.
7. (Optional) If you want to specify additional keyword responses, or if you want to process inbound messages outside of Amazon Pinpoint, you can enable two-way SMS. For more information, see **Two-Way SMS Settings (p. 245)**.
8. When you finish, choose **Save**.

**Next Steps**

You’ve registered a long code and updated your settings in the Amazon Pinpoint console. Now you can use Amazon Pinpoint to send SMS messages with your long code as the origination number.

To engage an audience segment with an SMS campaign, see **Amazon Pinpoint Campaigns (p. 123)**.

To send an SMS message directly to a limited audience without creating a campaign, see **Send Test Messages with Amazon Pinpoint (p. 171)**.

**Requesting Sender IDs for SMS Messaging with Amazon Pinpoint**

In SMS messaging, a **sender ID** is a name that appears as the message sender on recipients’ devices. Sender IDs are a useful way to identify yourself to the recipients of your messages.
Support for sender IDs varies by country. For example, carriers in the United States don't support sender IDs at all, but carriers in India require senders to use sender IDs. For a complete list of countries that support sender IDs, see Supported Countries and Regions (SMS Channel) (p. 89).

**Important**
Some countries require you to register sender IDs before you use them to send messages. Depending on the country, this registration process might take several weeks. The countries that require pre-registered sender IDs are indicated in the table on the Supported Countries (p. 89) page.

If you're sending messages to recipients in a country where sender IDs are supported, and that country doesn't require you to register your sender ID, you don't have to perform any additional steps. You can start sending messages that include sender ID values immediately.

You only need to complete the procedures on this page if you plan to send messages to a country where registration of sender IDs is required.

**Step 1: Open an Amazon Pinpoint SMS Case**

If you plan to send messages to recipients a country where sender IDs are required, you can request a sender ID by creating a new case in the AWS Support Center.

**Note**
If you plan to send messages to recipients in a country where sender IDs are allowed but not required, you don't need to open a case in the Support Center. You can start sending messages that use sender IDs immediately.

**To request a sender ID**

2. On the **Support** menu, choose **Support Center**.
3. On the **My support cases** tab, choose **Create case**.
4. Choose **Service quota increase**.
5. Under **Case classification**, do the following:
   a. For **Quota type**, choose **Pinpoint SMS**.
   b. For **Provide a link to the site or app which will be sending SMS messages**, identify the website or application where your audience members opt in to receive your SMS messages.
   c. For **What type of messages do you plan to send**, choose the type of message that you plan to send using your sender ID:
      - **One Time Password** – Messages that provide passwords that your customers use to authenticate with your website or application.
      - **Promotional** – Noncritical messages that promote your business or service, such as special offers or announcements.
      - **Transactional** – Important informational messages that support customer transactions, such as order confirmations or account alerts. Transactional messages must not contain promotional or marketing content.
   d. For **Which countries do you plan to send messages to**, specify the countries where you want to register a sender ID. Support for sender IDs and sender ID registration requirements vary by country. For more information, see Supported Countries and Regions (SMS Channel) (p. 89).

   If the list of countries exceeds the number of characters allowed by this text box, you can instead list the countries in the **Case description** section.
6. Under **Requests**, do the following:
a. For **Resource Type**, choose **General Quotas**.

b. For **Quota**, choose **SenderID Registration**.

c. For **New quota value**, enter the number of sender IDs that you’re requesting. Typically, this value is 1.

7. Under **Case description**, for **Use case description**, provide the following information:

   - The sender ID that you want to register.
   - The template that you plan to use for your SMS messages.
   - The number of messages that you plan to send to each recipient per month.
   - Information about how your customers opt in to receiving messages from you.
   - The name of your company or organization.
   - The address that's associated with your company or organization.
   - The country where your company or organization is based.
   - A phone number for your company or organization.
   - The URL of the website for your company or organization.

After we receive your request, we provide an initial response within 24 hours. We might contact you to request additional information.

If we're able to provide you with a Sender ID, we send you an estimate of the amount of time that's required to provision it. In many countries, we can provide you with a Sender ID within 2–4 weeks. However, in some countries, it can take several weeks to obtain a Sender ID.

In order to prevent our systems from being used to send unsolicited or malicious content, we have to consider each request carefully. We might not be able to grant your request if your use case doesn’t align with our policies.

**Step 2: Update Your SMS Settings in the Amazon Pinpoint Console**

When we complete the process of obtaining your sender ID, we respond to your case. When you receive this notification, complete the steps in this section to configure Amazon Pinpoint to use your sender ID.

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the **All projects** page, choose a project that uses the SMS channel.
3. In the navigation pane, under **Settings**, choose **SMS and voice**.
4. Next to **SMS settings**, choose **Edit**.
5. Under **Account-level settings**, for **Default sender ID**, type your sender ID.
6. Choose **Save changes**.

**Next Steps**

You've registered a sender ID and updated your settings in the Amazon Pinpoint console. Now you can use Amazon Pinpoint to send SMS messages with your sender ID. SMS recipients in supported countries will see your sender ID as the message sender on their devices.

To engage an audience segment with an SMS campaign, see Amazon Pinpoint Campaigns (p. 123).

To send an SMS message directly to a limited audience without creating a campaign, see Send Test Messages with Amazon Pinpoint (p. 171).
Monitoring SMS Activity with Amazon Pinpoint

Amazon Pinpoint provides the following options for monitoring your SMS activity.

Streaming SMS Event Data

To monitor your SMS activity, such as the number of successful and failed message deliveries, you can configure Amazon Pinpoint to stream SMS event data to Amazon Kinesis Data Streams or Amazon Kinesis Data Firehose. Then, you can use the Kinesis platform to analyze your SMS data. For more information, see Streaming Amazon Pinpoint Events to Kinesis (p. 199).

For examples of the event data that Amazon Pinpoint streams to Kinesis, see SMS Events in the Amazon Pinpoint Developer Guide.

Amazon Pinpoint Analytics

You can also use the Analytics pages on the Amazon Pinpoint console to view charts and data for metrics related to the SMS channel for a project. For example, you can see the number of SMS messages that you've sent and the number of active endpoints that you can send SMS messages to. For more information, see Analytics (p. 175).

Monitoring SMS Spending Activity with Amazon Pinpoint

This topic provides information about viewing SMS spending metrics in Amazon CloudWatch. It also explains how to set up a CloudWatch alarm that sends you a notification when your monthly SMS spending exceeds a certain amount.

View Your Monthly SMS Spending by Using CloudWatch

To quickly determine how much money you've spent sending SMS messages during the current month, you can use the Metrics section of the CloudWatch console. CloudWatch retains metrics data for 15 months, so you can view real-time data and analyze historical trends.

For more information about viewing metrics in CloudWatch, see Using Amazon CloudWatch Metrics in the Amazon CloudWatch User Guide.

To view SMS spending metrics in CloudWatch

2. In the navigation pane, choose Metrics.
3. On the All metrics tab, choose SNS.
4. Choose Metrics with no dimensions.
5. Select SMSMonthToDateSpentUSD. The graph updates to display the amount of money that you've spent sending SMS messages during the current month by using Amazon Pinpoint and Amazon Simple Notification Service (Amazon SNS).

Note
The SMSMonthToDateSpentUSD metric doesn't appear until you send at least one SMS message by using Amazon Pinpoint or Amazon SNS.

Create an SMS Spending Alarm by Using CloudWatch

In addition to viewing your monthly SMS spending metrics, you can create CloudWatch alarms that notify you when your SMS spending exceeds a certain amount. You can set up CloudWatch to deliver these notifications to you by sending them to an Amazon SNS topic.
For more information about creating alarms in CloudWatch, see Using Amazon CloudWatch Alarms in the Amazon CloudWatch User Guide.

To create an SMS spending alarm in CloudWatch

1. If you haven't already done so, create an Amazon SNS topic and subscribe an endpoint to it. The endpoint that you subscribe to the topic should be the location where you want to receive spending notifications. For example, if you want to receive spending notifications by email, subscribe your email address to the Amazon SNS topic. If you want to receive spending notifications by text message, subscribe an SMS endpoint to the topic.

   For information about creating and subscribing to topics, see Getting Started with Amazon SNS in the Amazon Simple Notification Service Developer Guide.

2. Open the CloudWatch console at https://console.aws.amazon.com/cloudwatch/.
3. In the navigation pane, under Alarms, choose Billing.
4. Next to Billing alarms, choose Create alarm.
5. Choose Select metric.
6. On the All metrics tab, choose SNS, and then choose Metrics with no dimensions.
7. Select SMSMonthToDateSpentUSD.

   Note
   The SMSMonthToDateSpentUSD metric doesn't appear until you send at least one SMS message by using Amazon Pinpoint or Amazon SNS.

8. Choose the Graphed metrics tab, and then complete the following steps:

   • Under Statistic, choose the statistic or predefined percentile that you want to monitor, or specify a custom percentile—for example, p99 or p45.
   • Under Period, choose the evaluation period for the alarm. When evaluating the alarm, each period is aggregated into one datapoint.

9. Choose Select metric. The Specify metric and conditions page appears, showing a graph and other information about the metric and statistic for the alarm.

10. Under Conditions, complete the following steps:

    • For Threshold type, choose Static.
    • For Whenever SMSMonthToDateSpentUSD is, specify whether you want the metric to be greater than, greater than or equal to, or equal to the threshold in order to trigger the alarm. Then, under than, enter the threshold value, which is the dollar amount (in US Dollars) that you want to trigger the alarm.

11. Under Additional configuration, complete the following steps:

    • For Datapoints to alarm, enter the number of evaluation periods (datapoints) during which the spending amount must exceed the threshold to trigger the alarm.
    • For Missing data treatment, choose Treat missing data as ignore (maintain the alarm state).

12. Choose Next.

13. Under Notification, complete the following steps:

    • For Whenever this alarm state is, choose in Alarm.
    • For Select an SNS topic, choose the Amazon SNS topic that you want the alarm notification to be sent to.


15. Enter a name and, optionally, a description for the alarm, and then choose Next.

16. Under Preview and create, review and confirm that the alarm settings are what you want, and then choose Create alarm.
Managing the Amazon Pinpoint SMS Channel

Use the Amazon Pinpoint console to enable the SMS channel and manage SMS settings, such as your default message type (transactional or promotional) and your monthly spending quota.

To update your SMS settings, use the **SMS and voice settings** page. For more information, see SMS and Voice Settings (p. 243).

Before you can use Amazon Pinpoint to send SMS messages, you must enable the SMS channel for one or more projects. To create a new project with SMS support, see Setting Up the Amazon Pinpoint SMS Channel (p. 69). To enable the SMS channel in an existing project, complete the following steps:

**To enable the SMS channel for a project**

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the **All projects** page, choose the project for which you want to enable the SMS channel.
3. In the navigation pane, under **Settings**, choose **SMS**.
4. Next to **General**, choose **Edit**.
5. Choose **Enable the SMS channel for this project**.
6. Choose **Save changes**.

**SMS Opt Out**

Where required by local laws and regulations (such as in the US and Canada), SMS recipients can use their devices to opt out by replying to the message with any of the following:

- ARRET (French)
- CANCEL
- END
- OPT-OUT
- OPTOUT
- QUIT
- REMOVE
- STOP
- TD
- UNSUBSCRIBE

To opt out, the recipient must reply to the same long code or short code that Amazon Pinpoint used to deliver the message. After opting out, the recipient no longer receives SMS messages from your AWS account.

**Originating Identities for SMS Messages**

When you send SMS messages using Amazon Pinpoint, you can identify yourself to your recipients in one of three ways: by using a sender ID, by using a long code, or by using a short code. These methods of identifying yourself to your customers are known as *originating identities*. Each of these types of originating identities has its own advantages and disadvantages, which are discussed in the following sections.
Sender IDs

A sender ID is an alphabetic name that identifies the sender of an SMS message. When you send an SMS message using a sender ID, and the recipient is in an area where sender ID authentication is supported, your sender ID appears on the recipient's device instead of a phone number. A sender ID provides SMS recipients with more information about the sender than a phone number or short code provides.

Sender IDs are supported in several countries and regions around the world. In some places, if you're a business that sends SMS messages to individual customers, you must use a sender ID that's pre-registered with a regulatory agency or industry group. For a complete list of countries and regions that support or require sender IDs, see Supported Countries and Regions (SMS Channel) (p. 89).

Advantages

Sender IDs provide the recipient with more information about the message sender. It's easier to establish your brand identity by using a sender ID than by using a short or long code. There's no additional charge for using a sender ID.

Disadvantages

Support and requirements for sender ID authentication aren't consistent across all countries or regions. Several major markets (including Canada, China, and the United States) don't support sender ID. In some areas, you must have your sender IDs pre-approved by a regulatory agency before you can use them.

Long Codes

Long codes are phone numbers that use the number format of the country or region where your recipients are located. Long codes are also referred to as long numbers or virtual mobile numbers. For example, in the United States and Canada, long codes contain 11 digits: the number 1 (the country code), a three-digit area code, and a seven-digit phone number.

If you're using the two-way SMS feature to send and receive SMS messages, you can request up to five dedicated long codes per country. For more information about requesting long codes, see Requesting Dedicated Long Codes for SMS Messaging with Amazon Pinpoint (p. 77).

Advantages

Dedicated long codes are reserved for use by your Amazon Pinpoint account only—they aren't shared with other users. When you use dedicated long codes, you can specify which long code you want to use when you send each message. If you send multiple messages to the same customer, you can ensure that each message appears to be sent from the same phone number. For this reason, dedicated long codes can be helpful in establishing your brand or identity.

Disadvantages

If you send several hundred messages per day from a dedicated long code, mobile carriers might identify your number as one that sends unsolicited messages. If your long code is flagged, your messages might not be delivered to your recipients.

Long codes also have limited throughput. In the United States and Canada, where long codes are most commonly used, you can send a maximum of one message per second. (The maximum sending rates for other countries vary. Contact AWS Support for more information). If you plan to send large volumes of SMS messages, or you plan to send at a rate greater than one message per second, you should purchase a dedicated short code.

Many jurisdictions have restrictions related to using long codes to send Application-to-Person (A2P) SMS messages. An A2P SMS is a message that's sent to a customer's mobile device when that customer submits his or her mobile number to an application. A2P messages are one-way conversations, such as marketing messages, one-time passwords, and appointment reminders. If you plan to send A2P messages, you should purchase a dedicated short code (if your customers are in the United States or Canada), or use a sender ID (if your recipients are in a country or region where sender IDs are supported).
Short Codes

Short codes are numeric sequences that are shorter than a regular phone number. For example, in the United States and Canada, standard phone numbers (long codes) contain 11 digits, while short codes contain five or six digits. There are two types of short codes you can use with Amazon Pinpoint: shared short codes and dedicated short codes.

Shared Short Codes

By default, the SMS messages that you send from Amazon Pinpoint are sent from a group of phone numbers (originating numbers) that are shared with other Amazon Pinpoint users. This group of shared originating numbers is called the shared pool.

When you send a message using the shared pool, and your recipients are in the United States or Canada, they see a short code.

Advantages

You don't have to complete any extra steps to use the identities in the shared pool. Additionally, you only pay for the messages you send—there are no extra costs associated with sending messages using the shared pool.

Disadvantages

The identities in the shared pool are shared with other Amazon Pinpoint users. You can't specify which phone number to use when you send messages using the shared pool. If you send several messages to the same recipient, each message might appear to be sent from a different phone number. For this reason, it can be harder to establish your brand and identity when you use the shared pool.

Dedicated Short Codes

If you send a large volume of SMS messages to recipients in the United States or Canada, you can purchase a dedicated short code. Unlike the short codes in the shared pool, dedicated short codes are reserved for your exclusive use.

Advantages

Using a memorable short code can help build trust. If you need to send sensitive information, such as one-time passwords, it's a good idea to send it using a short code so that your customer can quickly determine whether a message is actually from you.

If you're running a new customer acquisition campaign, you can invite potential customers to send a keyword to your short code (for example, "Text ‘FOOTBALL’ to 10987 for football news and information"). Short codes are easier to remember than long codes, and it's easier for customers to enter short codes into their devices. By reducing the amount of difficulty that customers encounter when they sign up for your marketing programs, you can increase the effectiveness of your campaigns.

Because mobile carriers must approve new short codes before making them active, they are less likely to flag messages sent from short codes as unsolicited.

When you use dedicated short codes to send SMS messages, you can send a higher volume of messages per 24-hour period than you can when you use other types of originating identities. In other words, you have a much higher sending quota. You can also send a much higher volume of messages per second. That is, you have a much higher sending rate.

Disadvantages

There are additional costs to acquire short codes, and they can take a long time to implement. For example, in the United States, there's a one-time setup fee of $650.00 (USD) for each short code, plus an additional recurring charge of $995.00 per month for each short code. It can take 8–12 weeks for short
codes to become active on all carrier networks. To find the price and provisioning time for a different country or region, complete the procedure described in Requesting Dedicated Short Codes for SMS Messaging with Amazon Pinpoint (p. 73).

Using Two-Way SMS Messaging in Amazon Pinpoint

Amazon Pinpoint includes support for two-way SMS, which allows you to receive messages from your customers. You can configure Amazon Pinpoint to automatically send responses to your customers based on the content of the messages they send you.

Note
Two-way SMS is only available in certain countries and regions. For more information about two-way SMS support by country or region, see Supported Countries and Regions (SMS Channel) (p. 89).

Two-Way SMS Use Cases

Businesses in a wide variety of industries can use two-way SMS to keep their customers informed and engaged.

For example, medical practices can send messages to their patients asking them to confirm their appointments. Patients can respond, indicating whether they're able to keep their appointments. Patients who respond that they can't keep their appointments are sent a list of available times, and can reply to the message to reschedule. This use case can be applied to several other types of businesses, such as restaurants or salons.

Another use case for two-way SMS is the verification of certain real-world actions. For example, banks or credit card providers can send a verification message when they notice unusual charges on a customer's account. The customer can respond to the message authorizing the charge. When the provider receives the authorization, they can allow the transaction to proceed.

Configuring Two-Way SMS in Amazon Pinpoint

You can set up two-way SMS by using the Amazon Pinpoint console. Complete the procedures in this section to enable and set up two-way SMS messaging for your account.

Prerequisite

Before you can enable and set up two-way SMS in Amazon Pinpoint, you have to request a dedicated number. If you're testing your two-way SMS program, you can request a long code. However, the laws and regulations of some countries and regions might require you to use a short code when you send messages to your customers and receive messages from them.

For more information about requesting numbers, including dedicated short codes and long codes, see Requesting Support for SMS Messaging with Amazon Pinpoint (p. 70).

Setting Up Two-Way SMS

After you receive a dedicated number from AWS Support, you can enable and configure two-way SMS.

To set up two-way SMS

1. On the All projects page, choose the project that you want to manage two-way SMS settings for.
2. In the navigation pane, under Settings, choose SMS and voice.
3. Under Number settings, choose the phone number that you want to configure two-way SMS for.

   Note
   You can enable two-way SMS for a phone number only if the value in the SMS column is Enabled.
4. Under Two-way SMS, choose Enable 2-way SMS.

5. Under Incoming messages destination, specify the Amazon SNS topic that receives your SMS messages by choosing one of the following options:

   - Create a new Amazon SNS topic – Amazon Pinpoint creates a topic in your account.
   - Choose an existing Amazon SNS topic – Specify the ARN of a topic in your account.

   **Note**
   Amazon Pinpoint currently doesn't support the use of encrypted Amazon SNS topics for two-way SMS messaging. You have to choose a topic that isn't encrypted.

6. Under Two-way SMS keywords, you can add or edit keywords and response messages. When your number receives an SMS message that contains one of these keywords, Amazon Pinpoint does the following:

   - Sends the message to your Amazon SNS topic.
   - Responds with the keyword response message, if you specified one.

   To add a keyword, choose Add another keyword.

7. When you finish making changes, choose Save.

**Example of a Two-Way SMS Message Payload**

When your number receives an SMS message that begins with a keyword that you define for two-way SMS, Amazon Pinpoint sends a JSON payload to an Amazon SNS topic that you designate. The JSON payload contains the message and related data, as in the following example:

```json
{
  "originationNumber": "+14255550182",
  "destinationNumber": "+12125550101",
  "messageKeyword": "JOIN",
  "messageBody": "EXAMPLE",
  "inboundMessageId": "cae173d2-66b9-564c-8309-21f88e9fb84",
  "previousPublishedMessageId": "wJalrXUtznEFl/K7MDEng/bPxfi1CYEXAMPLEKEY"
}
```

The incoming message payload contains the following information:

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>originationNumber</td>
<td>The phone number that sent the incoming message to you (in other words, your customer's phone number).</td>
</tr>
<tr>
<td>destinationNumber</td>
<td>The phone number that the customer sent the message to (your dedicated phone number).</td>
</tr>
<tr>
<td>messageKeyword</td>
<td>The registered keyword that's associated with your dedicated phone number.</td>
</tr>
<tr>
<td>messageBody</td>
<td>The message that the customer sent to you.</td>
</tr>
<tr>
<td>inboundMessageId</td>
<td>The unique identifier for the incoming message.</td>
</tr>
<tr>
<td>previousPublishedMessageId</td>
<td>The unique identifier of the message that the customer is responding to.</td>
</tr>
</tbody>
</table>
Supported Countries and Regions (SMS Channel)

You can use Amazon Pinpoint to send SMS messages to the countries and regions listed in the following table. This table also lists the countries and regions that support sender IDs and two-way SMS messaging (p. 87).

Before you can use two-way SMS messaging to receive messages, you have to obtain either a dedicated short code or a dedicated long code for the SMS channel. For more information about requesting short and long codes, see Requesting Support for SMS Messaging with Amazon Pinpoint (p. 70).

**Note**
You can purchase long codes directly through the Amazon Pinpoint console. The long codes that you purchase through the console are intended for use with the voice channel (p. 100). However, if you purchase a long code that is based in the United States (including Puerto Rico) or Canada, you can also use it to send SMS messages. If you need a long code for sending SMS messages in a different country or region, complete the procedures at Requesting Dedicated Long Codes for SMS Messaging with Amazon Pinpoint (p. 77).

<table>
<thead>
<tr>
<th>Country or region</th>
<th>ISO code</th>
<th>Supports sender IDs</th>
<th>Supports two-way SMS</th>
</tr>
</thead>
<tbody>
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<td>AF</td>
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<td></td>
</tr>
<tr>
<td>Albania</td>
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<td></td>
</tr>
<tr>
<td>Algeria</td>
<td>DZ</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Andorra</td>
<td>AD</td>
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<td></td>
</tr>
<tr>
<td>Angola</td>
<td>AO</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Anguilla</td>
<td>AI</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Antigua and Barbuda</td>
<td>AG</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Argentina</td>
<td>AR</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Aruba</td>
<td>AW</td>
<td></td>
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</tr>
<tr>
<td>Australia</td>
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<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Austria</td>
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<td>Yes</td>
</tr>
<tr>
<td>Azerbaijan</td>
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<td></td>
</tr>
<tr>
<td>Bahamas</td>
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<tr>
<td>Bahrain</td>
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<tr>
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<td></td>
</tr>
<tr>
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</tr>
<tr>
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<td></td>
<td>Yes ^ (p. 96)</td>
</tr>
<tr>
<td>Belgium</td>
<td>BE</td>
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<td>Yes</td>
</tr>
<tr>
<td>Belize</td>
<td>BZ</td>
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</tr>
<tr>
<td>Benin</td>
<td>BJ</td>
<td>Yes</td>
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</tr>
<tr>
<td>Country or region</td>
<td>ISO code</td>
<td>Supports sender IDs</td>
<td>Supports two-way SMS</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>----------</td>
<td>---------------------</td>
<td>----------------------</td>
</tr>
<tr>
<td>Bermuda</td>
<td>BM</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Bhutan</td>
<td>BT</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Bolivia</td>
<td>BO</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Bosnia and Herzegovina</td>
<td>BA</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Botswana</td>
<td>BW</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>BR</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Brunei</td>
<td>BN</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Bulgaria</td>
<td>BG</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>BF</td>
<td>Yes</td>
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</tr>
<tr>
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</tr>
<tr>
<td>Cambodia</td>
<td>KH</td>
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<tr>
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</tr>
<tr>
<td>Canada</td>
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</tr>
<tr>
<td>Cape Verde</td>
<td>CV</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Cayman Islands</td>
<td>KY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central African Republic</td>
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<tr>
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</tr>
<tr>
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<tr>
<td>China 2 (p. 96)</td>
<td>CN</td>
<td></td>
<td>For support, contact sales.</td>
</tr>
<tr>
<td>Colombia</td>
<td>CO</td>
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</tr>
<tr>
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<tr>
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</tr>
<tr>
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</tr>
<tr>
<td>Croatia</td>
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</tr>
<tr>
<td>Cyprus</td>
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</tr>
<tr>
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<tr>
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<td>Denmark</td>
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</tr>
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<td>Country or region</td>
<td>ISO code</td>
<td>Supports sender IDs</td>
<td>Supports two-way SMS</td>
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Country or region | ISO code | Supports sender IDs | Supports two-way SMS
---|---|---|---
Yemen | YE | Yes |  
Zambia | ZM | Yes |  
Zimbabwe | ZW | Yes |  

**Notes**

1. Senders are required to use a pre-registered alphabetic sender ID. To request a sender ID from AWS Support, see the section called "Requesting Sender IDs" (p. 79). Some countries require senders to meet specific requirements or abide by certain restrictions in order to obtain approval. In these cases, AWS Support might contact you for additional information after you submit your sender ID request.

2. Senders are required to use a pre-registered template for each type of message that they plan to send. If a sender doesn't meet this requirement, their messages will be blocked. To register a template, open an Amazon Pinpoint SMS case with AWS Support. When you create the case, provide the same information that you would provide to request a sender ID. For more information, see the section called "Requesting Sender IDs" (p. 79). Some countries require senders to meet additional, specific requirements or abide by certain restrictions in order to obtain approval. In these cases, AWS Support might ask you for additional information.

**Sender ID Support**

The following table explains which ID is displayed when you send SMS messages to countries or regions where sender ID is supported, compared to those where sender ID isn't supported.

<table>
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<th>If the recipient is located...</th>
<th>And your SMS message...</th>
<th>The message displays...</th>
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<tr>
<td>In a country or region where sender ID is supported</td>
<td>Specifies a sender ID</td>
<td>The sender ID.</td>
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| | Does not specify a sender ID | • A long code in countries and regions where an alphabetic sender ID is not required.  
• The word NOTICE in countries and regions where an alphabetic sender ID is required. |
| In a country or region where sender ID is not supported | Specifies a sender ID | A long code. |
| | Does not specify a sender ID | A long code. |

**SMS Best Practices**

Mobile phone users tend to have a very low tolerance for unsolicited SMS messages. Response rates for unsolicited SMS campaigns will almost always be low, and therefore the return on your investment will be poor.

Additionally, mobile phone carriers continuously audit bulk SMS senders. They throttle or block messages from numbers that they determine to be sending unsolicited messages.
Sending unsolicited content is also a violation of the AWS Acceptable Use Policy. The Amazon Pinpoint team routinely audits SMS campaigns, and might throttle or block your ability to send messages if it appears that you’re sending unsolicited messages.

Finally, in many countries, regions, and jurisdictions, there are severe penalties for sending unsolicited SMS messages. For example, in the United States, the Telephone Consumer Protection Act (TCPA) states that consumers are entitled to $500–$1,500 in damages (paid by the sender) for each unsolicited message that they receive.

This section describes several best practices that might help you improve your customer engagement and avoid costly penalties. However, note that this section doesn't contain legal advice. Always consult an attorney to obtain legal advice.

Topics
- Comply with Laws and Regulations (p. 97)
- Obtain Permission (p. 98)
- Audit Your Customer Lists (p. 98)
- Keep Records (p. 98)
- Respond Appropriately (p. 98)
- Adjust Your Sending Based on Engagement (p. 99)
- Send at Appropriate Times (p. 99)
- Avoid Cross-Channel Fatigue (p. 99)
- Maintain Independent Lists (p. 99)
- Use Dedicated Short Codes (p. 99)

Comply with Laws and Regulations

You can face significant fines and penalties if you violate the laws and regulations of the places where your customers reside. For this reason, it's vital to understand the laws related to SMS messaging in each country or region where you do business.

The following list includes links to key laws that apply to SMS communications in major markets around the world.

- United States: The Telephone Consumer Protection Act of 1991, also known as TCPA, applies to certain types of SMS messages. For more information, see the [rules and regulations at the Federal Communications Commission website](https://www.fcc.gov/tcpa).


- Canada: The Fighting Internet and Wireless Spam Act, more commonly known as Canada's Anti-Spam Law or CASL, applies to certain types of SMS messages. For more information, see the [full text of the law at the website of the Parliament of Canada](http://www.parl.gc.ca/eng/acts/s-218).

- Japan: The Act on Regulation of Transmission of Specific Electronic Mail may apply to certain types of SMS messages. For more information, see [Japan's Countermeasures Against Spam at the website of the Japanese Ministry of Internal Affairs and Communications](http://www.mlit.go.jp/seisakunitsuite/bunya/samu/samu_somon/countermeasures.html).

As a sender, these laws may apply to you even if you don't reside in one of these countries. Some of the laws in this list were originally created to address unsolicited email or telephone calls, but have been interpreted or expanded to apply to SMS messages as well. Other countries and regions may have their
own laws related to the transmission of SMS messages. Consult an attorney in each country or region where your customers are located to obtain legal advice.

**Obtain Permission**

Never send messages to customers who haven't explicitly asked to receive them.

If customers can sign up to receive your messages by using an online form, add a CAPTCHA to the form to prevent automated scripts from subscribing people without their knowledge.

When you receive an SMS opt-in request, send the customer a message that asks them to confirm that they want to receive messages from you. Don't send that customer any additional messages until they confirm their subscription. A subscription confirmation message might resemble the following example:

| Text YES to join Example Corp. alerts. 2 msgs/month. Msg & data rates may apply. Reply HELP for help, STOP to cancel. |

Maintain records that include the date, time, and source of each opt-in request and confirmation. This might be useful if a carrier or regulatory agency requests it, and can also help you perform routine audits of your customer list.

Finally, note that transactional SMS messages, such as order confirmations or one-time passwords, typically don't require explicit consent as long as you tell your customers that you're going to send them these messages. However, you should never send marketing messages to customers who only provided you with permission to send them transactional messages.

**Audit Your Customer Lists**

If you send recurring SMS campaigns, audit your customer lists on a regular basis. Auditing your customer lists ensures that the only customers who receive your messages are those who are interested in receiving them.

When you audit your list, send each opted-in customer a message that reminds them that they're subscribed, and provides them with information about unsubscribing. A reminder message might resemble the following example:

| You're subscribed to Example Corp. alerts. Msg & data rates may apply. Reply HELP for help, STOP to unsubscribe. |

**Keep Records**

Keep records that show when each customer requested to receive SMS messages from you, and which messages you sent to each customer. Many countries and regions around the world require SMS senders to maintain these records in a way that can be easily retrieved. Mobile carriers might also request this information from you at any time. The exact information that you have to provide varies by country or region. For more information about record-keeping requirements, review the regulations about commercial SMS messaging in each country or region where your customers are located.

Occasionally, a carrier or regulatory agency asks us to provide proof that a customer opted to receive messages from you. In these situations, AWS Support contacts you with a list of the information that the carrier or agency requires. If you can't provide the necessary information, we may pause your ability to send additional SMS messages.

**Respond Appropriately**

When a recipient replies to your messages, make sure that you respond with useful information. For example, when a customer responds to one of your messages with the keyword "HELP", send them
information about the program that they're subscribed to, the number of messages you'll send each month, and the ways that they can contact you for more information. A HELP response might resemble the following example:

| HELP: Example Corp. alerts: email help@example.com or call XXX-555-0199. 2 msgs/month. Msg & data rates may apply. Reply STOP to cancel. |

When a customer replies with the keyword "STOP", let them know that they won't receive any further messages. A STOP response might resemble the following example:

| STOP: You're unsubscribed from Example Corp. alerts. No more messages will be sent. Reply HELP, email help@example.com, or call XXX-555-0199 for more info. |

**Adjust Your Sending Based on Engagement**

Your customers' priorities can change over time. If customers no longer find your messages to be useful, they might opt out of your messages entirely, or even report your messages as unsolicited. For these reasons, it's important that you adjust your sending practices based on customer engagement.

For customers who rarely engage with your messages, you should adjust the frequency of your messages. For example, if you send weekly messages to engaged customers, you could create a separate monthly digest for customers who are less engaged.

Finally, remove customers who are completely unengaged from your customer lists. This step prevents customers from becoming frustrated with your messages. It also saves you money and helps protect your reputation as a sender.

**Send at Appropriate Times**

Only send messages during normal daytime business hours. If you send messages at dinner time or in the middle of the night, there's a good chance that your customers will unsubscribe from your lists in order to avoid being disturbed. Furthermore, it doesn't make sense to send SMS messages when your customers can't respond to them immediately.

**Avoid Cross-Channel Fatigue**

In your campaigns, if you use multiple communication channels (such as email, SMS, and push messages), don't send the same message in every channel. When you send the same message at the same time in more than one channel, your customers will probably perceive your sending behavior to be annoying rather than helpful.

**Maintain Independent Lists**

When customers opt in to a topic, make sure that they only receive messages about that topic. Don’t send your customers messages from topics that they haven't opted into.

**Use Dedicated Short Codes**

If you use short codes, maintain a separate short code for each brand and each type of message. For example, if your company has two brands, use a separate short code for each one. Similarly, if you send both transactional and promotional messages, use a separate short code for each type of message. To learn more about requesting short codes, see Requesting Dedicated Short Codes for SMS Messaging with Amazon Pinpoint (p. 73).
Amazon Pinpoint Voice Channel

You can use the voice channel to create voice messages from a text script, and then send those messages to your customers over the phone. The voice channel is a great way to reach customers whose phone numbers aren't able to receive SMS messages—for example, customers who use landlines or VoIP services.

To send voice messages using Amazon Pinpoint, you first have to enable the voice channel in your project and lease a dedicated phone number for sending the messages. Depending on how you use Amazon Pinpoint to send voice messages, you might also want to change certain settings for your account. For example, you might want to request production access to increase the number of voice messages that you can send.

Topics
• Setting Up the Amazon Pinpoint Voice Channel (p. 100)
• Managing the Amazon Pinpoint Voice Channel (p. 101)
• Supported Countries and Regions (Voice Channel) (p. 104)

Setting Up the Amazon Pinpoint Voice Channel

To send voice messages by using Amazon Pinpoint, start by creating a new Amazon Pinpoint project. Then, enable the voice channel for the project and request a dedicated phone number, referred to as a long code, for sending voice messages. A long code is a standard telephone number that contains up to 15 digits, depending on the country or region that it's based in. These phone numbers are dedicated—that is, they're reserved for use only by your Amazon Pinpoint account. You can lease local phone numbers that are based in a variety of countries or regions.

Tip
You can also enable the voice channel for an existing project. To do this, use the SMS and voice settings page on the Amazon Pinpoint console. For more information, see Managing the Amazon Pinpoint Voice Channel (p. 101).

Note that the settings that you choose for the voice channel also apply to the SMS channel for the project. If you want to send both voice and SMS messages from the project, choose settings that support your goals for both channels. To learn more about enabling and using the SMS channel, see Amazon Pinpoint SMS Channel (p. 65).

To set up the voice channel for a new project

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose Create a project.
3. For Project name, enter a name, and then choose Create.
   Note
   The project name can contain up to 64 alphanumeric characters. It can also include the following characters: comma (,), period (.), at sign (@), underscore (_), equals sign (=), and plus sign (+).
4. Under Project features, in the SMS and voice section, choose Configure.
5. Select Enable the SMS channel for this project.
6. Expand the Advanced configurations section, and then choose Request long codes.
7. For Target country or region, choose the country or region that the long code should be based in. The long code that you receive uses the local number format for the country or region that you choose.
Note
Currently, you can lease long codes for a limited number of countries and regions by using
the Amazon Pinpoint console. To request a long code for a country that isn't listed in the
Target country or region list, open a new Account and billing support case in the AWS
Support Center.

8. For Quantity, choose the number of long codes that you want to lease.
9. For Default call type, choose the option that best describes the type of messages that you plan to
send using the long code.
10. (Optional) To lease a long code for an additional country or region, choose Add a country or region.
    Repeat steps 7 through 9 for each additional country or region.
11. When you finish, note the price shown next to Subtotal. We charge you this amount each month for
    use of the long codes. If you agree to this monthly charge, choose Request long codes to submit
    your request to lease the long codes.

Now that you've created a project that's enabled for voice messaging, you can start using Amazon
Pinpoint to send voice messages directly to your customers.

Managing the Amazon Pinpoint Voice Channel

You can use the Amazon Pinpoint console to enable the voice channel for a project and to manage
settings that apply to the voice channel for your Amazon Pinpoint account. For example, you can request
production access for your account, or request dedicated phone numbers for sending voice messages.

Topics
• Enabling the Voice Channel (p. 101)
• Requesting Production Access (p. 102)
• Requesting Phone Numbers (p. 102)
• Relinquishing Phone Numbers (p. 103)

Enabling the Voice Channel

Before you can use Amazon Pinpoint to send voice messages, you have to enable the voice channel
for one or more projects. To learn how to create a new project and enable the voice channel for it, see
Setting Up the Amazon Pinpoint Voice Channel (p. 100). To enable the voice channel for an existing
project, complete the following steps.

Note that the settings that you choose for the voice channel also apply to the SMS channel for the
project. If you want to send both voice and SMS messages from the project, choose settings that support
your goals for both channels. To learn more, see Amazon Pinpoint SMS Channel (p. 65).

To enable the voice channel for an existing project
1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to enable the voice channel for.
3. In the navigation pane, under Settings, choose SMS and voice.
4. On the SMS and voice page, next to SMS settings, choose Edit.
5. Select Enable the SMS channel for this project.
6. Choose Save changes.
7. On the SMS and voice page, under Number settings, refer to the table to determine whether any
   phone numbers that are already associated with your account can be used to send voice messages. If
there are, the **Voice** column displays **Enabled** next to each phone number that you can use to send voice messages. If there aren't, request a phone number for the voice channel (p. 102).

### Requesting Production Access

When you first start using the voice channel, your account is in the **sandbox**. While your account is in the sandbox, certain quotas apply to your account. For more information about these quotas, see **Voice Quotas** in the *Amazon Pinpoint Developer Guide*.

To remove these quotas from your account, you can request to have your account removed from the sandbox. When your account is removed from the sandbox, it has **production access**.

**Note**

Before you request production access, you must send at least one voice message from your Amazon Pinpoint account. You can send a voice message on the **Test Messaging** (p. 171) page, or by using the **SendMessages** API.

**To request production access**

1. Open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. On the **Support** menu, choose **Support Center**.
3. Under **Open support cases**, choose **Create case**.
4. Choose **Service quota increase**.
5. Under **Case classification**, for **Quota type**, choose **Pinpoint Voice**.
6. For **How do you obtain consent to send voice messages to your customers**, explain how users sign up to voluntarily receive your voice messages.
7. For **How can customers opt out of receiving messages from you**, explain how you ensure that you send voice messages only to recipients who want to receive voice messages from you.
8. Under **Requests**, for **Region**, choose the AWS Region that you use to send voice messages.
9. For **Quota**, verify that **Production Access** is selected.
10. For **New quota value**, enter the maximum amount, in US Dollars, that you want to spend sending voice messages each calendar month.
11. Under **Case description**, for **Use case description**, provide the following details:
   - The website or app of the company or service that will send voice messages.
   - The service that's provided by your website or app, and how your voice messages contribute to that service.
12. When you finish, choose **Submit**.

The AWS Support team provides an initial response to your request within 24 hours.

In order to prevent our systems from being used to send unsolicited or malicious content, we have to consider each request carefully. If we're able to do so, we'll grant your request within this 24-hour period. However, if we need to obtain additional information from you, it might take longer to resolve your request.

We might not be able to grant your request if your use case doesn't align with our policies.

### Requesting Phone Numbers

You can use the Amazon Pinpoint console to request and lease phone numbers for sending voice messages. These phone numbers are referred to as **long codes**. A **long code** is a standard telephone
number that contains up to 15 digits, depending on the country or region that it's based in. When you lease a long code, the code is dedicated—that is, it's reserved for use only by your Amazon Pinpoint account. You can lease local long codes that are based in a variety of countries or regions.

To request a dedicated long code for sending voice messages

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose a project.
3. In the navigation pane, under Settings, choose SMS and voice.
4. Under Number settings, choose Request long codes.
5. For Target country or region, choose the country or region that the long code should be based in. The long code that you receive uses the local number format for the country or region that you choose.

   Note
   Currently, you can lease long codes for a limited number of countries and regions by using the Amazon Pinpoint console. To request a long code for a country that isn't listed in the Target country or region list, open a new Account and billing support case in the AWS Support Center.

6. For Quantity, choose the number of long codes that you want to lease.
7. For Default call type, choose the option that best describes the type of messages that you plan to send using the long code.
8. (Optional) To lease a long code for an additional country or region, choose Add a country or region. Repeat steps 5 through 7 for each additional country or region.
9. When you finish, note the price shown next to Subtotal. We charge you this amount each month for use of the long codes. If you agree to this monthly charge, choose Request long codes to submit your request to lease the long codes.

Relinquishing Phone Numbers

If you don't need a dedicated phone number (long code) for your account anymore, you can relinquish and end your lease for it. When you relinquish a dedicated long code, we stop charging you for it in your bill for the next calendar month.

   Important
   If you relinquish a dedicated long code, you might not be able to obtain the same long code again in the future.

To relinquish a dedicated long code

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose a project.
3. In the navigation pane, under Settings, choose SMS and voice.
4. Select the long code that you want to relinquish, as shown in the following image. Choose Remove long code.
5. In the Remove number confirmation window, confirm that you want to relinquish the long code, and then choose Confirm.

Supported Countries and Regions (Voice Channel)

You can use the voice channel to send voice messages to recipients all around the world. However, in some countries and regions, you have to use a local phone number in order to make automated calls, such as the calls that you make by using the Amazon Pinpoint voice channel. You can obtain local phone numbers, also referred to as long codes, directly from AWS for several countries and regions.

Countries and Regions Where You Can Obtain Local Phone Numbers

The following table lists the countries that you can obtain local phone numbers in. If a country or region isn’t listed in this table, you might still be able to send voice messages to recipients in that country or region.

If the value in the Supports SMS column is Yes, then you can send both voice and SMS messages from the same phone number. If the value in the Supports SMS column is No, but your use case requires that you use a long code to send SMS messages, see Requesting Dedicated Long Codes for SMS Messaging with Amazon Pinpoint (p. 77).

If the value in the Local address required column is Yes, then you have to provide a local address in that country or region in order to lease a local phone number. If the value in the Local address required column is No, you can lease local phone numbers directly through the Amazon Pinpoint console.

<table>
<thead>
<tr>
<th>Country or Region</th>
<th>Local Address Required?</th>
<th>Supports SMS?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
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<td>No</td>
</tr>
<tr>
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<tr>
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<td>No</td>
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<tr>
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</tr>
<tr>
<td>Country or Region</td>
<td>Local Address Required?</td>
<td>Supports SMS?</td>
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<tr>
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<tr>
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<tr>
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<tr>
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<td>Luxembourg</td>
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</tr>
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<td>Country or Region</td>
<td>Local Address Required?</td>
<td>Supports SMS?</td>
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<tr>
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</tr>
<tr>
<td>Vietnam</td>
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</tr>
</tbody>
</table>
Custom Channels in Amazon Pinpoint

You can extend the capabilities of Amazon Pinpoint by creating custom channels. You can use custom channels to send messages to your customers through any service that has an API—including third-party services. For example, you can use custom channels to send messages through third-party services such as WhatsApp or Facebook Messenger.

**Note**
Amazon Web Services isn't responsible for any third-party service that you use to send messages with custom channels. Third-party services may be subject to additional terms. You should review these terms before you send messages with custom channels.

You can configure your campaigns to send messages through custom channels by using the Amazon Pinpoint console. For more information, see [Campaigns](p. 123).

Setting Up and Managing Custom Channels

You can create custom channels by using a webhook, or by calling a service's API through an AWS Lambda function. For more information about creating custom channel functions in Lambda, see [Creating Custom Channels](#) in the [Amazon Pinpoint Developer Guide](#).

Unlike other channels in Amazon Pinpoint, you don't have to enable the custom channels feature. Custom channels are enabled by default in all Amazon Pinpoint projects. You don't have to request production access to use custom channels.
Building Segments

Dynamic segments are based on the data that your apps provide to Amazon Pinpoint, after you integrate your apps with Amazon Pinpoint. When you create a dynamic segment, you choose the criteria that define that segment. For example, you could specify all customers who use version 2.0 of your app on an Android device, and who have used your app within the past 30 days. Amazon Pinpoint continuously re-evaluates your segments as your app records new customer interactions. As a result, the size and membership of each segment changes over time. For information about integrating your apps with Amazon Pinpoint, see Integrating Amazon Pinpoint with Your Application in the Amazon Pinpoint Developer Guide.

Segment Groups

When you create a dynamic segment, you create one or more segment groups. A segment group consists of two components:

- **Base segments** – The segments that define the initial user population. You can specify a single base segment, several base segments, or all of the segments in your Amazon Pinpoint project.

- **Filters** – Criteria that you apply on top of the base segments. In most cases, adding a filter reduces the number of endpoints who belong to the segment. You can add as many filters as you want in order to tailor the segment to your needs.

You have to create at least one segment group, but you can optionally create two segment groups. If you add a second segment group to your segment, you can choose how the two segment groups are connected. There are two ways to connect the two segment groups in your segment:
Creating a Dynamic Segment

There are two steps involved in creating a dynamic segment. First, you set up the segment. Next, you set up the segment groups for the segment.

Step 1: Set Up the Segment

To create a segment

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project to which you want to add the segment.
3. In the navigation pane, choose Segments. The Segments page opens and displays segments that you previously defined.
4. Choose Create a segment.
5. Under Create a segment, choose Build a segment.
6. For Segment name, type a name for the segment to make it easy to recognize later.

Step 2: Configure Segment Groups

1. Under Segment group 1, next to Include endpoints that are in, choose one of the following options:
   • any – If you use more than one segment as a base segment, your new segment contains endpoints that are in at least one of the segments you select.
   • all – If you use more than one segment as a base segment, your new segment only contains endpoints that are in all of the selected segments.
2. Next to of the following segments, choose the segment or segments that you want to use as base segments, as shown in the following image.
   
   ![Create a segment](image)

   Tip
   The menu doesn't close when you select the first base segment. If you want to use several base segments, you can continue to select segments as necessary. When you're done choosing segments, choose an area outside the menu to close it.
3. For **Add a filter**, choose the type of filter you want to add to the segment. You can choose from the following options:

- **Filter by channel** – Use this option to filter the segment based on the channel of the recipient's endpoint. For example, when you choose **EMAIL**, your segment only contains endpoints that can receive email.

- **Filter by endpoint** – Use this option to filter by endpoint-specific attributes. When you select this option, you specify how recently the endpoint was active, or how long it's been inactive. After that, you can optionally specify additional attributes associated with that endpoint. For example, this filter could include all customers who were active within the past 7 days who used an iPhone to access your app, as shown in the following image.

You can add several attributes to this filter. To add another attribute, choose **Add an attribute**.

- **Filter by user** – Use this option to filter the segment based on user attributes. User attributes are those attributes that are specific to the actual customers, as opposed endpoint attributes, which focus more on the specific endpoints that customers use to interact with your app. For example, you could set up this filter to include all users who are female, as shown in the following image.
You can add several attributes to this filter. To add another attribute, choose **Add an attribute**.

You can add several filters to a single segment group, and each filter can include several attributes.

If the segment group includes more than one filter, you can specify how the filters are related to each other. For example, you can set up the filter section to include customers who meet any of the filter criteria you specified, or to only include those customers who meet all of the specified criteria, or even to include only those customers who meet none of the specified criteria. To change this setting, change the value next to **Endpoints who match**, as shown in the following image.

4. If you want to add another segment group to the segment, choose **Add another segment group**.
When you add another segment group, you have to specify how it relates to the first segment group, as shown in the following image.

**Note**
If you use an imported segment as the base segment for your first segment group, you can't create a second segment group.
Managing Segments

You can use the Amazon Pinpoint console to create, view, copy, and perform other management tasks for a project's segments. If you open a segment to view its settings, you can also quickly create a campaign that uses the segment.
To manage a segment

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that contains the segment that you want to manage.
3. In the navigation pane, choose Segments.
4. In the list of segments, select the segment that you want to manage.
5. On the Actions menu, choose one of the following options:

   - **View details** – Choose this option to show information about the segment, including the date and time when the segment was created, and the date and time when the segment was last updated.

     When you view the details of a dynamic segment, you also see the approximate number of endpoints that meet the segment criteria, and the segment groups and filters that define the segment. When you view the details of an imported segment, you also see the number of records that were imported for the segment. If you imported the segment from an Amazon S3 location, you also see details about that location and the name of the IAM role that was used to import the segment from that location.

   - **Edit** – Choose this option to change the settings for a dynamic segment or a segment that you imported from an Amazon S3 location. If you edit a dynamic segment, you can change the segment groups that define the segment. If you edit an imported segment, you can change the Amazon S3 location that the segment is imported from, and the IAM role that’s used to import the segment.

   - **Copy to new** – Choose this option to create a new segment that’s a copy of the selected segment. You can then modify any settings in the new segment, without changing the original segment.

   - **Export** – Choose this option to export the segment to a file on your computer. For more information, see Exporting Segments (p. 121).

   - **Delete** – Choose this option to delete the segment permanently. You can’t recover a segment after you delete it.

     **Important**
     If you delete a segment, any active campaigns that use the segment will fail and stop running. Similarly, any active journeys that use the segment might fail and stop running. If a journey does continue to run, any participants who were part of the segment might be removed from the journey prematurely. Before you delete a segment, it’s a good idea to first verify that a segment isn’t being used by any active campaigns or journeys.

Importing Segments

With Amazon Pinpoint, you can define a user segment by importing a file that contains information about the users who belong to the segment. Importing segments is useful if you define user segments outside of Amazon Pinpoint but you want to engage your users with Amazon Pinpoint campaigns.

Unlike the dynamic segments that you create with the segment builder in the console, an imported segment is an unchanging set of endpoints or user IDs:

**Endpoint**

A destination that you can send messages to, such as an email address, mobile device identifier, or mobile phone number. An endpoint definition can include attributes that describe the user or device that you send messages to. It can also include a user ID.

You can define a segment by importing a list of endpoint definitions. Amazon Pinpoint creates the segment, and it updates any endpoints that you previously added to Amazon Pinpoint with the new information.
User ID

An ID that represents an individual user in your audience. This ID must be assigned to one or more endpoints. For example, if a person uses your app on more than one device, your app could assign that person's user ID to the endpoint for each device.

You can define a segment by importing user IDs only if you've added the endpoints that are associated with the user IDs to Amazon Pinpoint.

An imported segment consists of endpoints, user IDs, or a combination of both. When you use Amazon Pinpoint to send a message to the segment, the potential destinations include:

- Each endpoint that you list in the imported file.
- Each endpoint that's associated with each user ID that you list in the imported file.

When you create a new segment, you can use an imported segment as the base segment. You can then apply filters to the base segment to refine it according to your needs.

Imported Segment Considerations

Consider the following factors when you create imported segments:

- When you create a campaign, you have to choose a segment. When you choose a dynamic segment, Amazon Pinpoint provides an estimate of the size of that segment. However, when you choose an imported segment, Amazon Pinpoint can't provide an estimate.
- If you create a campaign that sends messages when certain events happen, you can't use imported segments. Event-based campaigns can only use dynamic segments. For more information about creating dynamic segments, see Building Segments (p. 108).

Segment Files

You define the endpoints or user IDs that belong to your segment in a comma-separated values (CSV) or JSON file. Then, you import the file into Amazon Pinpoint to create the segment.

When you import a segment, remember the following:

- Amazon Pinpoint can't import compressed files.
- The files that you import must use UTF-8 character encoding.
- If you're importing new endpoints, the Address and ChannelType attributes are required.
- If you're updating existing endpoints, the Id attribute is required for each endpoint that you want to update.
- Your endpoint definitions can include only certain attributes. For a list, see Supported Attributes (p. 119). In addition, an attribute name has to be 50 or fewer characters. An attribute value has to be 100 or fewer characters.

Example Segment Files

The example files in this section are based on the following data:
Example Endpoint Attribute Values

<table>
<thead>
<tr>
<th>ChannelType</th>
<th>Address</th>
<th>Location.Country</th>
<th>Demographic.Platform</th>
<th>Demographic.Make</th>
<th>User.UserId</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMS</td>
<td>+12365550182</td>
<td>CA</td>
<td>Android</td>
<td>LG</td>
<td>example-user-id-1</td>
</tr>
<tr>
<td>APNS</td>
<td>1a2b3c4d5e6f7g8h9i0j1a2b3c4d5e6f</td>
<td>US</td>
<td>iOS</td>
<td>Apple</td>
<td>example-user-id-2</td>
</tr>
<tr>
<td>EMAIL</td>
<td><a href="mailto:john.stiles@example.com">john.stiles@example.com</a></td>
<td>iOS</td>
<td>Apple</td>
<td>example-user-id-2</td>
<td></td>
</tr>
<tr>
<td>GCM</td>
<td>4d5e6f1a2b3c4d5e6f7g8h9i0j1a2b3c4d5e6f</td>
<td>CN</td>
<td>OnePlus</td>
<td>example-user-id-3</td>
<td></td>
</tr>
<tr>
<td>EMAIL</td>
<td><a href="mailto:wang.xiulan@example.com">wang.xiulan@example.com</a></td>
<td>Android</td>
<td>OnePlus</td>
<td>example-user-id-3</td>
<td></td>
</tr>
</tbody>
</table>

Each row in this table represents an individual endpoint. Note that the user IDs example-user-id-2 and example-user-id-3 are assigned to two endpoints each.

Example File with Endpoint Definitions

CSV

You can import endpoints that are defined in a CSV file, as in the following example:

ChannelType,Address,Location.Country,Demographic.Platform,Demographic.Make,User.UserId
SMS,2065550182,CA,Android,LG,example-user-id-1
APNS,1a2b3c4d5e6f7g8h9i0j1a2b3c4d5e6f,US,iOS,Apple,example-user-id-2
EMAIL,john.stiles@example.com,iOS,Apple,example-user-id-2
GCM,4d5e6f1a2b3c4d5e6f7g8h9i0j1a2b3c4d5e6f,CN,Android,Google,example-user-id-3
EMAIL,wang.xiulan@example.com,CN,Android,OnePlus,example-user-id-3

The first line is the header, which contains the endpoint attributes. For a complete list of possible attributes, see Supported Attributes (p. 119).

The subsequent lines define the endpoints by providing values for each attribute in the header.

To include a comma, line break, or double quote in a value, enclose the value in double quotes, as in "aaa,bbb". For more information about the CSV format, see RFC 4180 Common Format and MIME Type for Comma-Separated Values (CSV) Files.

JSON

You can import endpoints that are defined in a newline-delimited JSON file. In this format, each line is a complete JSON object that contains an individual endpoint definition, as in the following example:

```json
{"ChannelType":"SMS","Address":"2065550182","Location":{"Country":"CA"},"Demographic":{}},
{"ChannelType":"APNS","Address":"1a2b3c4d5e6f7g8h9i0j1a2b3c4d5e6f","Location":{}},
{"ChannelType":"EMAIL","Address":"john.stiles@example.com","Location":{}},
{"ChannelType":"GCM","Address":"4d5e6f1a2b3c4d5e6f7g8h9i0j1a2b3c","Location":{}},
{"ChannelType":"EMAIL","Address":"wang.xiulan@example.com","Location":{}},
{"ChannelType":"GCM","Address":"1a2b3c4d5e6f7g8h9i0j1a2b3c","Location":{}},
{"ChannelType":"EMAIL","Address":"john.stiles@example.com","Location":{}},
{"ChannelType":"APNS","Address":"1a2b3c4d5e6f7g8h9i0j1a2b3c","Location":{}},
{"ChannelType":"EMAIL","Address":"wang.xiulan@example.com","Location":{}}
```
For a complete list of possible attributes, see Supported Attributes (p. 119).

Example File with User IDs

CSV

You can also import user IDs that are listed in a CSV file, as in the following example:

```
User.UserId
example-user-id-1
example-user-id-2
example-user-id-3
```

The first line is the header, which must contain only the `User.UserId` attribute.

The subsequent lines list each user ID that belongs to the segment.

As you can see in the example endpoint definitions, the user ID `example-user-id-1` is associated with one endpoint. The user IDs `example-user-id-2` and `example-user-id-3` are associated with two endpoints each. Therefore, the segment that's created by importing this file could be used to message up to five endpoints.

JSON

You can also import user IDs that are listed in a newline-delimited JSON file, as in the following example:

```
{"User":{"UserId":"example-user-id-1"}}
{"User":{"UserId":"example-user-id-2"}}
{"User":{"UserId":"example-user-id-3"}}
```

As you can see in the example endpoint definitions, the user ID `example-user-id-1` is associated with one endpoint. The user IDs `example-user-id-2` and `example-user-id-3` are associated with two endpoints each. Therefore, the segment that's created by importing this file could be used to message up to five endpoints.

Importing a Segment

There are two ways to import segments into Amazon Pinpoint: you can upload files directly from your computer, or you can import files that are stored in an Amazon S3 bucket.

Uploading files from your computer is generally the easier method of importing segments, especially if you already have the customer data on your computer. However, you can import only 10 files at a time, and you can only upload files that are smaller than 1 gigabyte (GB).

If you need to import more than 10 files at one time, or if you need to upload files that are larger than 1 GB, then you should import files from Amazon S3. The Amazon S3 import option is also useful if you already have processes that send customer data files to Amazon S3 for storage.

This section includes procedures for importing segments by using both of these methods.
Importing a Segment by Uploading a File From Your Computer

You can create segments by uploading up to 10 files directly from your computer. The files that you upload can be in CSV or JSON format. You can upload files in any combination of formats. For example, you can upload one JSON file and three CSV files.

**To import a segment**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to add the segment to.
3. In the navigation pane, choose Segments.
4. Choose Create a segment.
5. Under Create a segment, choose Import a segment.
6. Under Import method, choose Upload files from your computer.
7. Under Files to import, select Choose files. Select the file or files that you want to import.
   
   **Note**
   You can also drag files from your computer's file explorer and drop them directly on the Drop files here area.
8. When you upload files to Amazon Pinpoint, you have to provide a segment name for each file that you import. Under Segment names, enter a segment name for each file that you want to import, as shown in the following image.

<table>
<thead>
<tr>
<th>Segment names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon Pinpoint creates a new segment for each file that you import. Specify the segment name.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High Value Customers.csv (614 Bytes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>High Value Customers</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Top Users by Activity.json (977 Bytes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Top Users by Activity</td>
</tr>
</tbody>
</table>
Note
By default, Amazon Pinpoint provides a segment name that is equal to the name of the imported file, but without the file name extension. You can change these default values to any name.
You can use the same name for multiple segments. If you do, Amazon Pinpoint creates a distinct segment for each file, and assigns a unique ID to each file. The creation date is also slightly different for each file that you import. You can use these factors to distinguish between segments that have the same name.

9. When you finish, choose Create segment.

Importing a Segment From a File Stored in Amazon S3

Before you use this procedure to import a segment, you first have to create an Amazon S3 bucket and upload your file to that bucket. You can organize the files for different segments into separate folders. When Amazon Pinpoint imports the endpoints or user IDs for a segment, it includes the files within all folders and subfolders that belong to the Amazon S3 location you specify.

For an introduction to creating buckets and uploading objects, see the Amazon Simple Storage Service Getting Started Guide.

Amazon Pinpoint can import only one file format (CSV or JSON) per segment, so the Amazon S3 path that you specify should only contain files of a single type.

To import a segment

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to add the segment to.
3. In the navigation pane, choose Segments.
4. Choose Create a segment.
5. Under Create a segment, choose Import a segment.
6. For Segment name, enter a name for your segment to make it easy to recognize later.
7. For Amazon S3 URL, enter the location of the Amazon S3 bucket that contains the file for your segment. The address of the bucket must be in the following format:

   s3://bucket-name/folder-name

Amazon Pinpoint imports the files from the path that you specify, and from any subfolders in that path.
8. For IAM role, complete one of the following steps:

   • If you want to have Amazon Pinpoint create a role that allows it to read from an Amazon S3 bucket, choose Automatically create a role. Then, for IAM role, enter a name for the role that you're creating.
   • If you've already created an IAM role that allows Amazon Pinpoint to read from an Amazon S3 bucket, choose Choose an existing role. Then, for IAM role, choose a role that contains the appropriate permissions.

   If you want to create the IAM role yourself, see IAM Role for Importing Endpoints or Segments in the Amazon Pinpoint Developer Guide. After you create the role, specify it in the Amazon Pinpoint console.
9. Under What type of file are you importing, choose either JavaScript Object Notation (JSON) or Comma-Separated Values (CSV), depending on the format the file that you uploaded to Amazon S3.
10. Choose **Create segment**.

### Supported Attributes

The table in this section lists and describes the attributes that you can specify in endpoint definitions that you import into Amazon Pinpoint. If you import segments by using CSV files, the headers in the file should match the names shown in the **Attribute** column.

For JSON files, a period in the attribute name indicates that the name following the period is an object that's nested in a parent object with a name that's equal to the value preceding the period. For example, a JSON file that contains the `Demographic.Make` and `Demographic.Model` attributes has the following structure:

```json
{
  ...
  "Demographic": {
    ...
    "Make": "Apple",
    "Model": "iPhone"
  }
  ...
}
```

The full JSON structure closely resembles the example Endpoint request in the Amazon Pinpoint API Reference. However, not all attributes in the Endpoint request schema are supported when you import segments, including `EndpointStatus` and `EffectiveDate`.

You can replace attribute names that are shown as `custom_attribute` with any value. For example, if you want to store users' first and last names in attributes named `FirstName` and `LastName`, you can create custom attributes named `User.UserAttributes.FirstName` and `User.UserAttributes.LastName`, respectively. An attribute name can contain up to 50 characters. An attribute value can contain up to 100 characters. Attribute names are case sensitive.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>The unique destination address for messages or push notifications that you send to the endpoint—for example, an email address, phone number, or device token.</td>
</tr>
<tr>
<td>Attributes.<strong>custom_attribute</strong></td>
<td>A custom attribute that describes the endpoint. You can use this type of attribute as selection criteria when you create a segment. You can replace <code>custom_attribute</code> with any value.</td>
</tr>
<tr>
<td>ChannelType</td>
<td>The channel to use when sending messages or push notifications to the endpoint. For example:</td>
</tr>
<tr>
<td></td>
<td>• <strong>APNS</strong> – For an endpoint that can receive push notifications that you send through the Apple Push Notification service (APNs) channel to apps that are running on iOS devices.</td>
</tr>
<tr>
<td></td>
<td>• <strong>EMAIL</strong> – For an endpoint that can receive email messages.</td>
</tr>
<tr>
<td></td>
<td>• <strong>GCM</strong> – For an endpoint that can receive push notifications that you send through the Firebase</td>
</tr>
</tbody>
</table>
## Supported Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Attribute</strong></td>
<td><strong>Description</strong></td>
</tr>
<tr>
<td>Cloud Messaging (FCM)</td>
<td>Cloud Messaging (FCM) channel to apps that are running on Android devices.</td>
</tr>
<tr>
<td>channel to apps that are</td>
<td>• SMS – For an endpoint that can receive SMS text</td>
</tr>
<tr>
<td>running on Android devices.</td>
<td>messages.</td>
</tr>
<tr>
<td><strong>Demographic.AppVersion</strong></td>
<td>The version number of the application that's associated with the endpoint.</td>
</tr>
<tr>
<td><strong>Demographic.Locale</strong></td>
<td>The locale of the endpoint, in the following format: the ISO 639-1 alpha-2</td>
</tr>
<tr>
<td></td>
<td>code, followed by an underscore (_), followed by an ISO 3166-1 alpha-2</td>
</tr>
<tr>
<td></td>
<td>value. For example, en_US is the English language locale for the United</td>
</tr>
<tr>
<td></td>
<td>States.</td>
</tr>
<tr>
<td><strong>Demographic.Make</strong></td>
<td>The manufacturer of the endpoint device, such as apple or samsung.</td>
</tr>
<tr>
<td><strong>Demographic.Model</strong></td>
<td>The model name or number of the endpoint device, such as iPhone or SM-G900.</td>
</tr>
<tr>
<td><strong>Demographic.ModelVersion</strong></td>
<td>The model version of the endpoint device.</td>
</tr>
<tr>
<td><strong>Demographic.Platform</strong></td>
<td>The operating system on the endpoint device, such as ios or android.</td>
</tr>
<tr>
<td><strong>Demographic.PlatformVersion</strong></td>
<td>The version of the operating system on the endpoint device.</td>
</tr>
<tr>
<td><strong>Demographic.Timezone</strong></td>
<td>The endpoint's time zone, as a tz database value. For example, America/Los</td>
</tr>
<tr>
<td></td>
<td>Angeles for Pacific Time (North America).</td>
</tr>
<tr>
<td><strong>EffectiveDate</strong></td>
<td>The date and time when the endpoint was last updated, in ISO 8601 format.</td>
</tr>
<tr>
<td></td>
<td>For example, 2019-08-23T10:54:35.220Z for 10:54 AM UTC August 23, 2019.</td>
</tr>
<tr>
<td><strong>Id</strong></td>
<td>A unique identifier for the endpoint.</td>
</tr>
<tr>
<td><strong>Location.City</strong></td>
<td>The city where the endpoint is located.</td>
</tr>
<tr>
<td><strong>Location.Country</strong></td>
<td>The two-character code, in ISO 3166-1 alpha-2 format, for the country or</td>
</tr>
<tr>
<td></td>
<td>region where the endpoint is located. For example, US for the United States.</td>
</tr>
<tr>
<td><strong>Location.Latitude</strong></td>
<td>The latitude coordinate of the endpoint's location, rounded to one decimal</td>
</tr>
<tr>
<td></td>
<td>place.</td>
</tr>
<tr>
<td><strong>Location.Longitude</strong></td>
<td>The longitude coordinate of the endpoint's location, rounded to one decimal</td>
</tr>
<tr>
<td></td>
<td>place.</td>
</tr>
<tr>
<td><strong>Location.PostalCode</strong></td>
<td>The postal or ZIP code for the area where the endpoint is located.</td>
</tr>
<tr>
<td><strong>Location.Region</strong></td>
<td>The name of the region, such as a state or province, where the endpoint is</td>
</tr>
<tr>
<td></td>
<td>located.</td>
</tr>
</tbody>
</table>
### Attribute Description

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
</table>
| Metrics.
| custom_attribute                             | A custom numeric metric that your application reports to Amazon Pinpoint for the endpoint—for example, the number of sessions or number of items left in a cart—to use for segmentation purposes. You can replace `custom_attribute` with any value. These custom values can only be numeric. Because they're numeric, Amazon Pinpoint can perform arithmetic operations, such as average or sum, on them. |
| OptOut                                        | Indicates whether a user opted out of receiving messages and push notifications from you. Acceptable values are: `ALL`, the user opted out and doesn't want to receive any messages or push notifications; or, `NONE`, the user hasn't opted out and wants to receive all messages and push notifications. |
| RequestId                                     | The unique identifier for the most recent request to update the endpoint.                                                                                                                                     |
| User.
| UserAttributes.
| custom_attribute                             | A custom attribute that describes the user. You can replace `custom_attribute` with any value, such as `FirstName` or `Age`.                                                                                     |
| User.
| UserId                                       | A unique identifier for the user.                                                                                                                                                                             |

You can create as many as 40 custom attributes for endpoints and users in each project. For more information, see Amazon Pinpoint Quotas in the Amazon Pinpoint Developer Guide.

### Exporting Segments in the Amazon Pinpoint Console

From the **Segments** page in the Amazon Pinpoint console, you can export an existing segment to a file on your computer. When you do, Amazon Pinpoint exports all of the information that's associated with the endpoints in the segment to a file.

This feature is useful if you want to share a list of segment members with somebody else in your organization who doesn't use Amazon Pinpoint. It's also helpful in situations where you want to modify the segment by using a different application.

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the **All projects** page, choose the project that contains the segment that you want to export.
3. In the navigation pane, choose **Segments**.
4. In the list of segments, choose the segment that you want to export.
5. At the top of the page, choose **Export**, as shown in the following image.
6. Amazon Pinpoint creates a new export job, and you see the Recent exports tab on the Segments page.

Note the value in the Export status column for the segment that you exported. When you first create the export job, the status is In progress.

Wait a few minutes, and then choose the refresh button. If the status is still In progress, wait another minute, and then repeat this step. Otherwise, if the status is Complete, proceed to the next step.

Note
If a segment requires more than 10 minutes to complete, the export process times out. If you need to export very large segments, you should use the CreateExportJob operation in the Amazon Pinpoint API.

7. Choose Download to save the segment to your computer, as shown in the following image.
Amazon Pinpoint Campaigns

A campaign is a messaging initiative that engages a specific audience segment (p. 108). A campaign sends tailored messages according to a schedule that you define. You can use the console to create a campaign that sends messages through any single channel that is supported by Amazon Pinpoint: mobile push, email, or SMS.

For example, to help increase engagement between your mobile app and its users, you could use Amazon Pinpoint to create and manage push notification campaigns that reach out to users of that app. Your campaign might invite users back to your app who haven't run it recently or offer special promotions to users who haven't purchased recently.

Your campaign can send a message to all users in a segment, or you can allocate a holdout, which is a percentage of users who receive no messages. The segment can be one that you created on the Segments page or one that you define while you create the campaign.

You can set the campaign's schedule to send the message once or at a recurring frequency, such as once per week. You can also set up your campaign to send messages when specific events occur. For example, you can send a campaign when a user creates a new account, or when a customer adds an item to their shopping cart, but doesn't complete their purchase. To prevent users from receiving your messages at inconvenient times, you can also configure your campaigns so that they don't send messages during specific quiet hours.

To experiment with alternative campaign strategies, set up your campaign as an A/B test. An A/B test includes two or more treatments of the message or schedule. Treatments are variations of your message or schedule. As your users respond to the campaign, you can view campaign analytics to compare the effectiveness of each treatment.

If you want to send a one-time message without engaging a user segment or defining a schedule, you can simply send a direct message (p. 171) instead of creating a campaign.

Topics
- Step 1: Create a Campaign (p. 123)
- Step 2: Specify the Audience for the Campaign (p. 124)
- Step 3: Write the Message (p. 125)
- Step 4: Choose When to Send the Campaign (p. 131)
- Step 5: Review and Launch the Campaign (p. 134)
- Managing Campaigns (p. 134)

Step 1: Create a Campaign

The first step in setting up a campaign is to create a new campaign. When you create a new campaign, you give the campaign a name, specify whether the campaign should be a standard campaign or an A/B test campaign, and choose the channel that you want to use to send the campaign.

To begin creating a campaign

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to create the campaign in.
3. In the navigation pane, choose Campaigns.
4. Choose Create a campaign.
5. For Campaign name, enter a descriptive name for the campaign. Using a descriptive name makes it easier to find or search for the campaign later.
6. For **Campaign type**, choose one of the following options:
   - **Standard campaign** – Sends a message to a segment on a schedule that you define.
   - **A/B test campaign** – Behaves like a standard campaign, but enables you to define different treatments for the campaign’s message or schedule. In an A/B test campaign, you create several versions of a message or schedule to compare their performance.

7. Under **Choose a channel for this campaign**, choose the channel that you want to use to send the campaign.
   
   **Note**
   You can only choose a single channel. This section only shows the channels that are enabled for the current project. The **Custom** channel is enabled for all projects by default.

8. Choose **Next**.

---

**Step 2: Specify the Audience for the Campaign**

When you create a campaign, you choose a *segment* to send that campaign to. A segment is a group of your customers that share certain attributes. For example, a segment might contain all of your customers who use version 2.0 of your app on an Android device, or all customers who live in the city of Los Angeles.

**Prerequisite**

Before you begin, complete **Step 1: Create a Campaign (p. 123)**.

**To specify a segment**

1. On the **Choose a segment** page, choose one of the following options:
   - **Use an existing segment** – Choose this option if you’ve already created a segment and you’re ready to send your campaign to it.
   - **Create a segment** – Choose this option if you haven’t created any segments yet, or if you want to create a new segment for this campaign. If you choose this option, create a segment by completing the procedures in **Building Segments (p. 108)**.

   **Note**
   If you want to send your campaign when certain events occur (as opposed to sending it at a specific time), you have to use a dynamic segment (as opposed to an imported segment). To learn more, see **Building Segments (p. 108)**.

2. (Optional) Under **Segment hold-out**, specify the percentage of segment members who shouldn’t receive this campaign. Amazon Pinpoint chooses the appropriate number of segment members at random, and omits them from the campaign.

   You can use this feature to perform hold-out testing. In a hold-out test, you omit a sample group of random recipients, and then compare their behaviors (for example, the number of purchases they make) against the behaviors of the customers who received the campaign. In this way, you can determine the effectiveness of your campaigns.

**Next**

**Step 3: Write the Message (p. 125)**
Step 3: Write the Message

After you specify the target segment for the campaign, you can write the message for the campaign.

If you set up the campaign as a standard campaign, you write a single message. If you set up the campaign as an A/B test campaign, you define two or more treatments. A treatment is a variation of your message that the campaign sends to different portions of the segment.

Prerequisite

Before you begin, complete Step 2: Specify the Audience for the Campaign (p. 124).

Set Up the Campaign

1. If you created this campaign as an A/B test campaign (as opposed to a standard campaign), specify the percentage of segment members who should receive each treatment. An A/B test campaign can include up to five treatments. Choose Add another treatment to add additional treatments.
2. On the Create your message page, configure the message for the campaign. The message options vary depending on the channel that you chose for the campaign.

   If you're creating an email campaign, see Writing an Email Message (p. 125).
   
   If you're creating an SMS campaign, see Writing an SMS Message (p. 126).
   
   If you're creating a push notification campaign, see Writing a Push Notification (p. 127).
   
   If you're creating a campaign that sends messages through a custom channel, see Configuring a Custom Channel Message (p. 128).

Writing an Email Message

This section contains information about writing an email message.

1. On the Create your message page, do one of the following:
   • To design and write a new message for the campaign, select Create a new email message.
   • To create a message that's based on an email template:
     1. Select Choose an existing email template, and then select Choose a template.
     2. Browse for the template that you want to use. When you select a template from the list, Amazon Pinpoint displays a preview of the active version of the template. (The active version is usually the version of a template that's been reviewed and approved for use, depending on your workflow.)
     3. When you find the template that you want, select it, and then select Choose template.
     4. Under Template version, specify whether you want Amazon Pinpoint to automatically update the message to include any changes that you might make to the template before the message is sent. To learn more about these options, see Managing Versions of Message Templates (p. 216).
     5. When you finish choosing template options for the message, skip to step 5.
   2. For Subject, enter the subject line for your email message.
   3. For Message, enter the email body.

   Tip
   You can enter the email body by using either HTML or Design view. In the HTML view, you can manually enter HTML content for the email body, including formatting, links, and other features that you want to include in the message. In the Design view, you can use a rich text editor to format your message with images, text styles, and responsive design. After you finish designing your message, switch to the HTML view to view the HTML code.
Set Up the Campaign

editor to enter the content, and you can use the formatting toolbar to apply formatting and
add links and other features to the content. To switch views, choose HTML or Design from
the view selector above the message editor.

4. (Optional) In the field below the message editor, enter the content that you want to display in the
body of messages that are sent to recipients whose email applications don't display HTML.

5. If you created this campaign as an A/B test campaign (as opposed to a standard campaign), repeat
the steps in this section for each treatment. You can switch between treatments by using the tabs at
the top of the Email details section.

6. Choose Next.

Writing an SMS Message

This section contains information about writing an SMS message.

1. On the Create your message page, do one of the following:
   - To design and write a new message for the campaign, select Create a new SMS message.
   - To create a message that's based on an SMS template:
     1. Select Choose an existing SMS template, and then select Choose a template.
     2. Browse for the template that you want to use. When you select a template from the list,
        Amazon Pinpoint displays a preview of the active version of the template. (The active version
        is typically the version of a template that's been reviewed and approved for use, depending on
        your workflow.)
     3. When you find the template that you want, select it, and then select Choose template.
     4. Under Template version, specify whether you want Amazon Pinpoint to automatically
        update the message to include any changes that you might make to the template before
        the message is sent. To learn more about these options, see Managing Versions of Message
        Templates (p. 216).
     5. When you finish choosing template options for the message, skip to step 5.

2. For Message type, choose one of the following:
   - Promotional – Noncritical messages, such as marketing messages. If you choose this option,
     Amazon Pinpoint optimizes delivery of the message to incur the lowest cost.
   - Transactional – Critical messages that support customer transactions, such as one-time passwords
     for multi-factor authentication. If you choose this option, Amazon Pinpoint optimizes delivery of
     the message to achieve the highest reliability.

   This campaign-level setting overrides your default message type, which you set on the SMS settings
   page for the project.

3. For Message, type the message body. The message can have up to 160 characters.

4. (Optional) For Sender ID, enter a custom ID that contains up to 11 alphanumeric characters,
   including at least one letter, and no spaces. The sender ID is displayed as the message sender on the
   recipient's device. For example, you can use your business brand to make the message source easier
to recognize.

   Support for sender IDs varies by country or region. For more information, see Supported Countries
   and Regions (SMS Channel) (p. 89).

   This message-level sender ID overrides your default sender ID, which you set on the SMS settings
   page for the project.

5. If you created this campaign as an A/B test campaign (as opposed to a standard campaign), repeat
the steps in this section for each treatment. You can switch between treatments by using the tabs at
the top of the SMS details section.
6. Choose Next.

Writing a Push Notification

This section contains information about writing a push notification and setting up the action that occurs when a recipient taps the notification.

1. On the Create your message page, do one of the following:
   - To design and write a new message for the campaign, select Create a new push notification.
   - To create a message that's based on a push notification template:
     1. Select Choose an existing push notification template, and then select Choose a template.
     2. Browse for the template that you want to use. When you select a template from the list, Amazon Pinpoint displays a preview of the active version of the template. (The active version is typically the version of a template that's been reviewed and approved for use, depending on your workflow.)
     3. When you find the template that you want, select it, and then select Choose template.
     4. Under Template version, specify whether you want Amazon Pinpoint to automatically update the message to include any changes that you might make to the template before the message is sent. To learn more about these options, see Managing Versions of Message Templates (p. 216).
     5. If you created this campaign as an A/B test campaign (as opposed to a standard campaign), repeat the steps in this section for each treatment. You can switch between treatments by using the tabs at the top of the Push notification details section.
     6. When you finish, choose Next.
   2. For Notification type, specify the type of message that you want to send:
      - Standard notification – A push notification that has a title, a message body, and other content and settings. Recipients are alerted by their mobile devices when they receive the message.
      - Silent notification – A custom JSON attribute-value pair that Amazon Pinpoint sends to your app without producing notifications on recipients' devices. Use silent notifications to send data that your app is designed to receive and handle. For example, you can use silent notifications to update the app's configuration or to show messages in an in-app message center.
      - Raw message – A push notification that specifies all of a notification's content and settings as a JSON object. Use raw messages for cases such as sending custom data to an app for processing by that app, instead of the push notification service.

      If you choose the Raw message option, the message editor displays an outline of the code to use for the message. In the message editor, enter the content and settings that you want to use for each push notification service, including any optional settings—such as images, sounds, and actions—that you want to specify. For more information, see the documentation for the push notification services that you use. After you enter all the raw message content, repeat this step for each treatment, if you created this campaign as an A/B test campaign. When you finish, choose Next.

To create a standard notification

To create a standard notification

1. For Title, enter the title that you want to display above the message.
2. For Body, enter the message body. Your push notification can have up to 200 characters. A character counter below the field counts down from 200 as you add characters to the message.
3. For Action, select the action that you want to occur when a recipient taps the notification:
• **Open your app** – Your app launches, or it becomes the foreground app if it was sent to the background.

• **Go to a URL** – The default mobile browser on the recipient's device launches and opens a web page at the URL that you specify. For example, this action can be useful for sending users to a blog post.

• **Open a deep link** – Your app opens to a specific page or component in the app. For example, this action can be useful to direct users to special promotions for in-app purchases.

4. **(Optional)** Under **Media URLs**, enter the URLs for any media files that you want to display in the push notification. The URLs must be publicly accessible so that the push notification services for Android or iOS can retrieve the images.

5. If you created this campaign as an A/B test campaign (as opposed to a standard campaign), repeat the steps in this section for each treatment. You can switch between treatments by using the tabs at the top of the **Push notification details** section.

6. Choose **Next**.

To create a silent notification

1. For **Message**, enter the content of the message in JSON format. The exact content of the message varies depending on the notification service that you use and the values that your app expects to receive.

2. If you created this campaign as an A/B test campaign (as opposed to a standard campaign), repeat the steps in this section for each treatment. You can switch between treatments by using the tabs at the top of the **Push notification details** section.

3. Choose **Next**.

Configuring a Custom Channel Message

This section contains information about configuring a campaign to send messages by using a custom channel. You can use custom channels to send messages to your customers through any service that has an API or web hook functionality, including third-party services.

Sending a Custom Message Using a Lambda Function

To send messages through a service that has an API, you have to create an AWS Lambda function that calls the API. For more information about creating these functions, see Creating Custom Channels in the Amazon Pinpoint Developer Guide.

To configure a custom channel that uses a Lambda function to call an API

1. On the **Create your message** page, for **Choose your custom message channel type**, choose Lambda function.

2. For **Lambda function**, choose the name of the Lambda function that you want to execute when the campaign runs.

3. For **Endpoint options**, choose the endpoint types that you want Amazon Pinpoint to send to the Lambda function or webhook that's associated with the custom channel.

   For example, if the segment you chose for this campaign contains several endpoint types, but you only want to send the campaign to endpoints that have the Custom endpoint type attribute, choose **Custom**. You aren't required to choose the Custom endpoint type. For example, you could choose to only send the custom channel campaign to endpoints with the Email endpoint type attribute.

4. Choose **Next**.
Sending a Custom Message Using a Webhook

You can also create custom channels that send information about your segment members to services that use webhooks.

To configure a custom channel that uses webhooks

1. On the Create your message page, for Choose your custom message channel type, choose URL.
2. For Enter your custom message channel URL, enter the URL of the webhook.
   The URL that you specify has to begin with "https://". It can only contain alphanumeric characters, plus the following symbols: hyphen (-), period (.), underscore (_), tilde (~), question mark (?), slash or solidus (/), pound or hash sign (#), and semicolon (:). The URL has to comply with RFC3986.
3. For Endpoint options, choose the endpoint types that you want Amazon Pinpoint to send to the Lambda function. For example, if the segment you chose for this campaign contains several endpoint types, but you only want to send the campaign to endpoints that have the "Custom" endpoint type attribute, choose Custom.
4. Choose Next.

Use Message Variables

To create a message that's personalized for each recipient, use message variables. Message variables refer to specific user attributes. These attributes can include characteristics that you create and store for users, such as the user's name, city, device, or operating system. When Amazon Pinpoint sends the message, it replaces the variables with the corresponding attribute values for the recipient. For information about the attributes that you can use, see Endpoint Properties in the Amazon Pinpoint API Reference.

To include a variable in your message, add the name of an existing attribute to the message. Enclose the name in two sets of curly braces, and use the exact capitalization of the name—for example, {{Demographic.AppVersion}}.

Often, the most useful attributes for message variables are custom attributes that you create and store for users. By using custom attributes and variables, you can send personalized messages that are unique for each recipient.

For example, if your app is a fitness app for runners and it includes custom attributes for each user's first name, preferred activity, and personal record, you could use variables in the following message:


When Amazon Pinpoint sends this message, the content varies for each recipient after the variables are replaced. Possible final messages are:

Hi Jane Doe, congratulations on your new half marathon record of 1:42:17!
Or:
Hi John Doe, congratulations on your new 5K record of 20:52!

Test the Message

Amazon Pinpoint can display a preview of an email message that you can view before you schedule the message to be sent. For email and other types of messages, you can also send a test message to a small group of recipients for testing purposes. You can send test messages for any type of message—email, push notification, SMS, or voice.
Previewing an Email Message Without Sending It

The Design view in the Amazon Pinpoint message editor shows a preview of an email message as it would appear if it was rendered by your web browser.

If you’re working in HTML view, instead of Design view, you can display a preview of an email message next to the HTML content of the message. This feature is helpful when you want to verify that a message renders as you expect, before you send a test.

Note that this preview only shows how the message would appear if it was rendered by your web browser. As a best practice, you should still send test emails to several recipients and view those test messages by using a variety of devices and email clients.

To preview an email

1. In the area above the HTML view of the message editor, choose No preview, and then choose Preview. Amazon Pinpoint displays a preview pane next to the HTML editor.
2. (Optional) To display the HTML content and the preview in a larger window, choose Fullscreen in the area above the message editor.

Sending a Test Message

It’s often helpful to send a test message to actual recipients in order to make sure that your message appears correctly when your customers receive it. By sending a test version of a message, you can test incremental improvements to the content and appearance of your message without impacting the status of your campaign.

When you send test messages, consider the following factors:

• You’re charged for sending test messages as if they were regular campaign messages. For example, if you send 10,000 test emails in a month, you’re charged $1.00 (USD) for sending the test emails. For more information about pricing, see Amazon Pinpoint Pricing.

• Test messages count toward your account’s sending quotas. For example, if your account is authorized to send 10,000 emails per 24-hour period, and you send 100 test emails, you can send up to 9,900 additional emails in the same 24-hour period.

• When you send a test message to specific users, you can specify up to 10 addresses. Use commas to separate multiple addresses.

  Note
  The word “address” (as it’s used in this section) can refer to any of the following: an email address, a mobile phone number, an endpoint ID, or a device token.

• When you send a test SMS message to specific phone numbers, the numbers must be listed in E.164 format. That is, they must include a plus sign (+), the country code without a leading zero, and the complete subscriber number, including area code—for example, +12065550142. E.164-formatted numbers shouldn’t contain parentheses, periods, hyphens, or any symbols other than the plus sign. E.164 phone numbers can have a maximum of 15 digits.

• When you send a test push notification, the addresses must be either endpoint IDs or device tokens.

• When you send a test message to a segment, you can only choose one segment. Additionally, you can only choose segments that contain 100 endpoints or fewer.

• When you send a test message to a segment, Amazon Pinpoint creates a campaign for that test. The name of the campaign contains the word “test”, followed by four random alphanumeric characters, followed by the name of the campaign. These campaigns aren’t counted toward the maximum number of active campaigns that your account can contain. Amazon Pinpoint doesn’t create a new campaign when you send a test message to specific recipients.
• Events that are associated with test messages are counted in the metrics for the parent campaign. For example, the *Endpoint deliveries* chart on the *Campaigns* analytics page includes the number of test messages that were successfully delivered.

There are two ways to send a test message. You can send it to an existing segment or you can send it to a list of addresses that you specify. The best method depends on your use case. For example, if you have a regular group of people who test your messages, you might find it helpful to create a segment that contains all of their endpoints. If you need to send test messages to a group of testers that changes regularly, or to a dynamically generated address, you might find it easier to specify your recipients manually.

**To send a test message to a segment**

1. Under the message editor, choose *Send a test message*.
2. In the *Send a test message* dialog box, under *Send a test message to*, choose *A segment*.
3. Use the drop-down list to choose the segment that you want to send the test message to.
   
   **Note**

   Amazon Pinpoint automatically excludes all segments that contain 100 endpoints or more from this list.

4. Choose *Send message*.

**To send a test message to specific recipients**

1. Under the message editor, choose *Send a test message*.
2. In the *Send a test message* dialog box, under *Send a test message to*, choose one of the options in the following table.

<table>
<thead>
<tr>
<th>If you're sending...</th>
<th>Choose...</th>
<th>And then enter...</th>
</tr>
</thead>
<tbody>
<tr>
<td>An email</td>
<td>Email addresses</td>
<td>A comma-separated list of valid email addresses.</td>
</tr>
<tr>
<td>An SMS message</td>
<td>Phone numbers</td>
<td>A comma-separated list of E.164-formatted phone numbers.</td>
</tr>
<tr>
<td>A mobile push notification</td>
<td>Either Endpoint IDs or Device tokens</td>
<td>A comma-separated list of endpoint IDs or device tokens, depending on the type of address you chose.</td>
</tr>
</tbody>
</table>

3. Choose *Send message*.

**Step 4: Choose When to Send the Campaign**

After you write your message, you can specify when the campaign should be sent. You can choose to send the campaign immediately, at a scheduled date and time, on a recurring basis, or when certain events occur.
Before you can complete the procedures in this section, you have to complete Step 3 (p. 125).

Topics in this section:
- Sending the Campaign Immediately (p. 132)
- Sending the Campaign at a Specific Date and Time (p. 132)
- Sending the Campaign on a Recurring Basis (p. 132)
- Sending the Campaign When Events Occur (p. 133)

Sending the Campaign Immediately

If you want to send the campaign as soon as you finish creating it, you can choose to send the campaign immediately.

To send the campaign immediately
1. Under **When should the campaign be sent**, choose **At a specific time**.
2. Under **How often should the campaign be sent**, choose **Immediately**.
3. Choose **Next** to continue to the final step.

Sending the Campaign at a Specific Date and Time

If you want to send a campaign only once, you can schedule it to be sent at a specific date and time.

To send the campaign at a specific date and time
1. Under **When should the campaign be sent**, choose **At a specific time**.
2. Under **How often should the campaign be sent**, choose **Once**.
3. For **Start date and time**, choose the date and time when Amazon Pinpoint should send the message.
4. Under **Time zone**, choose the time zone that you want to use to schedule the campaign. Optionally, choose **Use recipient's local time** to base the delivery time on each recipient's local time zone.
5. Choose **Next** to continue to the final step.

Sending the Campaign on a Recurring Basis

You can also schedule the campaign to be sent on a recurring basis. You can specify the frequency, as well as the start and end dates for the campaign.

To send the campaign on a recurring basis
1. Under **When should the campaign be sent**, choose **At a specific time**.
2. Under **How often should the campaign be sent**, choose how often Amazon Pinpoint should send the recurring campaign. For example, to send the campaign once per week, choose **Weekly**.
3. For **Start date and time**, choose the date and time when Amazon Pinpoint should send the first message in the recurring series.
4. For **End date and time**, choose the date and time when Amazon Pinpoint should stop sending recurring messages.
5. Under **Time zone**, choose a time zone to base the start and end times on. Optionally, choose **Use recipient's local time** to base the delivery time on each recipient's local time zone.
6. Choose **Next** to continue to the final step.
Sending the Campaign When Events Occur

If you want to send the campaign when customers take certain actions, you can configure the campaign to be sent when a specific event occurs. For example, you can configure the campaign to be sent when a customer registers a new account, or when a customer adds an item to their shopping cart but doesn’t purchase it. To learn more about sending events from your apps to Amazon Pinpoint, see Reporting Events in Your Application in the Amazon Pinpoint Developer Guide.

Note
You can send event-based messages only if your campaign uses dynamic segments (as opposed to imported segments). In addition, if you integrate your app with Amazon Pinpoint by using an AWS Mobile SDK, messages from event-based campaigns are sent only to customers whose apps are running AWS Mobile SDK for Android version 2.7.2 or later, or AWS Mobile SDK for iOS version 2.6.30 or later.

To configure a campaign to be sent when an event occurs

1. Under **When should the campaign be sent**, choose **When an event occurs**.
2. For **Events**, choose the name of the event that triggers the execution of the campaign.
3. (Optional) For **Attributes** and **Metrics**, choose the specific characteristics that trigger the execution of the campaign.

   Tip
   The more event data you capture from your users, the more options you have when you set up event triggers. Event attributes and metrics are available only if you’ve provided those values to Amazon Pinpoint. To learn more about capturing event data, see Reporting Events in Your Application in the Amazon Pinpoint Developer Guide.

4. Under **Campaign Dates**, for **Start date and time**, choose a start date. Amazon Pinpoint sends the campaign only if the event that you specified earlier occurs after the start date.

   Note
   The **Start date and time** that you choose has to be at least 15 minutes in the future.

5. For **End date and time**, choose an end date. Amazon Pinpoint sends the campaign only if the event that you specified earlier occurs before the end date.
6. Under **Time zone**, choose a time zone to base the start and end dates on.
7. Choose **Next** to continue to the final step.

Best Practices for Using Event-Based Campaigns

There are a few restrictions and best practices that you should consider when you create event-based campaigns:

- You can create an event-based campaign only if you chose a dynamic segment (as opposed to an imported segment) in Step 2 (p. 124).
- If you integrate your app with Amazon Pinpoint by using an AWS Mobile SDK, your app should use the following versions of the SDK in order to work properly with event-based campaigns:
  - AWS Mobile SDK for Android version 2.7.2 or later
  - AWS Mobile SDK for iOS version 2.6.30 or later

Because of this restriction, we recommend that you set up your segments to only include customers who use a version of your app that runs a compatible version of the SDK.
- Choose your events carefully. For example, if you send an event-based campaign every time a `session.start` event occurs, you might quickly overwhelm your users with messages. You can limit the number of messages that Amazon Pinpoint sends to a single endpoint in a 24-hour period. For more information, see General Settings (p. 236).
Step 5: Review and Launch the Campaign

At this point, you're almost ready to send the campaign to your audience segment. Before you launch the campaign, you should review your settings and make changes if needed.

Prerequisite

Before you begin, complete Step 4: Choose When to Send the Campaign (p. 131).

To review and launch a campaign

1. On the Review and launch page, review the settings for the campaign. If you need to make changes, use the navigation section on the left side of the window to go directly to the page that contains the content that you want to edit.
2. If all of the settings are correct, choose Launch campaign.

Managing Campaigns

In the Amazon Pinpoint console, you update the settings for a campaign, delete a campaign, or copy an existing campaign to a new campaign.

To manage a campaign

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project for which you want to manage campaigns.
3. In the navigation pane, choose Campaigns.
4. On the Campaigns page, choose the campaign that you want to manage. Then, on the Actions menu, select the action that you want to take, as shown in the following image.

On the Actions menu, you can do the following:

- View details – Shows the details page for the selected campaign. On this page, you can see information about the campaign, such as the campaign type, the status of the campaign, and the number of endpoints targeted by the campaign.
• **View analytics** – Shows the analytics page for the selected campaign. For more information about campaign analytics, see *Campaign Charts* (p. 186).

• **Change settings** – Change the settings for the campaign, including the target segment, the message content, and the delivery time. You can choose this option only for campaigns that haven't been sent yet.

• **Duplicate** – Copy the campaign to use its settings as a template for a new campaign, in which you can change or keep any of the original settings.

• **Delete** – Remove the campaign from Amazon Pinpoint and stop sending messages through the campaign.
Amazon Pinpoint Journeys

In Amazon Pinpoint, a journey is a customized, multi-step engagement experience. When you create a journey, you start by choosing a segment that defines which customers will participate in the journey. After that, you add the activities that customers pass through on their journeys. Activities can include sending messages or splitting customers into groups based on their attributes or behaviors.

There are several different types of journey activities, each with its own specific purpose. For example, you can add a Send email activity to your journey. When a customer arrives on this type of activity, they receive an email message. Another type of journey activity is the Multivariate split activity. When customers arrive on this type of activity, they are separated into multiple paths based on their segment membership or their interactions with previous journey activities. You can learn more about journey activities in Take a Tour of Journeys (p. 136).

This chapter contains conceptual information about journeys in Amazon Pinpoint. It also contains information about creating, managing, testing, and publishing your journeys.

Topics in this section:
- Take a Tour of Journeys (p. 136)
- Create a Journey (p. 140)
- Review and Test a Journey (p. 155)
- Publish a Journey (p. 158)
- View Journey Metrics (p. 158)
- Tips and Best Practices for Journeys (p. 165)

Take a Tour of Journeys

Journeys includes some new concepts and terminology that you might not be familiar with. This topic explores these concepts in detail.

Journeys Terminology

Journey workspace

The area of the journey page where you create your journey by adding activities.

Activity

A step in a journey. Different things can happen when participants arrive on different types of activities. In Amazon Pinpoint, you can create the following types of activities:

Send email

When a participant arrives on a Send email activity, Amazon Pinpoint sends them an email. When you create a Send email activity, you specify an email template (p. 202) to use for the email. Email templates can include message variables, helping you to create a more personalized experience.

Wait

When a participant arrives on a Wait activity, they remain on that activity until a certain date or for a specific amount of time.
Yes/No split

Sends participants down one of two paths based on criteria that you define. For example, you can send all participants who read an email down one path, and send everyone else down the other path.

Multivariate split

Sends participants down one of up to four paths, based on criteria that you define. Participants who don't meet any of the criteria proceed down an "Else" path.

Holdout

Ends the journey for a specified percentage of participants.

Random split

Randomly sends participants down one of up to five paths.

Path

A connector that joins one activity to another. A split activity might have several paths.

Participant

A person who is traveling through the activities in a journey.

Parts of the Journeys Interface

This section contains information about the components of the journeys interface. When you create or edit a journey, you see the journey workspace. The following image shows an example of the journey workspace.
The following table includes descriptions of several of the buttons that appear in the journey workspace.

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Button name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Info" /></td>
<td>Info</td>
<td>Opens the help panel, which shows additional information about individual journey activities.</td>
</tr>
<tr>
<td><img src="image" alt="Delete activity" /></td>
<td>Delete activity</td>
<td>Deletes the highlighted activity.</td>
</tr>
<tr>
<td><img src="image" alt="Undo" /></td>
<td>Undo</td>
<td>Reverts the most recent action.</td>
</tr>
<tr>
<td><img src="image" alt="Redo" /></td>
<td>Redo</td>
<td>Restores an action that was previously undone by using the Undo button.</td>
</tr>
<tr>
<td><img src="image" alt="Center" /></td>
<td>Center</td>
<td>Moves to the top of the journey and centers the Journey entry activity on the journey workspace.</td>
</tr>
<tr>
<td><img src="image" alt="Zoom out" /></td>
<td>Zoom out</td>
<td>Reduces the size of objects in the journey workspace.</td>
</tr>
<tr>
<td><img src="image" alt="Zoom in" /></td>
<td>Zoom in</td>
<td>Increases the size of objects in the journey workspace.</td>
</tr>
<tr>
<td><img src="image" alt="Add activity" /></td>
<td>Add activity</td>
<td>This button appears at every point where you can insert another step in the journey. When you choose this button, you see a menu that lets you choose an activity type.</td>
</tr>
<tr>
<td><img src="image" alt="Feedback" /></td>
<td>Feedback</td>
<td>A quick and easy way to provide feedback about your experience using journeys. We review all of the feedback that we receive through this button. We might contact you for additional information if we have any questions.</td>
</tr>
</tbody>
</table>
Create a Journey

The Amazon Pinpoint console lets you create powerful journeys through an easy-to-use graphical editor. This section contains information about planning your journey, as well as information about creating your journey by using the Amazon Pinpoint console.

Step 1: Configure the Journey

The first step in building your journey is to create and configure it. You can configure the journey to begin immediately, or at a certain date and time. You can also configure it to end at a specific date and time.

To configure a journey

1. On the All projects page, choose the Amazon Pinpoint project that you want to create a journey in.
   
   **Note**
   In Amazon Pinpoint, segments and endpoints are unique to each project. The project that you choose should contain the segments and endpoints that you want to engage with this journey.

2. In the navigation pane, choose Journeys.
3. Choose Create journey. The journey workspace appears.
4. On the Actions menu, choose Settings. The Journey settings dialog box appears. An example of this dialog box is shown in the following image.
5. In the Journey settings dialog box, do the following:

a. For Journey title, enter a name that describes the journey.

b. (Optional) For Start date and time and End date and time, enter the dates and times when the journey should start and end, respectively. If you don’t enter a start date, customers enter the journey 5 minutes after you launch it. If you don’t enter an end date, the journey runs continuously for up to 540 days (approximately 18 months).
Step 2: Set Up the Journey Entry Activity

Now you can choose the segment that will participate in the journey. You can optionally configure the Journey entry activity to add new journey participants by periodically searching for new segment members.

To set up the journey entry activity

1. Choose the Journey entry activity. The following image shows what the activity looks like when it's selected.
2. For **Segments**, choose the segment that you want to add to the journey.

   **Tip**
   You can include only one segment in the **Journey entry** activity. If you need to add more segments, you can create a new segment that includes all of the segments that you want to add to the journey. Then, later in the journey, you can use a multivariate split activity to divide journey participants into separate groups based on their segment membership.

3. (Optional) For **Specify how often to add new segment members**, choose how often the segment membership should be evaluated. For example, if you choose **Once every 12 hours**, Amazon Pinpoint checks for new segment members every 12 hours. If Amazon Pinpoint finds any new segment members during one of these checks, it adds them to the journey.
Step 3: Add Activities to the Journey

Activities are the most important parts of any journey. Activities represent the steps that are applied to journey participants. You can use activities to send messages to journey participants, or to split them into smaller groups, or to wait for a period of time. There are several different types of activities that you can add to a journey. This section provides basic information about adding activities to a journey. For detailed information about setting up each type of activity, see Setting Up Journey Activities (p. 144).

To add activities to a journey

1. Choose Add activity.
2. For Add an activity, choose one of the following types of journey activities:
   - **Send email** – When a participant arrives on this type of activity, Amazon Pinpoint sends them an email. When you create a Send email activity, you specify an email template (p. 202). Email templates can include message variables, helping you to create a more personalized experience.
   - **Wait** – When a participant arrives on this type of activity, they remain on the activity until a certain date or for a specific amount of time.
   - **Yes/No split** – Sends customers down one of two paths based on certain criteria. For example, you can send all customers who read an email down one path, and all other customers down the other path.
   - **Multivariate split** – Sends customers down one of up to four paths, based on certain criteria. Customers who don’t meet any of the criteria that you define go down an “Else” path.
   - **Holdout** – Ends the journey for a specified percentage of users.
   - **Random split** – Randomly sends customers down one of up to five paths.

   **Tip**
   Amazon Pinpoint automatically saves your journey every few minutes, and every time you configure an activity. The text in the upper right corner of the screen tells you when your journey was last saved. You can close the journey workspace at any time and return to it later.

   For procedures for setting up each of these types of activities, see Setting Up Journey Activities (p. 144).

Setting Up Journey Activities

Each type of journey activity has separate components that you have to configure. The following sections provide additional information about setting up each type of activity.

**Set Up an Email Activity**

When a journey participant arrives on a Send email activity, Amazon Pinpoint sends them an email immediately. Before you can configure an email activity, you have to create an email template. For more information about creating email templates, see Creating Email Templates (p. 202).
To set up an email activity

1. Choose the Send email activity that you want to configure.
2. For Choose an email template, choose the email template for the message that you want participants to receive. Then, under Template version, specify whether you want Amazon Pinpoint to automatically update the message to include any changes that you might make to the template before the message is sent. To learn more about these options, see Managing Versions of Message Templates (p. 216).

   Tip
   You can send yourself a preview of the message, even if your Amazon Pinpoint account doesn't contain an endpoint record for your email address. To send a preview, choose Send a test message.

3. For Sender email address, choose the email address that you want to send the message from. This list contains all the verified email addresses for your Amazon Pinpoint account in the current AWS Region. For information about verifying additional email addresses or domains, see Verifying Email Identities (p. 29).

   Tip
   To display a friendly sender name for the message, choose the default email address for the project. A friendly sender name is the name that appears in participants' email clients when they receive the message. To change the default email address for the project or the friendly sender name for that address, update the project's settings for the email channel. To do this, choose Settings in the left navigation pane, and then choose Email. Then, enter the settings that you want.
4. (Optional) For Description, enter text that describes the purpose of the activity. When you save the activity, this text appears as its label.

5. When you finish, choose Save.

Set Up a Wait Activity

When a journey participant arrives on a Wait activity, they remain on that activity for a certain period of time or until a specific date and time. This type of activity is a useful way to schedule the sending of time-sensitive communications, or to give customers time to interact with messages that you sent earlier in the journey.

To set up a wait activity

1. Choose the Wait activity that you want to configure.
2. Choose one of the following options:
   - For a period of time – Choose this option if you want journey participants to remain on this activity for a certain amount of time. Then, enter the amount of time that you want journey
participants to wait on this activity before they proceed to the next activity. You can specify a
value that's as short as 1 hour or as long as 365 days.

- **Until a specific date** – Choose this option if you want journey participants to remain on this
activity until a specific date and time. Then, enter the date and time when journey participants
should move to the next activity. You can choose any date and time that precedes the end date of
the journey.

3. (Optional) For **Description**, enter text that describes the purpose of the activity. When you save the
activity, this text appears as its label.

4. When you finish, choose **Save**.

**Set Up a Yes/No Split Activity**

When journey participants arrive on a **Yes/No split** activity, they're sent down one of two paths based
on their attributes or behaviors. You can use this type of split activity to send journey participants down
separate paths based on their membership in a segment. You can also send participants down separate
paths based on their interactions with other journey activities. For example, you can divide journey
participants based on whether they opened an email that was sent earlier in the journey.
To set up a yes/no split activity

1. Choose the Yes/No split activity that you want to configure.
2. For Select a condition type, choose one of the following options:
Step 3: Add Activities to the Journey

- **Segment** – Choose this option to send all members of the chosen segment down the "Yes" path. Then, for **Segments**, choose a segment.

- **Event** – Choose this option to send users down the "Yes" path based on their interactions with a previous step in this journey. Then, complete the following steps:
  1. For **Events**, choose one of the following options:
     - **Email send** – Amazon Pinpoint accepted the message and will attempt to deliver it.
     - **Email delivered** – The message was successfully delivered to the recipient.
     - **Email rejected** – Amazon Pinpoint rejected the message because it contained a virus or malware.
     - **Email hard bounce** – The email wasn't delivered to the recipient because of a permanent issue. For example, the recipient's email address might not exist anymore. When a message generates a hard bounce, Amazon Pinpoint doesn't attempt to re-deliver it.
     - **Email soft bounce** – The email wasn't delivered to the recipient because of a temporary issue. For example, the recipient's inbox could be full, or their email provider might be experiencing a temporary issue. When a soft bounce occurs, Amazon Pinpoint attempts to re-deliver the message for a certain period of time. If the message still can't be delivered, the message becomes a hard bounce.
     - **Email complaint** – The recipient received the email, but used the "Report spam" or similar button in their email client to report the message as unwanted.
       
       **Note**
       Amazon Pinpoint relies on complaint reports from email providers to generate complaint events. Some email providers give us these reports on a regular basis, while others send them infrequently.
     - **Email open** – The recipient received the email and opened it.
       
       **Note**
       For Amazon Pinpoint to capture an **Email open** event, the recipient's email client has to download the images contained in the message. Many common email clients, such as Microsoft Outlook, don't download email images by default.
     - **Email click** – The recipient received the email and followed one of the links contained in the body of the message.
     - **Email unsubscribe** – The recipient received the email and used the "Unsubscribe" link to opt out of future messages.
  2. For **Choose an activity**, choose the activity that the split should be applied to.
  3. For **Condition evaluation**, choose when Amazon Pinpoint should evaluate the condition. You can choose from the following options:
     - **Evaluate immediately** – If you choose this option, Amazon Pinpoint checks to see if the event condition that you specified has been met the moment when the journey participant arrives on the activity.
     - **Evaluate after** – If you choose this option, Amazon Pinpoint waits for a specified period of time. After the specified period of time has elapsed, Amazon Pinpoint checks to see if the event condition that you specified has been met.
     - **Evaluate on** – If you choose this option, Amazon Pinpoint waits until a specific date and time. When that date and time arrives, Amazon Pinpoint checks to see if the event condition that you specified has been met.
  4. (Optional) For **Description**, enter text that describes the purpose of the activity. When you save the activity, this text appears as its label.
  5. When you finish, choose **Save**.
Set Up a Multivariate Split Activity

When journey participants arrive on a **Multivariate split** activity, they're sent down one of several paths based on their attributes or behaviors. This type of split is similar to a yes/no split. The advantage of using a multivariate split activity is that it can evaluate more than one condition. Additionally, every multivariate split activity contains an "Else" path. Journey participants who don't meet any of the conditions that you specified in other paths are automatically sent down the "Else" path.

You can use this type of split to send journey participants down separate paths based on their membership in a segment. You can also send participants down separate paths based on their interactions with other journey activities. For example, you can divide journey participants based on whether they opened an email that was sent earlier in the journey.

**Note**
If a journey participant meets more than one condition in a conditional split, they are sent down the first condition that they meet, in alphabetical order. For example, if a participant meets the conditions in Branch A and Branch D, they're sent down the path that corresponds with Branch A.
Step 3: Add Activities to the Journey

Multivariate split

Branch A

Choose a condition type
Event

Events
Email click

Choose an activity
Second campaign message

Branch B

Branch C

Add another branch

Condition evaluation
The amount of time that Amazon Pinpoint waits before it evaluates the conditions.
Evaluate immediately

Description - optional
Check for interactions with previous messages
To set up a multivariate split activity

1. Choose the Multivariate split activity that you want to configure.
2. Determine how many different paths (branches) you want to create. Choose Add another branch to create additional paths.
3. On each branch, for Select a condition type, choose one of the following options:
   - **Segment** – Choose this option to send all members of the chosen segment down the path. Then, for Segments, choose a segment.
   - **Event** – Choose this option to send users down the path based on their interactions with a previous step in this journey. Then, complete the following steps:
     1. For Events, choose one of the following options:
        - **Email send** – Amazon Pinpoint accepted the message and will attempt to deliver it.
        - **Email delivered** – The message was successfully delivered to the recipient.
        - **Email rejected** – Amazon Pinpoint rejected the message because it contained a virus or malware.
        - **Email hard bounce** – The email wasn't delivered to the recipient because of a permanent issue. For example, the recipient's email address might not exist anymore. When a message generates a hard bounce, Amazon Pinpoint doesn't attempt to re-deliver it.
        - **Email soft bounce** – The email wasn't delivered to the recipient because of a temporary issue. For example, the recipient's inbox could be full, or their email provider might be experiencing a temporary issue. When a soft bounce occurs, Amazon Pinpoint attempts to re-deliver the message for a certain period of time. If the message still can't be delivered, the message becomes a hard bounce.
        - **Email complaint** – The recipient received the email, but used the "Report spam" or similar button in their email client to report the message as unwanted.

          **Note**
          
          Amazon Pinpoint relies on complaint reports from email providers to generate complaint events. Some email providers give us these reports on a regular basis, while others send them infrequently.

        - **Email open** – The recipient received the email and opened it.

          **Note**
          
          For Amazon Pinpoint to capture an Email open event, the recipient's email client has to download the images contained in the message. Many common email clients, such as Microsoft Outlook, don't download email images by default.

        - **Email click** – The recipient received the email and followed one of the links contained in the body of the message.
        - **Email unsubscribe** – The recipient received the email and used the "Unsubscribe" link to opt out of future messages.

     2. For Choose an activity, choose the activity that the split should be applied to.
4. For Condition evaluation, choose when Amazon Pinpoint should evaluate the condition. You can choose from the following options:
   - **Evaluate immediately** – If you choose this option, Amazon Pinpoint checks to see if the event condition that you specified has been met at the moment the journey participant arrives on the activity.
   - **Evaluate after** – If you choose this option, Amazon Pinpoint waits for a specified period of time. After the specified period of time has elapsed, Amazon Pinpoint checks to see if the event condition that you specified has been met.
Step 3: Add Activities to the Journey

- **Evaluate on** – If you choose this option, Amazon Pinpoint waits until a specific date and time. When that date and time arrives, Amazon Pinpoint checks to see if the event condition that you specified has been met.

5. (Optional) For **Description**, enter text that describes the purpose of the activity. When you save the activity, this text appears as its label.

6. When you finish, choose **Save**.

Set Up a Holdout Activity

When journey participants arrive on a **Holdout** activity, the journey ends for a random selection of participants. You can specify the percentage of total journey participants who are held out. Holdout activities can help you measure the impact of a journey by creating a control group that doesn’t receive your messages. When a journey finishes running, you can compare the behaviors of the users who participated in the journey against those who were part of the control group.

**Note**

Amazon Pinpoint uses a probability-based algorithm to determine which journey participants are held out. The percentage of journey participants who are held out will be very close to the percentage that you specify, but it might not be perfectly equal.

To set up a holdout activity

1. Choose the **Holdout** activity that you want to configure.
2. For **Holdout percentage**, enter the percentage of journey participants who should be prevented from proceeding to the next activity in the journey.
3. (Optional) For **Description**, enter text that describes the purpose of the activity. When you save the activity, this text appears as its label.
4. When you finish, choose **Save**.
Set Up a Random Split Activity

When journey participants arrive on a Random split activity, they’re randomly sent down one of up to five paths. You can create two to five separate paths for this type of activity. This type of activity is useful when you want to measure the effectiveness of different message variants.

**Note**
Amazon Pinpoint uses a probability-based algorithm to determine which journey participants are sent down each path in a random split activity. The percentages of journey participants who are sent down each path will be very close to the percentages that you specify, but they might not be perfectly equal.

To set up a random split activity

1. Choose the Random split activity that you want to configure.
2. Determine how many different paths (branches) you want to create. Choose **Add another branch** to create each additional path.

3. In the field next to each branch, enter the percentage of journey participants who should be sent down that branch. The values that you specify have to be positive numbers, and they can't contain decimals. The sum of the values that you enter across all branches has to equal exactly 100%.

4. (Optional) For **Description**, enter text that describes the purpose of the activity. When you save the activity, this text appears as its label.

5. When you finish, choose **Save**.

**Next:** Review and Test a Journey (p. 155)

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## Review and Test a Journey

Before you can publish your journey, you have to review it in order to make sure that all of the activities that it contains are configured properly. It's also a good idea to enroll test users in a copy of the journey before you publish it, to confirm that it behaves the way you expect it to behave. This section contains information and procedures related to reviewing and testing your journey.

### Reviewing a Journey

The review feature provides information about configuration errors in your journey, and also provides some recommendations.

#### To review a journey

1. In the upper-right corner of the journey workspace, choose **Review**. The **Review your journey** pane appears in the journey workspace. The following image shows the journey workspace with the **Review your journey** pane opened.
Review the error messages that are shown on the first page of the Review your journey pane. You can't publish your journey until you resolve all the issues that are shown on this page. If there aren't any issues with your journey, you see a message stating that your journey doesn't contain any errors. When you're ready to proceed, choose Next.

Tip
Choose an error to go directly to the activity that it applies to.
3. The second page of the **Review your journey** pane contains recommendations and best practices that are relevant to your journey. You can proceed without resolving the issues that are shown on this page. When you’re ready to proceed, choose **Mark as reviewed**.

4. On the third page of the **Review your journey** pane, you can publish your journey. If you’re ready for customers to enter the journey, choose **Publish**. However, if you want to test your journey first, close the **Review your journey** pane, and then complete the steps in **Testing a Journey** (p. 157).

## Testing a Journey

One of the most important steps in creating a journey is testing it to make sure that it behaves as intended. Journeys includes a testing feature that makes it easy to send a group of test participants through the journey. It includes features that let you reduce or eliminate the amount of time that participants spend on wait or multivariate split activities, so that you can test each journey thoroughly and quickly.

### To test a journey

1. Create a new segment that contains only the test participants who you want to participate in the test journey. Or, if you already have a segment of test participants, proceed to the next step.

   For more information about creating segments, see Building Segments (p. 108).

   **Tip**
   One of the easiest ways to create a test segment is by importing a spreadsheet. For more information, see Importing Segments (p. 113).

2. On the **Actions** menu, choose **Test**.

3. For **Test segment**, choose the segment that contains the test participants.

4. Choose how to handle delays in the journey. You can choose one of the following options:
   - **Skip all waits and delays** – Choose this option to have test participants proceed from one activity to another without any intervening delays.
   - **Custom wait time** – Choose this option to have test participants wait for a pre-defined amount of time at each activity that includes a delay. This option is helpful if your journey contains wait activities, or yes/no split or multivariate split activities that are based on customer interactions.

5. Choose **Send test**. Amazon Pinpoint creates a new journey with **Test** – added to the beginning of the journey name. The test participants are added to the journey.

6. When you finish testing, choose **Stop journey** to permanently end the test journey.

   **Tip**
   During the testing process, if you discover that you need to make changes to the original journey (that is, the journey that the test journey was based on), return to the **Journeys** page. In the list of journeys, choose the original journey, and then make your changes. Changes that you make to the test journey aren’t automatically applied to the journey that the test is based on.

## Best Practices for Testing Your Journeys

- Include several test participants in the segment that you use to test your journey.
- Include test participants whose email addresses are on domains other than your own.
- Use a variety of email clients and operating systems to test the messages that are sent from your journey.
- If your journey includes yes/no split or multivariate split activities that are based on interactions with your emails, test those interactions. For example, if you have a split activity that checks to see if an
email was opened, then some of your test participants should open the email. Then, check the Journey metrics pane to make sure that the correct number of users went down each path.

- If your email templates include message variables that refer to endpoint attributes, make sure that your test participants have those same attributes. For example, if your email template refers to a User.UserAttributes.FirstName attribute, the endpoints in your test segment should also have that attribute.

Next: Publish a Journey (p. 158)

Publish a Journey

After you've tested your journey (p. 157) and you're ready for customers to enter it, you can publish the journey. The publishing process requires you to complete the review process one more time.

To publish a journey

1. In the upper-right corner of the journey workspace, choose Review. The Review your journey pane appears in the journey workspace.

2. Review the error messages that are shown on the first page of the Review your journey pane. You can't publish your journey until you resolve all the issues that are shown on this page. If there aren't any issues with your journey, you see a message stating that your journey doesn't contain any errors. When you're ready to proceed, choose Next.

3. The second page of the Review your journey pane contains recommendations and best practices that are relevant to your journey. You can proceed without resolving the issues that are shown on this page. When you're ready to proceed, choose Mark as reviewed.


Note
Even if you configure the journey to begin immediately, there is a five-minute delay before participants actually enter the journey. During this time, Amazon Pinpoint calculates all the segment members, and prepares to start capturing analytics data. This delay also gives you a final opportunity to stop the journey if necessary.

Next: View Journey Metrics (p. 158)

View Journey Metrics

After you publish a journey, the Journey metrics pane appears in the journey workspace, and Amazon Pinpoint begins to capture metrics related to the journey. At the top of the Journey metrics pane, you can choose from the following metrics categories:

- **Execution metrics (p. 158)** – These metrics provide information about how many endpoints were added to your journey, as well as the reasons why qualified endpoints were excluded from the journey.
- **Engagement metrics (p. 161)** – These metrics provide information about how journey participants interacted with the messages that were sent from the journey.

Execution Metrics

Journey execution metrics include information about the endpoints that entered (or were prevented from entering) your journey. To view engagement metrics, choose Engagement metrics in the Journey metrics pane.
These metrics are divided into several sections, which are discussed in detail in the following sections.

**Entry Metrics**

The first section in the list of execution metrics shows how many participants entered your journey. An example of this section is shown in the following image.

This section contains the following information:

- **Currently in journey** – The number of participants who are actively proceeding through the activities in the journey.
- **Completed journey** – The number of participants who have reached an end activity in the journey.
- **Lifetime journey entries** – The number of participants who have entered the journey since the start date of the journey.

This section also contains a chart that shows the percentage of participants who completed the journey (shown in blue) and the percentage of participants who are still in the journey (shown in orange).

**Journey Settings**

The next section in the list of execution metrics includes information about some important settings for the journey. An example of this section is shown in the following image.

This section contains the following information:
• **Max. daily messages per endpoint** – The maximum number of messages that you can send to a single endpoint from the journey during a 24-hour period.

• **Max. journey entries per endpoint** – The maximum number of times that a single endpoint can participate in a journey.

• **Max. messages per second** – The maximum number of messages that the journey can send per second.

### Unsent Message Metrics

The next section in the list of execution metrics includes information about the reasons why messages weren't sent to journey participants. An example of this section is shown in the following image.

<table>
<thead>
<tr>
<th>Reasons that messages weren't sent</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exceeded max entries per endpoint</td>
<td>1</td>
</tr>
<tr>
<td>Exceeded endpoint message limit</td>
<td>2</td>
</tr>
<tr>
<td>Sent during quiet time</td>
<td>1</td>
</tr>
<tr>
<td>Held out</td>
<td>0</td>
</tr>
</tbody>
</table>

This section contains the following information:

• **Exceeded max entries per endpoint** – The number of participants who were prevented from participating in the journey because they would have exceeded the maximum number of times that a single endpoint can participate in the journey.

• **Exceeded endpoint message limit** – The number of messages that weren't sent because sending them would have exceeded the maximum number of messages that a single participant can receive during a 24-hour period.

• **Sent during quiet time** – The number of messages that weren't sent because they would have been delivered during quiet time in the recipient's time zone.

• **Held out** – The number of participants who were removed from the journey by a holdout activity.

### Message Failure Metrics

The final section in the list of execution metrics includes information about the number of messages that couldn't be delivered because of system issues or issues related to your Amazon Pinpoint account. An example of this section is shown in the following image.
This section contains the following information:

- **Permanent failure** – The number of messages that weren't sent because of a permanent failure.
- **Transient failure** – The number of messages that weren't sent because of a temporary failure.
- **Service failure** – The number of messages that weren't sent because of an issue with the Amazon Pinpoint service.
- **Unknown failure** – The number of messages that weren't sent because of an unknown reason.
- **Throttled** – The number of messages that weren't sent because sending them would exceed the sending quotas for your Amazon Pinpoint account.

**Engagement Metrics**

Journey engagement metrics include information about the ways in which the participants in your journey interacted with the messages that were sent from the journey.

**Important**
Several of the engagement metrics are based on information that we receive from recipients' email providers. Different email providers have different practices for providing us with this data. Some providers send us this information immediately, while others send it infrequently. After we receive this data, there is a delay of up to two hours while we process the incoming metrics.

**Email Response Metrics**

The first section in the list of engagement metrics provides email response metrics. An example of this section is shown in the following image.
This section contains the following information:

- **Total messages sent** – The number of messages that Amazon Pinpoint attempted to send.
- **Total deliveries** – The number of messages that were delivered to recipients.
- **Total opens** – The number of messages that were opened by recipients.
  
  **Note**
  In order for Amazon Pinpoint to count an email open event, the recipient has to load the images in your messages. Several email clients, such as some versions of Microsoft Outlook, prevent images from being loaded by default. Each time the recipient opens the email, it's counted as a distinct event. For example, if a recipient opens the same message five times, Amazon Pinpoint counts five distinct open events. For this reason, it's possible (but unlikely) for the number of opens to exceed the number of sends or deliveries.

- **Total clicks** – The number of times that recipients clicked links in messages.
  
  **Note**
  Amazon Pinpoint counts each click as a separate event. For example, if a recipient clicks three links in a message, Amazon Pinpoint counts three distinct click events. For this reason, it's possible for the number of clicks to exceed the number of opens or deliveries.

**Message Engagement Metrics**

The final section in the list of engagement metrics provides additional email response metrics. An example of this section is shown in the following image.
This section contains the following information:

- **Emails soft bounced** – The number of messages that resulted in a soft bounce. A soft bounce occurs when a message can't be delivered because of a temporary issue (for example, when the recipient's inbox is full).

  **Note**
  Amazon Pinpoint attempts to re-deliver messages that result in a soft bounce for a certain period of time. If the message is delivered during one of these redelivery attempts, then the message is counted in the **Total deliveries** metric and removed from the **Emails soft bounced** metric.

- **Emails hard bounced** – The number of messages that resulted in a hard bounce. A hard bounce occurs when a message can't be delivered because of a permanent issue (for example, when the destination email address no longer exists).

  **Note**
  Soft bounces that can't be delivered after a certain period of time are converted to hard bounces. For this reason, you might see the number of soft bounces decrease and the number of hard bounces increase.

- **Emails unsubscribed** – The number of messages that prompted the recipient to unsubscribe.

  **Note**
  In order for Amazon Pinpoint to count an unsubscribe event, the unsubscribe link in the email has to contain a special link tag (a tag called `unsubscribeLinkTag`, as in the following example: `<a ses:tags="unsubscribeLinkTag:click;" href="http://www.example.com/unsubscribe">`). Only links that contain this tag are counted as unsubscribes.

- **Emails complained** – The number of messages that were reported by the recipient as unsolicited mail.

  **Note**
  This metric is based on complaint report data that we receive from recipients' email providers. Some email providers send us complaint data immediately, while others send a weekly or monthly digest.

- **Emails rejected** – The number of messages that weren't sent because they were rejected. A message is rejected if Amazon Pinpoint determines that the message contains malware. Amazon Pinpoint doesn't attempt to send rejected messages.
Activity Metrics

While viewing the metrics for a journey, you can choose individual activities in the journey to see metrics that apply to only that activity. Different activities offer different metrics.

Email Activity Metrics

Journey metrics for email activities include the following information:

- **Execution metrics** – The number of participants who were sent a message after visiting the email activity. These metrics also include the number of participants who weren’t sent messages, and the reasons why the messages weren’t sent. For details about each of these metrics, see Execution Metrics (p. 158).

- **Engagement metrics** – Information about participants’ interactions with the messages that were sent from the email activity, including the number of messages that were delivered, opened, clicked, resulted in bounces, and more. For details about each of these metrics, see Engagement Metrics (p. 161).

Wait Activity Metrics

Journey metrics for wait activities include the following information:

- **Wait completed** – The number of journey participants who completed the activity.

- **Wait date passed** – The number of journey participants who arrived on the activity and immediately moved to the next activity because the wait date occurred in the past.

- **Currently waiting** – The number of participants who are currently waiting (in the activity).

Yes/No Split Activity Metrics

Journey metrics for yes/no split activities include the following information:

- **Total participants** – The number of journey participants who passed through the activity.

- **Details for path** – The number of journey participants who were sent down each path of the activity.

Multivariate Split Activity Metrics

Journey metrics for multivariate split activities include the following information:

- **Total participants** – The number of journey participants who passed through activity.

- **Details for path** – The number of journey participants who were sent down each path of the activity.

Holdout Activity Metrics

Journey metrics for holdout activities include the following information:

- **Total entered** – The number of journey participants who passed through activity.

- **Participants held out** – The number of participants who exited the journey as a result of being held out by the activity.

Random Split Activity Metrics

Journey metrics for random split activities include the following information:
Tips and Best Practices for Journeys

Although journeys are designed to be flexible and fully customizable, there are some fundamental strategies and practices that can help you plan, design, and manage any journey. Consider the following tips and best practices for designing and managing a successful journey.

Topics
- Scope and Settings (p. 165)
- Segments (p. 166)
- Activities (p. 167)
- Email Messages (p. 168)
- Reviewing and Testing (p. 169)
- Analytics (p. 169)
- Lifecycle Management (p. 169)

Scope and Settings

Because a journey can perform a variety of different and interrelated tasks, it's a good idea to create a well-defined scenario for a journey. Also, you should choose journey settings that support your scenario and goals. By using journey settings, you can establish constraints that determine the timing, volume, and frequency with which a journey can engage participants.

When you define a scenario, consider limiting its scope to a small aspect of a larger customer experience. Although Amazon Pinpoint supports large-scale journeys that have extensive workflows, you have more opportunities to monitor, refine, and manage a customer's experience if you design a journey to be part of a sequence of related journeys.

For example, you can design a journey that focuses on welcoming new customers and providing them with recommended first steps during their first seven days as a customer. Based on each customer's actions during the first journey, you can then add them to a subsequent journey that's tailored to their initial level of engagement. One subsequent journey might provide next steps for customers who were highly engaged in the first journey. Another subsequent journey might promote different products or services to customers who were less engaged in the first journey. By creating a sequence of smaller-scope journeys, you can continually refine and manage the customer experience throughout the customer lifecycle.

After you define a scenario, choose journey settings that support your goals for the scenario. These settings define the timing, volume, and frequency with which any part of a journey can engage participants. To choose these settings, create or open the journey. Then choose Settings from the Actions menu, and expand the Advanced settings section.

Some key goals and related settings are:

**Store and use participants' local time zones**

To optimize participant engagement in a journey that has a scheduled start and end time, configure the journey to use each participant's local time zone. This helps to ensure that journey activities occur when a participant is most likely to participate in those activities.

Note, however, that the usefulness of this setting depends on whether you store local time zone values in the endpoint definitions for participants. If you use this setting and the endpoint definition
for a participant doesn't specify a time zone, Amazon Pinpoint doesn't include the participant in the journey. To avoid this issue, use the `TimeZone` attribute to store time zone information for participants. This is a standard attribute that Amazon Pinpoint provides.

**Address quiet-time conflicts**

If you configure an activity to send messages at a time that conflicts with the quiet-time settings for the journey or project, Amazon Pinpoint doesn't send the messages. In addition, it doesn't try to send the messages after quiet time ends. To avoid this conflict, define custom quiet-time settings for the journey. In addition, schedule email activities to occur during hours that don't conflict with quiet time.

**Limit the number of messages that participants can receive**

To help ensure that participants don't receive too many messages from the journey or project, limit the number of messages that can be sent to a participant during a 24-hour period. This can be especially helpful if a journey uses a segment that's also used by campaigns or other journeys. You might also create and use a segment that's designed explicitly for use by only a specific journey.

**Optimize the number of messages that can be sent**

If a journey has a large number of participants and it sends a large number of messages, factor the amount of time that Amazon Pinpoint needs to process and send all of those messages.

For example, consider a situation where you have a journey activity that sends messages to 1,000,000 participants, and the maximum sending rate for your Amazon Pinpoint account is 200 messages per second. Some participants won't receive the message until approximately 80 minutes after the activity starts. This is especially relevant if a journey includes wait activities that follow email activities. If Amazon Pinpoint hasn't finished sending all the messages by the time the wait activity ends, participants might be moved to the activity that follows the wait activity, before they've received the message.

To mitigate this risk, consider increasing the maximum number of messages that a journey can send per second, and possibly increase it to the maximum sending rate for your account. Also consider increasing the sending quotas for your account (p. 34).

**Limit the number of times that participants can enter a journey**

Depending on the nature and design of a journey, limit the number of times that a single participant can enter the same journey. If you don't set this limit, a participant could enter a journey, complete several activities in the journey, arrive at an end activity, and then start the journey again. You might prefer to have each participant start and complete a journey only once.

Note that Amazon Pinpoint doesn't allow a participant to enter a journey if they're already an active participant in the journey. For example, Amazon Pinpoint doesn't add a participant as a new participant if the participant starts a journey and you subsequently update the participant's endpoint definition in a way that affects their inclusion in a segment (based on segment criteria) or the journey (based on activity conditions).

**Maximize opportunities for participants to start a journey**

The journey entry activity, which is the first activity in a journey, determines how often new participants are added to the journey. Because new or existing customers could become participants at any time, it's a good idea to configure the entry activity to add new members to the segment frequently. You can also configure the segment to add new participants automatically based on specific user attributes or events. For an example of how to configure a segment in these ways, see the Building Your First Journey in Amazon Pinpoint blog post.

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**Segments**

Segments are key. They determine who can participate in an overall journey and specific journey activities. When you create segments for a journey, consider the following best practices:
Create a dedicated test segment

If you have a regular group of people who test your journeys and messages, create a segment that contains only their endpoints. You can then use that segment as a consistent testing framework, especially if you use the journey testing feature that Amazon Pinpoint provides. For tips about how to build this segment, see Review and Test a Journey (p. 155).

Use multiple segments

Although you can choose only one segment for the journey entry activity, that segment can include multiple smaller segments. Later in the journey, you can then use a multivariate split activity to divide participants into separate groups based on their segment membership. This approach can help you provide a more tailored experience for each participant. It can also help reduce processing times for email activities, because those activities will send messages to a smaller, more targeted audience.

It's also a good idea to segment participants based on actions that they explicitly do or don't do. You can do this by using split activities. For example, you can use a yes/no split activity to send participants down a Yes path if they click a link in a message, and a No path if they don't. The absence of an action can be an opportunity to reengage a participant through a follow-up activity.

Don't delete segments and endpoints

We encourage you to maintain segments that are part of an active journey. If you delete a segment that's being used by an active journey, the journey could fail and stop running. If the journey does continue to run, any participants who were part of the segment might be removed from the journey prematurely. In addition, those participants will be reported as "dropped" in the analytics data for the last activity that they were part of. This compromises the usefulness of your analytics data—you won't be able to distinguish between participants who left a journey independently and participants whom you removed.

Leverage custom attributes

To identify and add journey participants to segments more easily, consider adding a custom, journey-specific attribute to endpoints when your application creates or updates endpoints. You can then use this attribute to identify a user or endpoint as someone who should participate in a journey.

Activities

Activities are the building blocks of any journey. Therefore, when you choose the type and settings for each activity, and the relationships between activities, consider the following guidelines:

Optimize the entry activity

The entry activity, which is the first activity in a journey, determines how often new participants are added to the journey. Because new or existing customers could become participants at any time, it's a good idea to configure the entry activity to update (add participants to) the associated segment frequently. By doing this, you maximize opportunities for participants to start a journey.

Prepare for changes to segment and participant data

An activity's evaluation of segment conditions is based on the latest data for each participant (endpoint) in the segment, and this data might change over time. For example, a participant's favorite food could be pizza when they start an activity. That participant could subsequently change their preference to hot dogs. If this happens, subsequent activities will evaluate the participant based on the participant's preference for hot dogs, not pizza. One way to prepare for these kinds of changes is to use split activities that predict the changes and send participants down an appropriate path.
Take advantage of the Else path

A multivariate split activity can contain as many as four paths (each with its own criteria), in addition to an Else path. The Else path is for participants who don't meet any of the criteria for the other paths. Therefore, it provides an excellent opportunity to handle unexpected or unusual cases that you might not have considered when you designed the journey.

Consider delays in receiving event data

Some event data, such as email opens, is based on information that we receive from participants' email providers. Some providers send us this information immediately, while others send it less frequently. Those delays can impact participants' experiences. When Amazon Pinpoint evaluates events as a condition of an activity, it moves a participant to a No path if it doesn't have any event data for a participant. To mitigate this risk, add buffer time to the evaluation schedule for activities that immediately follow email activities.

Avoid consecutive email activities

We recommend that you insert a wait or other type of activity between two or more email activities. This can help account for the amount of time that Amazon Pinpoint needs to process and send messages, and any delays in participants receiving messages.

Email Messages

In addition to general tips and best practices for sending email (p. 61), consider doing the following before you create a journey:

Create a dedicated “From” address

Consider using a dedicated email address or domain for all the messages that you send from a journey. This provides a consistent experience across all the messages that participants receive from a journey. It also gives each participant an opportunity to adjust their email application settings to ensure that all of a journey's messages arrive in their inbox. In addition, if you subscribe to the Deliverability Dashboard (p. 46), using a dedicated address or domain can make it easier for you to access advanced analytics data for specific journeys. To learn how to set up a dedicated address or domain for sending messages, see the section called “Verifying Email Identities” (p. 29).

Verify that you set up the email channel correctly

Before you publish a journey, make sure that your Amazon Pinpoint account has production access for email (p. 32). If it doesn't, your account is in the sandbox environment, which means that participants might not receive messages from the journey. (In the sandbox environment, you can send only a limited number of messages and you can send messages to only certain email addresses.) Also, make sure the sending quota and sending rate for your account can support the number of messages that you plan to send from the journey. To check the sending quota and rate for your account, you can use the Email Settings page on the Amazon Pinpoint console.

Design a collection of related message templates

During the early stages of the planning process, it's a good idea to design and create a message template for each email activity that you expect to include in the journey. If you do this, you can ensure that all the messages have a consistent design. This also ensures that each message is specific to and optimized for the corresponding phase of the journey. For example, in a journey that welcomes new customers, you might have three email templates. There is one template with introductory information, another with intermediate information for users who clicked a link in the first message, and another with revised introductory information for users who didn't click a link in the first message.
**Reviewing and Testing**

Amazon Pinpoint includes a review feature that checks for and warns you about configuration errors in a journey. It also simplifies the process of finding and fixing any errors. To find the activity or setting that has an error, click the error description.

To fix an error, follow the recommendation provided in the **Review your journey** pane. We encourage you to use this feature to review and fix errors before you publish a journey. As a best practice, we also encourage you to complete this review process multiple times before you publish a journey.

Amazon Pinpoint also includes a testing feature that streamlines the testing process. After you complete the review process for a journey, you can use this feature to send a group of test participants through the journey.

To ensure that only test participants can enter the journey, you can create and use a dedicated test segment with this feature. To expedite testing, you can configure this feature to reduce or eliminate wait times for and between activities. We strongly recommend that you use this feature to test all aspects of a journey, including each message that a journey sends, before you publish a journey.

To learn more about reviewing and testing a journey, see the section called “Review and Test a Journey” (p. 155).

**Analytics**

After you publish a journey, Amazon Pinpoint automatically starts collecting and aggregating analytics data for several types of standard metrics that apply to the overall journey and individual journey activities. We strongly recommend that you review these metrics regularly and frequently.

Among other things, these metrics provide key insight into issues to address, such as failures and errors that might have occurred when Amazon Pinpoint attempted to evaluate or perform an activity. Overall, these metrics can help you determine what is or isn’t working well in a journey, which can help you design more effective journeys in the future. For detailed information about the available metrics and how to view them, see the section called “View Journey Metrics” (p. 158).

Amazon Pinpoint automatically stores your analytics data for 90 days. Depending on a journey’s projected duration or your organization’s long-term storage and reporting needs, you might want to store the underlying event data for more than 90 days. To do this, we recommend that you configure Amazon Pinpoint to export data to Amazon Kinesis Data Streams or Amazon Kinesis Data Firehose. If you export data to Amazon Kinesis, you can also use other services and applications to perform deeper analysis or reporting. For more information, see the section called “Streaming Event Data” (p. 198).

**Lifecycle Management**

As you move a journey through various phases of development and execution, keep the following in mind for each phase of the journey’s lifecycle. Also note that you can stop (cancel) a journey at any time if any issues arise.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft</td>
<td>The journey is being developed and hasn't been published yet.</td>
</tr>
<tr>
<td></td>
<td>In this phase, you can change any aspect of the journey, including segments, activities, and settings for the journey. You can also leverage Amazon Pinpoint features for reviewing and</td>
</tr>
<tr>
<td>Phase</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>testing the journey. You can repeat the review and test processes as many times as you want.</td>
</tr>
<tr>
<td>Active</td>
<td>The journey has been developed, reviewed, tested, and published. Depending on the journey's schedule, it might currently be running or scheduled to start running at a later time. In this phase, you can't add, change, or remove activities from the journey.</td>
</tr>
<tr>
<td>Closed</td>
<td>The journey has been developed, reviewed, tested, and published. It has started running and is closed to new participants. Depending on the journey's schedule and settings, it might have also passed its scheduled end time. Or the journey might have passed its scheduled start time, and it has an entry activity that's set to never add new segment members. In this phase, you can't add new participants to the journey, and no existing participants can enter the journey for the first time. However, any existing participants who are currently waiting to start an activity can resume the journey.</td>
</tr>
<tr>
<td>Stopped</td>
<td>The journey was developed, reviewed, tested, and published, and then subsequently stopped. You can't restart a journey after you stop it. If you stop a journey, Amazon Pinpoint continues to perform activities that are currently in progress until those activities are complete. Amazon Pinpoint also continues to collect and aggregate analytics data for those activities until the activities are complete. It also does this for any activities that were complete when you stopped the journey. In this phase, you can't add, change, or remove any activities from the journey. In addition, Amazon Pinpoint stops evaluating the journey and doesn't perform any activities that haven't started.</td>
</tr>
</tbody>
</table>
Send Test Messages with Amazon Pinpoint

With Amazon Pinpoint, you can send test messages, which are one-time messages that you send directly to a specific set of recipients. Sending a test message is useful if you want to test the deliverability of a message, or see how a message appears to recipients. You can send a test message by using any channel that Amazon Pinpoint supports.

We charge you for each test message that you send. However, we don't bill you based on your monthly targeted audience (MTA) when you send test messages. For more information, see Amazon Pinpoint Pricing.

When you use the Amazon Pinpoint console to send a test message, you can send the message to as many as 15 recipients, depending on the type of message. You can't send a test message to a segment—you have to send it to individual users. In addition, Amazon Pinpoint delivers a test message immediately. You can't schedule the delivery of a test message. Finally, a test message doesn't generate messaging metrics, such as open, click, or bounce rates. If you want to send a message to a segment, schedule the delivery of a message, or obtain metrics data for a message, you should create a campaign instead of sending a test message.

To send a test message from the Amazon Pinpoint console, use the Test messaging page on the console.

To open the Test messaging page
1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to send a test message for.
3. In the navigation pane, choose Test messaging.

Sending a Test Email Message

To send a test email message, you have to use a project that has the email channel enabled. To learn how to create a new project and enable the email channel for it, see Setting Up the Amazon Pinpoint Email Channel (p. 28). To learn how to enable the email channel for an existing project, see Managing the Amazon Pinpoint Email Channel (p. 33).

To send a test email message
1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to send a test message for.
3. In the navigation pane, choose Test messaging.
4. On the Test messaging page, under Channel, choose Email.
5. For Destination type, choose one of the following destinations for your message:
   - Email addresses – Each destination is a recipient's email address.
   - Endpoint IDs – Each destination is a unique ID that's assigned to an endpoint for the project.
6. Depending on your selection for Destination type, enter one or more Endpoint IDs or Email addresses. You can enter up to 15 values. Use commas to separate multiple values.
7. For **Message content**, choose whether you want to **Create a new message** or **Use an existing template**.

   If you choose to use an existing template, choose the template from the **Template** list. After you choose a template, Amazon Pinpoint displays a preview of the active version of the template. The active version is typically the version of a template that's been reviewed and approved for use, depending on your workflow.

   If you choose to create a new message, specify a subject in the **Subject** field, and a message body in the **Message** field.

   **Tip**
   You can enter the message body by using either HTML or Design view. In the HTML view, you can manually enter HTML content for the message body, including formatting, links, and other features that you want to include in the message. In the Design view, you can use a rich text editor to enter the content of the message body. You can use the formatting toolbar to apply formatting and add links and other features to the message body. To switch views, choose **HTML** or **Design** from the view selector above the message editor.

   In the field below the message editor, optionally enter the content that you want to display in the body of messages that are sent to recipients whose email applications don't display HTML content.

8. When you finish, choose **Send message**.

### Sending a Test Push Notification

To send a test push notification, you have to use a project that has one or more push notification channels enabled. To learn how to create a new project and enable a push notification channel for it, see Setting Up Amazon Pinpoint Mobile Push Channels (p. 24). To learn how to enable a push notification channel for an existing project, see Managing Mobile Push Channels with Amazon Pinpoint (p. 25).

After you enable one or more push notification channels for a project, you can send a test push notification through any of those channels.

**To send a test push notification**

1. Open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. On the **All projects** page, choose the project that you want to send a test message for.
3. In the navigation pane, choose **Test messaging**.
4. On the **Test messaging** page, under **Channel**, choose **Push notifications**.
5. For **Destination type**, choose one of the following destinations for your message:

   - **Endpoint IDs** – Each destination is a unique ID that's assigned to an endpoint for the project.
   - **Device tokens** – Each destination is a token that's assigned to the instance of the app that you're messaging. For example, this value can be a device token that's assigned by the Apple Push Notification service (APNs) or a registration token that's assigned by Firebase Cloud Messaging (FCM).

6. Depending on your selection for **Destination type**, enter one or more **Endpoint IDs** or **Device tokens**. You can enter up to 15 values. Use commas to separate multiple values.

   If you use device tokens as the destination type, you should only specify tokens that are associated with a single push notification service. Amazon Pinpoint can send the message through only one push notification service at a time.

   If you use endpoint IDs as the destination type, this restriction doesn't apply. You can specify endpoints that use any push notification service.
7. For **Push notification service**, specify the push notification service that you want to send the message through. If you use endpoint IDs as the destination type, Amazon Pinpoint detects the service automatically.

8. For **Notification type**, specify the type of test message that you want to send:
   - **Standard message** – A push notification that has a title, a message body, and other content and settings. Recipients are alerted by their mobile devices when they receive the message.
   - **Raw message** – A push notification that specifies all of a notification's content and settings as a JSON object. This type of notification can be useful for cases such as sending custom data to an app for processing by that app, instead of the push notification service. If you choose this option, the message editor displays an outline of the code to use for the message. In the message editor, enter the settings that you want to use for each push notification service. Include any optional settings (such as images, sounds, and actions) that you want to specify. For more information, see the documentation for the push notification services that you use. When you finish entering all the raw message content, skip to step 12.

9. Under **Message**, for **Message content**, choose whether you want to **Create a new message** or **Use an existing template**.
   
   If you choose to use an existing template, choose the template from the **Template** list. After you choose a template from the list, Amazon Pinpoint displays a preview of the active version of the template. (The active version is typically the version of a template that's been reviewed and approved for use, depending on your workflow.) When you finish choosing a template, skip to step 12.

   If you choose to create a new message, specify a **Title** and **Body** for the message.

10. For **Action**, select the action that you want to occur if the recipient taps the notification:
   - **Open app** – Your app launches, or it becomes the foreground app if it was sent to the background.
   - **Go to URL** – The default mobile browser on the recipient’s device launches and opens a web page at the URL that you specify. For example, this action is useful for sending users to a blog post.
   - **Open a deep link** – Your app opens and displays a designated user interface in the app. Deep linking is an iOS and Android feature. For example, this action is useful for directing users to special promotions for in-app purchases.

11. (Optional) In the **Media URLs** section, provide URLs that point to media files that you want to display in the message. The URLs must be publicly accessible so that push notification services can retrieve the files.

12. When you finish, choose **Send message**.

### Sending a Test SMS Message

To send a test SMS message, you have to use a project that has the SMS channel enabled. To learn how to create a new project and enable the SMS channel for it, see the section called “Setting Up” (p. 69). To learn how to enable the SMS channel for an existing project, see Managing the Amazon Pinpoint SMS Channel (p. 84).

**To send a test SMS message**

1. Open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. On the **All projects** page, choose the project that you want to send a test message for.
3. In the navigation pane, choose **Test messaging**.
4. On the **Test messaging** page, under **Channel**, choose **SMS**.
5. For **Destination type**, choose one of the following destinations for your message:
• **Phone numbers** – Each destination is a recipient's phone number.

• **Endpoint IDs** – Each destination is a unique ID that's assigned to an endpoint for the project.

6. Depending on your selection for **Destination type**, enter one or more **Endpoint IDs** or **Phone numbers**. You can enter up to 15 values. Use commas to separate multiple values.

   If you use phone numbers as the destination type, specify each number in E.164 format. E.164 is a standard for the phone number structure that's used for international telecommunication. Phone numbers that follow this format typically have up to 15 digits, and they are prefixed with the plus character (+) and the country code. For example, a US phone number in E.164 format appears as +12065550100.

7. For **Message type**, choose one of the following:

   • **Promotional** – Noncritical messages, such as marketing messages. If you choose this option, Amazon Pinpoint optimizes the message delivery to incur the lowest cost.

   • **Transactional** – Critical messages that support customer transactions, such as one-time passwords for multi-factor authentication. If you choose this option, Amazon Pinpoint optimizes the message delivery to achieve the highest reliability.

   **Note**

   This message-level setting overrides the default message type that you chose on the **Settings** page for the project.

8. Under **Message**, for **Message content**, choose whether you want to **Create a new message** or **Use an existing template**.

   If you choose to use an existing template, choose the template from the **Template** list. After you choose a template from the list, Amazon Pinpoint displays a preview of the active version of the template. (The active version is typically the version of a template that's been reviewed and approved for use, depending on your workflow.) When you finish choosing a template, skip to step 10.

   If you choose to create a new message, specify the content of the message in the **Message** field.

9. (Optional) For **Sender ID**, enter a custom ID that contains up to 11 alphanumeric characters, including at least one letter, and no spaces. The sender ID is displayed as the message sender on the recipient's device. For example, you can use your business brand to make the message source easier to recognize.

   Support for sender IDs varies by country and/or region. For more information, see **Supported Countries and Regions (SMS Channel)** (p. 89).

   This message-level sender ID overrides your default sender ID, which you chose on the **Settings** page for the project.

10. When you finish, choose **Send message**.
Amazon Pinpoint Analytics

Using the analytics that Amazon Pinpoint provides, you can gain insight into your user base by viewing trends related to user engagement, campaign outreach, revenue, and more.

As users interact with your project, Amazon Pinpoint collects and stores analytics data for these interactions. You can view that data to learn about areas such as your users' level of engagement (p. 179), purchase activity (p. 182), and demographics (p. 185). For example, if you have a mobile app, you can view charts and metrics that show how many users open your app each day, when users open your app, and the revenue that's generated by your app.

By viewing charts about device attributes, you can also learn which platforms and devices your app is installed on. To report these and other metrics for a mobile app, your app must be integrated with Amazon Pinpoint through one of the supported AWS Mobile SDKs. For more information, see Integrating Amazon Pinpoint With Your App in the Amazon Pinpoint Developer Guide.

You can also monitor campaign analytics (p. 186) to see how your campaigns are performing in aggregate, as well as individually. For example, you can follow the total number of messages or push notifications that were sent, the percentage of messages or push notifications that users opened, opt-out rates, and other information. If you create a campaign that includes an A/B test, you can also use analytics to compare the effectiveness of the campaign treatments. For example, you can assess whether users are more likely to open your mobile app because they received a certain variation of a campaign message.

To analyze how many users are completing each step in a conversion process, such as purchasing an item or upgrading your app, you can create and monitor funnels (p. 196).

To analyze or store analytics data outside Amazon Pinpoint, you can configure Amazon Pinpoint to stream the data to Amazon Kinesis (p. 198).

Topics
- Chart Reference for Amazon Pinpoint Analytics (p. 175)
- Creating Funnel Charts with Amazon Pinpoint (p. 196)
- Streaming Events with Amazon Pinpoint (p. 198)

Chart Reference for Amazon Pinpoint Analytics

The Analytics pages on the Amazon Pinpoint console provide overviews of key metrics. They also provide dashboards that give details about campaigns, demographics, funnels, usage, revenue, and more. You can filter these dashboards by date for further analysis. You can also filter some dashboards by other attributes, such as event or channel attributes.

Topics
- Endpoints and Users in Amazon Pinpoint Analytics (p. 176)
- Exporting Dashboards (p. 176)
- Overview Charts (p. 176)
- Usage Charts (p. 179)
- Revenue Charts (p. 182)
- Events Charts (p. 184)
Endpoints and Users in Amazon Pinpoint Analytics

Some of the charts and metrics in these dashboards provide data about endpoints. Others provide data about users.

An endpoint is a destination that you can send messages to—such as a user’s mobile device, email address, or phone number. Before you can see data about endpoints, your application must register endpoints with Amazon Pinpoint, or you must import your endpoint definitions into Amazon Pinpoint.

A user is an individual who has a unique user ID. This ID can be associated with one or more endpoints. For example, if a person uses your app on more than one device, your app could assign that person’s user ID to the endpoint for each device. Before you can see data about users, your application must assign user IDs to endpoints, or you must import endpoint definitions that include user IDs.

For information about registering endpoints and assigning user IDs within a mobile app, see Registering Endpoints in Your Application in the Amazon Pinpoint Developer Guide. For information about registering endpoints and assigning user IDs for other types of applications, see Adding Endpoints to Amazon Pinpoint in the Amazon Pinpoint Developer Guide. For information about importing endpoint definitions, see Importing Segments (p. 113).

Exporting Dashboards

You can export data from the dashboards that appear on the Analytics pages of the Amazon Pinpoint console. When you export data from a dashboard, Amazon Pinpoint creates a .zip file that contains a comma-separated values (.csv) file with the data for each section of the dashboard. You can open these .csv files by using any modern spreadsheet or data analysis application.

To export data from a dashboard, choose a date range for the data (and other attributes, if applicable), and then choose Download CSV.

Overview Charts

The Analytics overview page contains several charts and metrics that provide an overview of endpoint, usage, and campaign responses for your project. If you’ve sent transactional email messages for your project, this page also provides information about responses to those messages.

Viewing the Analytics Overview Charts

Complete the following steps to view the charts and metrics on the Analytics overview page of the Amazon Pinpoint console. You can filter the data by date.

To view and filter the Analytics overview charts and metrics

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to view analytics data for.
3. In the navigation pane, choose Analytics.
4. (Optional) To apply a filter that displays the data for a specific date or range of dates, use the date selector at the top of the page to choose the dates for the time period that you want. After you choose new dates, the page updates to show the data for the selected time period.
Chart Descriptions

The Analytics overview page contains three sections: App analytics (p. 177), Campaign analytics (p. 177), and Transactional email (p. 178).

App analytics

The App analytics section contains some of the most commonly used metrics that are related to your app or project.

Daily active endpoints

Shows the number of endpoints that opened your app at least once in a 24-hour period for each day in the selected time period. This chart also provides the average number of daily active endpoints for the entire time period, and the percentage change in the number of daily active endpoints from the beginning to the end of the time period.

Monthly active endpoints

Shows the number of endpoints that opened your app at least once in the previous 30 days for each day in the selected time period. This chart also provides the average number of monthly active endpoints for the entire time period, and the percentage change in the number of monthly active endpoints from the beginning to the end of the time period.

New endpoints

Shows the number of endpoints that were registered with Amazon Pinpoint for the first time, for each day in the selected time period. This chart also provides the average number of new endpoints for the entire time period, and the percentage change in the number of new endpoints from the beginning to the end of the time period.

7-day retention rate

Shows the percentage of users who opened your app 8 days ago, and then opened it again at some point during the following 7 days. This chart also provides the average 7-day retention rate for the entire time period, and the percentage change in the 7-day retention rate from the beginning to the end of the time period.

Sessions

Shows the total number of times that your app was opened each day in the selected time period. This chart also provides the average number of daily sessions for the entire time period, and the percentage change in the number of sessions from the beginning to the end of the time period.

Revenue

Shows the revenue, in USD, that was reported by your app for each day in the selected time period. This chart also provides the total revenue for the entire time period, and the percentage change in the amount of revenue from the beginning to the end of the time period.

Campaign analytics

The Campaign analytics section contains several important metrics that can help you understand the success of your campaigns. The metrics in this section provide aggregated metrics for all the campaigns in the current project.

Active targetable endpoints

Shows the number of endpoints that are opted in to receive messages from you through at least one channel, and the number of active targetable endpoints for each channel—for example, push
notifications, email, and SMS. For an app, this section also shows the number of endpoints that are opted in to receive messages from you and have opened your app during the past 30 days.

**Campaigns**

Shows information about the campaigns that were active during the selected time period. This section includes the following information:

**Active campaigns**

The number of campaigns that are currently active.

**Messages delivered**

The number of messages that were delivered to their intended recipients. Amazon Pinpoint calculates this number by subtracting the number of messages that bounced from the number of messages that you sent.

**Delivery rate**

The percentage of targeted endpoints that received messages from you. Amazon Pinpoint calculates this rate by dividing the number of messages that were delivered to their intended recipients by the total number of messages that you sent.

**Opt-out rate**

The percentage of users who opted out after receiving messages from you. Amazon Pinpoint calculates this rate by determining the number of messages that were received by their intended recipients and dividing that number by the number of recipients who received your message and opted out. (The recipients might have opted out by clicking an unsubscribe link in an email, or by replying to an SMS message with the keyword STOP).

**Email open rate**

The percentage of recipients who opened messages from you. Amazon Pinpoint calculates this rate by dividing the number of email messages that were sent and opened by their recipients by the number of messages that were received by their recipients.

**Push open rate**

The percentage of push notifications that were opened by recipients. Amazon Pinpoint calculates this rate by dividing the number of recipients who opened push notifications from you by the number of push notifications that were received by their recipients.

**Endpoint deliveries**

The average number of unique endpoints that received messages from you on each day of the selected time period. The chart shows the number of unique endpoints that received messages from you, for each day in the selected time period.

**Transactional email**

The Transactional email section contains a chart and metrics that provide information about responses to all the transactional email messages that you sent during the selected time period. Note that this section doesn’t include information about messages that you sent from campaigns or transactional messages that you sent through other types of channels. In addition, it can take up to two hours for new data to appear in this section.

**Sent**

The number of transactional messages that were sent:

- **Average** – The average number of messages that were sent each day of the selected time period.
• Total – The total number of messages that were sent during the selected time period.
• Change over period – The percentage of change between the number of messages that were sent on the first and last days of the selected time period. If this value is an em dash (—), no transactional email messages were sent on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

Delivered
The number of transactional messages that were delivered to their intended recipients:
• Average – The average number of messages that were delivered each day of the selected time period.
• Total – The total number of messages that were delivered during the selected time period.
• Change over period – The percentage of change between the number of messages that were delivered on the first and last days of the selected time period. If this value is an em dash (—), no transactional email messages were delivered on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

Opened
The number of transactional messages that were opened by recipients:
• Average – The average number of messages that were opened each day of the selected time period.
• Total – The total number of messages that were opened during the selected time period.
• Change over period – The percentage of change between the number of messages that were opened on the first and last days of the selected time period. If this value is an em dash (—), no transactional email messages were delivered on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

Clicked
The number of times that recipients clicked links in transactional messages:
• Average – The average number of clicks that occurred each day of the selected time period.
• Total – The total number of clicks that occurred during the selected time period.
• Change over period – The percentage of change between the number of clicks that occurred on the first and last days of the selected time period. If this value is an em dash (—), no clicks occurred on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

If a single recipient clicks multiple links in a message, or clicks the same link more than once, each click is counted as a separate click event.

Usage Charts
The Usage page includes charts and metrics that show how often your app is being used and how successfully it retains user interest over time.

Note
Some of the charts and metrics on the Usage page refer to endpoints, while others refer to users. For information about the difference between users and endpoints, see Endpoints and Users in Amazon Pinpoint Analytics (p. 176).

Viewing the Usage Charts
Complete the following steps to view the Usage charts and metrics on the Amazon Pinpoint console. You can filter the data by date and by endpoint attributes.
To view and filter the Usage charts and metrics

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to view usage data for.
3. In the navigation pane, under Analytics, choose Usage.
4. (Optional) To apply a filter that displays the data for a specific date or range of dates, use the date selector at the top of the page to choose the dates for the time period that you want. After you choose new dates, the page updates to show the data for the selected time period.
5. (Optional) To apply a filter that displays data for only those users or endpoints that have specific attributes, expand the Filters section. Then choose an attribute from the Endpoint Attributes list. After you choose an attribute, choose an attribute value from the Endpoint Attribute Values list.

   Note
   
   To provide you with the best possible experience, we hide this filter if you haven't used it in the past 90 days.
   If the Filters section shows a message stating that the filter is unavailable, choose More information, and then choose Enable filters. When you do, we restore the filter for your account in the current AWS Region. Depending on the amount of data that’s associated with your account, this process can take up to 72 hours to complete.

   To further filter the data, repeat this step for each additional attribute and attribute value that you want to filter the data by.

Chart Descriptions

The Usage page contains three sections: User Metrics (p. 180), Session Metrics (p. 181), and Authentication Metrics (p. 182).

User Metrics

The User metrics section provides information about how users and endpoints interacted with your application. These charts and metrics help you better understand user retention—that is, the likelihood that a customer who used your application in the past will use it again at a later time.

For information about the difference between users and endpoints, see Endpoints and Users in Amazon Pinpoint Analytics (p. 176).

Daily active endpoints

Shows the number of endpoints that opened your application for each day in the selected time period. This chart also provides the average number of daily active endpoints for the entire time period, and the percentage change in the number of daily active endpoints from the beginning to the end of the time period.

Monthly active endpoints

Shows the number of endpoints that opened your application at some point in the preceding 30 days for each day in the selected time period. This chart also provides the average number of monthly active endpoints for the entire time period, and the percentage change in the number of monthly active endpoints from the beginning to the end of the time period.

New endpoints

Shows the number of endpoints that were registered with Amazon Pinpoint for the first time for each day in the selected time period. This chart also provides the average number of new endpoints for the entire time period, and the percentage change in the number of new endpoints from the beginning to the end of the time period.
**Usage Charts**

**Daily active users**

Shows the number of users that opened your application for each day in the selected time period. This chart also provides the average number of daily active users for the entire time period, and the percentage change in the number of daily active users from the beginning to the end of the time period.

**Monthly active users**

Shows the number of users that opened your application at some point in the preceding 30 days for each day in the selected time period. This chart also provides the average number of monthly active users for the entire time period, and the percentage change in the number of monthly active users from the beginning to the end of the time period.

**New users**

Shows the number of new user IDs that were created in Amazon Pinpoint for each day in the selected time period. This chart also provides the average number of new users for the entire time period, and the percentage change in the number of new users from the beginning to the end of the time period.

**7-day retention rate**

Shows the percentage of users who opened your app 8 days prior, and then opened it again at some point in the following 7 days. This chart also provides the average 7-day retention rate for the entire time period, and the percentage change in the 7-day retention rate from the beginning to the end of the time period.

**Sticky factor**

Shows the portion of monthly active endpoints that were active on each day of the selected time period. For example, a sticky factor of 0.25 indicates that 25% of active endpoints from the previous 30 days were active on the chosen day. This chart also shows the average sticky factor for the entire time period, and the percentage change in the sticky factor rate from the beginning to the end of the time period.

**Session Metrics**

The Session metrics section provides information about how often your app was opened. These metrics can help you better understand how often individual customers use your app, as well as the days and times that they're most likely to use your app.

**Sessions**

Shows the number of times your app was opened for each day in the selected time period. This chart also provides the average number of sessions for the entire time period, and the percentage change in the number of sessions from the beginning to the end of the time period.

**Sessions per endpoint**

Shows the number of sessions for each endpoint. Amazon Pinpoint calculates this number by dividing the number of sessions in the time period by the number of unique endpoints that opened your app in the time period. This chart also provides the average number of sessions per endpoint for the entire time period, and the percentage change in the number of sessions per endpoint from the beginning to the end of the time period.

**Sessions per user**

Shows the number of sessions for each user. Amazon Pinpoint calculates this number by dividing the number of sessions in the time period by the number of unique users who opened your app in the time period. This chart also provides the average number of sessions per user for the entire time period.
period, and the percentage change in the number of sessions per user from the beginning to the end
of the time period.

**Session heat map**

Shows the days and times when endpoints opened your app. The times in this chart reflect each
endpoint's local time. Darker rectangles in this chart indicate larger numbers of endpoints opening
your app.

**Authentication Metrics**

The **Authentication metrics** section provides information about how often existing users sign in to your
app, and how often new users sign up for your app. These charts are useful for tracking the success of
user acquisition programs, or the success of campaigns that attempt to draw disengaged users back to
your app, for example.

**Sign-ins**

Shows the number of times that users signed in to your app for each day in the selected time
period. This chart also provides the average number of sign-ins for the entire time period, and the
percentage change in the number of sign-ins from the beginning to the end of the time period.

**Sign-ups**

Shows the number of times that users created new accounts for your app for each day in the
selected time period. This chart also provides the average number of sign-ups for the entire time
period, and the percentage change in the number of sign-ups from the beginning to the end of the
time period.

**Authentication failures**

Shows the number of times that users attempted to sign in but were unable to do so for each day in
the selected time period. This chart also provides the average number of authentication failures for
the entire time period, and the percentage change in the number of authentication failures from the
beginning to the end of the time period.

**Active users month-to-date**

Shows the number of users who opened your app at least once in the current calendar month.

**Revenue Charts**

The charts and metrics on the **Revenue** page provide details about user purchase activity and the
revenue that's generated by your app.

**Note**

Some of the charts and metrics on the **Revenue** page refer to *endpoints*, while others refer to
*users*. For information about the difference between users and endpoints, see **Endpoints and
Users in Amazon Pinpoint Analytics** (p. 176).

**Viewing the Revenue Charts**

Complete the following steps to view the **Revenue** charts and metrics on the Amazon Pinpoint console.
You can filter the data by date and by endpoint attributes.

**To view and filter the Revenue charts and metrics**

1. Open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. On the All projects page, choose the project that you want to view revenue data for.
3. In the navigation pane, under Analytics, choose Revenue.
4. (Optional) To apply a filter that displays the data for a specific date or range of dates, use the date selector at the top of the page to choose the dates for the time period that you want. After you choose new dates, the page updates to show the data for the selected time period.
5. (Optional) To apply a filter that displays data for only those endpoints that have specific attributes, expand the Filters section. Then choose an attribute from the Endpoint Attributes list. After you choose an attribute, choose an attribute value from the Endpoint Attribute Values list.

Note
To provide you with the best possible experience, we hide this filter if you haven't used it in the past 90 days.
If the Filters section shows a message stating that the filter is unavailable, choose More information, and then choose Enable filters. When you do, we restore the filter for your account in the current AWS Region. Depending on the amount of data that's associated with your account, this process can take up to 72 hours to complete.

To further filter the data, repeat this step for each additional attribute and attribute value that you want to filter the data by.

Chart Descriptions

The Revenue page contains the following sections:

Revenue

Shows the amount of money, in USD, spent within your app by all users for each day in the selected time period. This chart also provides the average amount of revenue that was generated by the app for the entire time period, and the percentage change in the amount of revenue from the beginning to the end of the time period.

Revenue per endpoint

Shows the average amount of money that was spent within your app by each endpoint for each day in the selected time period. Amazon Pinpoint calculates this number by dividing the amount of revenue generated during the selected time period by the number of users who opened the app in that time period. This chart also provides the average amount of revenue per endpoint for the entire time period, and the percentage change in the amount of revenue per endpoint from the beginning to the end of the time period.

Paying users

Shows the number of unique users who made at least one purchase for each day in the selected time period. This chart also provides the total number of paying users, the average number of paying users, and the percentage change in the number of paying users from the beginning to the end of the time period.

Revenue per paying user

Shows the amount of money that was spent by each paying user. Amazon Pinpoint calculates this number by dividing the amount of revenue generated each day in the selected time period by the number of unique users who made at least one purchase during that day. This chart also provides the average amount of revenue per paying user for the entire time period, and the percentage change in the amount of revenue per paying user from the beginning to the end of the time period.

Units sold

Shows the total number of items that were purchased in your app for each day in the selected time period. This chart also provides the total number of units sold, the average number of units sold per
day, and the percentage change in the number of units sold from the beginning to the end of the analysis period.

**Units sold per endpoint**

Shows the daily average number of items that were purchased by each endpoint. Amazon Pinpoint calculates this number by dividing the number of units sold each day by the number of endpoints that were active during the selected time period. This chart also provides the average number of units that were sold per endpoint for the entire time period, and the percentage change in the number of units sold per endpoint from the beginning to the end of the analysis period.

**Purchases**

Shows the number of purchases that were made in your app for each day in the selected time period. This chart also provides the total number of purchases made in the time period, and the percentage change in the number of purchases from the beginning to the end of the analysis period.

**Purchases per endpoint**

Shows the daily average number of purchases per endpoint for each day in the selected time period. Amazon Pinpoint calculates this number by dividing Purchases by the number of endpoints that made a purchase for each day in the analysis period. This chart also provides the average number of purchases per endpoint for the entire time period, and the percentage change in the number of units sold per endpoint from the beginning to the end of the analysis period.

**Events Charts**

The charts and metrics on the Events page help you see trends by displaying data for one or more types of events and event attributes. You can filter the data on the page to show any event that your application reports to Amazon Pinpoint.

**Viewing the Events Charts**

Complete the following steps to view the Events charts and metrics on the Amazon Pinpoint console. You can filter the data by date, event, and endpoint attributes.

**To view and filter the Events charts and metrics**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to view event data for.
3. In the navigation pane, under Analytics, choose Events.
4. (Optional) To apply a filter that displays the data for a specific date or range of dates, use the date selector at the top of the page to choose the dates for the time period that you want. After you choose new dates, the page updates to show the data for the selected time period.
5. (Optional) To apply additional filters, expand the Filters section.

**Note**

To provide you with the best possible experience, we hide these filters if you haven’t used them in the past 90 days. If the Filters section shows a message stating that the filters are unavailable, choose More information, and then choose Enable filters. When you do, we restore the filters for your account in the current AWS Region. Depending on the amount of data that’s associated with your account, this process can take up to 72 hours to complete.

If the additional filters are available, do any of the following:

- To apply a filter that displays the data for only a specific type of event, choose the event type from the Event list. After you choose an event type, choose event attributes or metrics and a value from the Event Attributes and Metrics and Event Attribute Values lists.
The Event list displays the types of events that your app reported during the past 14 days. If your app didn’t report any events during that time period, only the All event types option is available and you can’t filter the data by a specific type of event.

- To apply a filter that displays data for only those endpoints that have a specific attribute, choose the attribute from the Endpoint Attributes list. After you choose an attribute, choose an attribute value from the Endpoint Attribute Values list.

To further filter the data, repeat this step for each additional event or attribute that you want to filter the data by.

Chart Descriptions

The Events page includes the following sections:

Event count

This chart displays the number of events that were reported by your app for each day in the selected time period. This chart also provides the average number of events per day, the total number of events in the time period, and the percentage change in the number of events from the beginning to the end of the time period.

Endpoint count

This chart displays the number of endpoints that reported the selected event for each day in the selected time period. This chart also provides the average number of endpoints that reported the event each day, the total number of endpoints that reported the event each day, and the percentage change in the number of endpoints that reported the event from the beginning to the end of the time period.

Events per session

This chart displays the average number of events that occurred in each app session for each day in the selected time period. Amazon Pinpoint calculates this metric by dividing the number of times the selected event occurred each day by the number of sessions that occurred that day.

This chart also provides the average number of events per session for the entire time period, and the percentage change in the number of events per session from the beginning to the end of the time period.

Demographics Charts

The charts on the Demographics page help you understand characteristics of your customers and the devices that they use to access your app. If you’ve configured your app to report custom metrics to Amazon Pinpoint, this page shows the data for those metrics.

Viewing the Demographics Charts

Complete the following steps to view the Demographics charts on the Amazon Pinpoint console. You can filter the data by channel and by date.

To view and filter the Demographics charts

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to view demographic data for.
3. In the navigation pane, under **Analytics**, choose **Demographics**.
4. (Optional) To apply a filter that displays the data for only a specific channel, choose **All channels**, and then choose a channel.
5. (Optional) To apply a filter that displays the data for a specific date or range of dates, use the date selector at the top of the page to choose the dates for the time period that you want. After you choose new dates, the charts update to show the data for the selected time period.

**Chart Descriptions**

The **Demographics** page includes the following sections:

**Platform**

Shows the proportion of users who use your app on various platforms.

**App version**

Shows the proportion of users who use various versions of your app.

**Device model**

Shows the proportion of users who use your app on various device models, such as iPhone or Galaxy S9.

**Device make**

Shows the proportion of users who use your app on various makes of devices, such as Apple or Samsung.

**User location**

Shows the countries and regions where users of your app are located.

**Custom attributes**

Shows the values for each custom attribute that's reported by your app.

**Campaign Charts**

The charts and metrics on the **Campaigns** page provide information about all the campaigns for a project. You can also choose a specific campaign to view additional delivery and engagement metrics for that campaign.

**Viewing the Campaign Charts**

Complete the following steps to view the **Campaigns** charts and metrics on the Amazon Pinpoint console. You can filter the data by date.

**To view and filter the Campaigns charts and metrics**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the **All projects** page, choose the project that you want to view campaign data for.
3. In the navigation pane, under **Analytics**, choose **Campaigns**.
4. (Optional) To apply a filter that displays the data for a specific date or range of dates, use the date selector at the top of the page to choose the dates for the time period that you want. After you choose new dates, the page updates to show the data for the selected time period.
Chart Descriptions

The **Campaigns** page includes sections that provide aggregated charts and metrics for all the campaigns that were active during the selected time period. It also includes a table that lists all of those campaigns. When you choose a specific campaign from the table, you see a new set of charts and metrics with data that's specific to that campaign.

**Aggregated Campaign Metrics**

The **Campaigns** page includes the following charts and metrics, which are aggregated across all the campaigns that were active during the selected time period.

**Active targetable endpoints**

Shows the total number of *targetable endpoints*. A targetable endpoint is an endpoint that has opened your application at least once during the past 30 days and has opted in to receiving messages from you through at least one channel. This section displays the total number of active targetable endpoints across all channels, and the number of active targetable endpoints for each channel—for example, push notifications, email, and SMS.

**Campaigns**

Shows the total number of campaigns that are currently active. For the selected time period, this section also shows the number of endpoints that received messages from you, and the delivery, open, and opt-out rates for those messages. The **Endpoint deliveries** area shows the number of unique endpoints that received messages from the campaigns.

**Metrics for Individual Campaigns**

When you select a campaign from the table of campaigns, you see charts and metrics that are specific to that campaign. The charts and metrics that you see depend on the type of channel that the campaign used.

**Note**

If you select an A/B test campaign, you see the charts and metrics listed in the following sections for each treatment. This report makes it easy to compare the effectiveness of various treatments for a campaign.

**Email Campaigns**

When you select a standard campaign that uses the email channel, you see the following charts and metrics.

**Delivery count metrics**

This section provides the following charts and metrics that relate to the number of messages that were sent and delivered for this campaign:

**Messages sent**

The number of messages that were sent.

**Messages delivered**

The number of messages that were delivered to their intended recipients. Amazon Pinpoint calculates this number by subtracting the number of messages that hard bounced from the number of messages that were sent.

**Links clicked**

The number of times that recipients clicked links in the message. If a single recipient clicks multiple links in a message, or clicks the same link more than once, each click is counted as a separate event.
Endpoint deliveries

The average number of unique email endpoints that the message was delivered to on each day. The chart shows the number of unique email endpoints that the message was delivered to, for each day in the selected time period.

Delivery rate metrics

This section provides the following metrics that relate to the delivery of messages from this campaign:

Delivery rate

The percentage of messages that were delivered to their intended recipients. Amazon Pinpoint calculates this rate by dividing the number of messages that were delivered by the number of messages that were sent.

Email open rate

The percentage of messages that were opened by their intended recipients. Amazon Pinpoint calculates this rate by dividing the number of messages that were opened by the number of messages that were delivered.

Bounce rate

The percentage of messages that couldn't be delivered to their intended recipients. This metric only measures hard bounces—that is, messages in which the recipient's email address had a permanent issue that prevented the message from being delivered. Amazon Pinpoint calculates this rate by dividing the number of bounced messages by the number of messages sent.

Campaign runs

This section provides the following metrics that relate to the timing and delivery of your messages each time this campaign ran:

Run date

The date and time when the campaign run was sent.

Endpoints targeted

The number of unique endpoints that you attempted to send the message to as part of the campaign run.

Messages sent

The number of messages that were sent during the campaign run. This number might differ from the number of endpoints targeted if the targeted segment included email addresses that were formatted incorrectly or were known to produce hard bounces. This number also omits endpoints that opted out.

Messages delivered

The number of messages that were sent from the campaign run and delivered to their intended recipients.

Delivery rate

The percentage of messages that were sent from the campaign run and delivered to their intended recipients. Amazon Pinpoint calculates this rate by dividing Messages delivered by Messages sent.

Total email opened

The number of messages that were sent from the campaign run and opened by their intended recipients. Due to technical limitations, this value only includes recipients who opened the message by using an email client that supports images.
Email open rate

The percentage of messages that were sent from the campaign run and opened by their intended recipients. Amazon Pinpoint calculates this rate by dividing Total email opened by Messages delivered.

Bounce rate

The percentage of messages that were sent from the campaign run and couldn't be delivered to their intended recipients. This metric measures only hard bounces. Amazon Pinpoint calculates this rate by dividing the number of messages that bounced during the campaign run by Messages delivered.

Push Notification Campaigns

When you select a standard campaign that sends push notifications, you see the following charts and metrics.

Campaign delivery counts

This section provides the following charts and metrics that relate to the number of push notifications that were sent and delivered for this campaign:

Messages sent

The number of push notifications that were sent.

Messages delivered

The number of push notifications that were delivered to their intended recipients. Amazon Pinpoint calculates this number by subtracting the number of notifications that couldn't be delivered from the total number of notifications that you sent.

Endpoint deliveries

The average number of unique push-notification endpoints that the message was delivered to on each day. The chart shows the number of unique push-notification endpoints that the message was delivered to, for each day in the selected time period.

Campaign engagement rates

This section provides the following charts and metrics that relate to delivery and engagement rates for the push notifications that were sent by this campaign:

Delivery rate

The percentage of push notifications that were delivered to their intended recipients. Amazon Pinpoint calculates this rate by dividing the number of push notifications that were delivered by the number of push notifications that were sent.

Push open rate

The percentage of push notifications that were opened by their intended recipients. Amazon Pinpoint calculates this rate by dividing the number of recipients who opened push notifications from you by the number of push notifications that were delivered to their intended recipients.

Campaign sessions

This section provides the following charts and metrics that relate to the number of times that your app was opened by unique endpoints within 24 hours of receiving a push notification from this campaign:

Total sessions

The number of times that your app was opened by endpoints during the selected time period.
Sessions per endpoint

Shows the number of times that your app was opened by unique endpoints within 24 hours of receiving the push notification from the campaign, for each day in the selected time period.

Campaign session heat map

Shows the days and times when users opened your app after receiving the push notification from the campaign. Darker rectangles represent greater numbers of users. Times are based on each user's local time zone.

Campaign units sold

This section provides the following charts and metrics that relate to the number of units that were purchased by unique endpoints within 24 hours of receiving a push notification from this campaign:

Total units sold

The number of units that were purchased by endpoints during the selected time period.

Units sold per endpoint

Shows the number of purchases that were made by unique endpoints within 24 hours of receiving the push notification from the campaign, for each day in the analysis period.

Campaign runs

This section provides the following metrics that relate to the timing and delivery of your push notifications each time this campaign ran:

Run date

The date and time when the campaign run was sent.

Endpoints targeted

The number of unique endpoints that you attempted to send the push notification to as part of the campaign run.

Messages sent

The number of push notifications that were sent during the campaign run. This number might differ from the number of endpoints targeted, if the targeted segment included invalid tokens or endpoints that opted out.

Messages delivered

The number of push notifications that were sent from the campaign run and were delivered to their intended recipients.

Delivery rate

The percentage of push notifications that were sent from the campaign run and delivered to their intended recipients. Amazon Pinpoint calculates this rate by dividing Messages delivered by Messages sent.

Total push opened

The number of push notifications that were sent from the campaign run and opened by their intended recipients.

Push open rate

The percentage of push notifications that were sent from the campaign run and opened by their intended recipients. Amazon Pinpoint calculates this rate by dividing Total push opened by Messages delivered.
SMS Campaigns

When you select a standard campaign that uses the SMS channel, you see the following charts and metrics.

Delivery metrics

This section provides the following metrics that relate to the delivery of messages from this campaign:

Messages sent

The number of messages that were sent.

Messages delivered

The number of messages that were delivered to their intended recipients. Amazon Pinpoint calculates this number by subtracting the number of messages that couldn't be delivered from the number of messages that were sent.

Delivery rate

The percentage of messages that were delivered to their intended recipients. Amazon Pinpoint calculates this rate by dividing the number of messages that were delivered by the number of messages that were sent.

Endpoint deliveries

The average number of unique SMS endpoints that the message was delivered to on each day. The chart shows the number of unique SMS endpoints that the message was delivered to, for each day in the selected time period.

Total SMS spend

This section shows the total amount of money, in USD, that you spent sending SMS messages for the campaign during the selected time period.

Campaign runs

This section provides the following metrics that relate to the timing and delivery of your messages each time this campaign ran:

Run date

The date and time when the campaign run was sent.

Endpoints targeted

The number of unique endpoints that you attempted to send the message to as part of the campaign run.

Messages sent

The number of messages that were sent during the campaign run. This number might differ from the number of endpoints targeted if the targeted segment included invalid phone numbers or endpoints that opted out.

Messages delivered

The number of messages that were sent from the campaign run and were delivered to their intended recipients.

Delivery rate

The percentage of messages that were sent from the campaign run and were delivered to their intended recipients. Amazon Pinpoint calculates this rate by dividing Messages delivered by Messages sent.
Transactional Messaging Charts

The Transactional messaging page provides charts and metrics that show how many transactional messages you've sent, and helps you measure recipients' responses to those messages. For example, this page shows the number of transactional email messages that were delivered, opened, clicked, bounced, or reported as spam.

**Note**

The data on this page only includes information about transactional messages. It doesn't include information about messages that you sent by using campaigns. To see the data for messages that were sent by campaigns, use the Campaigns charts (p. 186). In addition, it can take up to two hours for new data to appear on this page.

Viewing the Transactional Messaging Charts

Complete the following steps to view the Transactional messaging charts and metrics on the Amazon Pinpoint console. You can filter the data by channel and by date.

**To view and filter the Transactional messaging charts and metrics**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to view transactional messaging data for.
3. In the navigation pane, under Analytics, choose Transactional messaging.
4. Use the menu at the top of the page to choose whether to display data for transactional Email or SMS messages, as shown in the following image:

![Transactional messaging](image)

5. (Optional) To apply a filter that displays the data for a specific date or range of dates, use the date selector at the top of the page to choose the dates for the time period that you want. After you choose new dates, the page updates to show the data for the selected time period.

Chart Descriptions

The Transactional messaging page contains several charts and metrics that provide information about how recipients have responded to the transactional email and SMS messages that you sent during the selected time period.

Transactional SMS Charts

When you use the channel selector to display the data for transactional SMS messages, you see the following charts and metrics:
Sends

Shows the number of messages that you sent:

- Average – The average number of messages that were sent each day of the selected time period.
- Total – The total number of messages that were sent during the selected time period.
- Change over period – The percentage of change between the number of messages that were sent on the first and last days of the selected time period. If this value is an em dash (—), no messages were sent on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

The chart shows the total number of messages that were sent on each day of the selected time period.

Deliveries

Shows the number of messages that were delivered to recipients:

- Average – The average number of messages that were delivered each day of the selected time period.
- Total – The total number of messages that were delivered during the selected time period.
- Change over period – The percentage of change between the number of messages that were delivered on the first and last days of the selected time period. If this value is an em dash (—), no messages were delivered on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

The chart shows the total number of messages that were delivered on each day of the selected time period.

There are several factors that could cause these values to differ from the average and total number of messages that were sent. For example, if you send an SMS message to a phone number that doesn't exist, it is counted as sent, but not delivered.

Delivery rate

Shows the average percentage of messages that were sent and delivered to recipients during the selected time period. Amazon Pinpoint calculates the average delivery rate by first calculating the daily delivery rate for each day of the time period. (The daily delivery rate is the number of messages that were delivered on a certain day divided by the number of messages that were sent on that day.) Amazon Pinpoint then calculates the sum of the daily delivery rates, and divides the sum by the number of days in the time period.

This section also shows the percentage of change between the daily delivery rates for the first and last days of the selected time period. If this value is an em dash (—), no messages were delivered on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero percent (0%) for the first day of the time period.

The chart shows the delivery rate for each day of the selected time period.

Messages by country or region

Lists all the countries that you sent messages to during the selected time period. For each country, this table shows the number of messages that you sent to recipients in that country (Messages sent), the number of messages that were delivered to recipients in that country (Messages delivered), and the average price that you paid for each message that you sent to a recipient in that country (Average price).

Message delivery errors

Shows the number of errors that occurred as a result of the messages that you sent during the selected time period. To view a list of all the types of errors that occurred, expand the Show all SMS errors section. For each error, this section shows the number of times that the error occurred during
the selected time period (Total over period), the average number of times that the error occurred for each day (Average over period), and the percentage of change between the number of errors that occurred on the first and last days of the time period (Change over period).

Transaction Email Charts

When you use the channel selector to view the data for transactional email messages, you see the following charts and metrics:

**Sends**

Shows the number of messages that were sent:

- **Average** – The average number of messages that were sent each day of the selected time period.
- **Total** – The total number of messages that were sent during the selected time period.
- **Change over period** – The percentage of change between the number of messages that were sent on the first and last days of the selected time period. If this value is an em dash (—), no messages were sent on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

The chart shows the total number of messages that were sent on each day of the selected time period.

**Deliveries**

Shows the number of messages that were delivered to recipients:

- **Average** – The average number of messages that were delivered each day of the selected time period.
- **Total** – The total number of messages that were delivered during the selected time period.
- **Change over period** – The percentage of change between the number of messages that were delivered on the first and last days of the selected time period. If this value is an em dash (—), no messages were delivered on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

The chart shows the total number of messages that were delivered on each day of the selected time period.

There are several factors that could cause these values to differ from the average and total number of messages that were sent. For example, if a message bounces, it is counted as sent, but not delivered.

**Opens**

Shows the number of messages that were opened by recipients:

- **Average** – The average number of messages that were opened each day of the selected time period.
- **Total** – The total number of messages that were opened during the selected time period.
- **Change over period** – The percentage of change between the number of messages that were opened on the first and last days of the selected time period. If this value is an em dash (—), no messages were opened on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

The chart shows the total number of messages that were opened on each day of the selected time period.

Amazon Pinpoint adds a very small, transparent image to the end of each transactional message that you send. When a recipient opens a message that contains one of these images, their email
client downloads the image from our servers. We count the message as opened. If a recipient opens the same message more than once, we count each of those opens separately.

**Clicks**

Shows the number of times that recipients clicked links in the messages:

- **Average** – The average number of clicks that occurred each day of the selected time period.
- **Total** – The total number of clicks that occurred during the selected time period.
- **Change over period** – The percentage of change between the number of clicks that occurred on the first and last days of the selected time period. If this value is an em dash (—), no clicks occurred on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

The chart shows the total number of clicks that occurred on each day of the selected time period.

When you send a message that contains links, Amazon Pinpoint replaces those links with links that refer to our servers. When a recipient clicks one of these links, we redirect the recipient to the intended location, and count the click. If a single recipient clicks multiple links in a message, or clicks the same link more than once, each click is counted as a separate event.

**Complaints**

Shows the number of messages that were reported as spam by recipients:

- **Average** – The average number of messages that were reported as spam on each day of the selected time period.
- **Total** – The total number of messages that were reported as spam during the selected time period.
- **Change over period** – The percentage of change between the number of messages that were reported as spam on the first and last days of the selected time period. If this value is an em dash (—), no messages were reported as spam on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

The chart shows the total number of messages that were reported as spam on each day of the selected time period.

When a recipient applies **Mark as Spam** or a similar function to a message by using their email client, the recipient's email provider notifies us that the message was reported as spam.

**Delivery rate**

Shows the average percentage of messages that were sent and delivered to recipients during the selected time period. Amazon Pinpoint calculates the average delivery rate by first calculating the daily delivery rate for each day of the time period. (The daily delivery rate is the number of messages that were delivered on a certain day divided by the number of messages that were sent on that day.) Amazon Pinpoint then calculates the sum of the daily delivery rates and divides the sum by the number of days in the time period.

This section also shows the percentage of change between the daily delivery rates for the first and last days of the selected time period. If this value is an em dash (—), no messages were delivered on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero percent (0%) for the first day of the time period.

**Bounce rate**

Shows the average percentage of messages that bounced during the selected time period. Amazon Pinpoint calculates the average bounce rate by first calculating the daily bounce rate for each day in the time period that you selected. (The daily bounce rate is the number of messages that bounced on a certain day divided by the number of messages that were sent on that day.) Amazon Pinpoint then calculates the sum of the daily bounce rates and divides the sum by the number of days in the time period.
This section also shows the percentage of change between the daily bounce rates for the first and last days of the selected time period. If this value is an em dash (—), no messages bounced on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero percent (0%) for the first day of the time period.

**Complaint rate**

Shows the average percentage of messages that were reported as spam by recipients during the selected time period. Amazon Pinpoint calculates the average complaint rate by first calculating the daily complaint rate for each day in the time period that you selected. (The daily complaint rate is the number of messages that were reported as spam on a certain day divided by the number of messages that were sent on that day.) Amazon Pinpoint then calculates the sum of the daily complaint rates and divides the sum by the number of days in the time period.

This section also shows the percentage of change between the daily complaint rates for the first and last days of the selected time period. If this value is an em dash (—), no messages were reported as spam on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero percent (0%) for the first day of the time period.

**Unique user events**

Shows the number of unique recipients who opened messages (Unique message opens) and clicked links in messages (Unique message clicks):

- Average – The average number of open or click events that occurred on each day of the selected time period.
- Total – The total number of open or click events that occurred during the selected time period.
- Change over period – The percentage of change between the number of open or click events that occurred on the first and last days of the selected time period. If this value is an em dash (—), no open or click events occurred on the first day of the time period. Amazon Pinpoint can't calculate the percentage of change if the value is zero (0) for the first day of the time period.

The chart shows the total number of unique recipients that opened messages and clicked links in messages on each day of the selected time period.

Unlike the Opens and Clicks metrics, these metrics show the number of unique recipients who opened messages or clicked links in messages, as opposed to the total number of messages that were opened and click events that occurred. In other words, if a single user opens a message five times, the Opens chart would show five open events, but this chart would show only one open event.

**Bounce and complaint events**

Shows the number of soft bounces, hard bounces, and complaints that occurred on each day of the selected time period. Soft bounces are usually temporary in nature. For example, if the recipient's inbox is full or their mail server is temporarily offline when we attempt to deliver a message, we count it as a soft bounce. Hard bounces are permanent. For example, if a recipient's email address doesn't exist or their mail server doesn't accept messages from your domain, we count it as a hard bounce.

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**Creating Funnel Charts with Amazon Pinpoint**

You can use Amazon Pinpoint to analyze funnels, which are charts that show how many users complete each of a series of steps. For example, the series of steps in a funnel can be a conversion process that results in a purchase (as in a shopping cart), or some other intended user behavior.

By monitoring funnels, you can assess whether conversion rates have improved because of changes to your app or because of an Amazon Pinpoint campaign.
After you specify which steps belong in your funnel, the **Create a funnel** page displays a chart like the following example:

![Example Chart](chart.png)

This example chart shows the percentage of users who completed each step in the process of updating an app. By comparing the values between columns, you can determine the drop-off rates between steps. In this example, there is a 35 percent drop-off between users who receive a notification and those who start an app session. Then there is a 19 percent drop-off between users who start a session and those who open the app settings page.

To create a funnel, you specify each event that's part of the conversion process that you want to analyze. When you add events to your funnel, you can choose any event that's reported by your app. Your app can report the following types of events:

- **Standard events** – These include events that automatically report when an app session starts or stops. The names of event types for standard events are denoted with an underscore prefix, as in `_session.start`. Standard events also include monetization events that report in-app purchases.
- **Custom events** – These are defined by you to monitor activities that are specific to your app. Some examples are completing a level in a game, posting to social media, or setting particular app preferences.

For information about configuring your app to report events, see the section called “Streaming Event Data” (p. 198).

**Enabling Funnels**

To provide you with the best possible experience, we hide the funnels reports if you haven't used them in the past 90 days.

If the funnels data for your Amazon Pinpoint account has already been loaded, you can start creating new funnels.
To create a funnel

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to create a funnel for.
3. In the navigation pane, under Analytics, choose Funnels.
4. Choose Create a funnel.
5. For Funnel name, enter a name for the funnel.
6. Choose the events that you want to add to the funnel chart. For each event, specify the following:
   - **Series name** – A name for the event chart.
   - **Event** – The type of event that's reported to Amazon Pinpoint.
   - **Attributes** – The attribute-value pairs that are assigned to the events that you want to add to the chart.
7. To add more events, choose Create another series. You can also copy an event by choosing Duplicate this series.

Streaming Events with Amazon Pinpoint

Amazon Pinpoint can stream engagement and application usage data, known as event data, to supported AWS services that provide more options for analysis and storage.

After you integrate your application with Amazon Pinpoint, it reports events, such as the number of sessions started by users. Amazon Pinpoint provides this data in the analytics charts and metrics for that application in the console. The analytics data also shows campaign events generated by Amazon Pinpoint, such as the number of devices that a campaign sent messages to.

Amazon Pinpoint retains this data for 90 days. To keep this data for an indefinite period of time or to analyze it with custom queries and tools, you can configure Amazon Pinpoint to send event data to Amazon Kinesis.

Topics in this section:
- About Amazon Kinesis (p. 198)
- Streaming Amazon Pinpoint Events to Kinesis (p. 199)

About Amazon Kinesis

The Kinesis platform offers services that you can use to load and analyze streaming data on AWS. You can configure Amazon Pinpoint to send application, campaign, and journey events to Amazon Kinesis Data Streams or Amazon Kinesis Data Firehose. By streaming your events, you enable more flexible options for data analysis, such as:

- Converging the events from multiple applications into one stream so that you can analyze this data as a collection.
- Analyzing events with AWS query services. For example, you can use Amazon Kinesis Data Analytics to run SQL queries against streaming data.

About Amazon Kinesis Data Streams

Amazon Kinesis Data Streams is a service that you can use to build custom applications that process or analyze your streaming data. For example, streaming your events to Kinesis Data Streams is useful if you
want to use event data in custom dashboards, generate alerts based on events, or dynamically respond to events.

For more information, see the Amazon Kinesis Data Streams Developer Guide.

**About Amazon Kinesis Data Firehose**

Amazon Kinesis Data Firehose is a service that you can use to deliver your streaming data to AWS data stores, including Amazon Simple Storage Service (Amazon S3), Amazon Redshift, or Amazon Elasticsearch Service (Amazon ES). For example, streaming your events to Kinesis Data Firehose is useful if you want to:

- Use your own analytics applications and tools to analyze events in Amazon S3, Amazon Redshift, or Amazon ES.
- Send your events to Amazon S3 so that you can write SQL queries on this data with Amazon Athena.
- Back up your event data for long-term storage in Amazon S3.

For more information, see the Amazon Kinesis Data Firehose Developer Guide.

**Streaming Amazon Pinpoint Events to Kinesis**

The Kinesis platform offers services that you can use to load and analyze streaming data on AWS. You can configure Amazon Pinpoint to send application, campaign, and journey events to Amazon Kinesis Data Streams for processing by external applications or third-party analytics tools. You can also configure Amazon Pinpoint to stream this event data to AWS data stores (such as Amazon Redshift) using Amazon Kinesis Data Firehose.

**Prerequisites**

Before you complete the procedure in this section, create an Amazon Kinesis stream or a Kinesis Data Firehose delivery stream in the same account in which you use Amazon Pinpoint. To learn more about creating Kinesis streams, see Creating and Updating Data Streams in the Amazon Kinesis Data Streams Developer Guide. To learn more about creating Kinesis Data Firehose delivery streams, see Creating an Amazon Kinesis Data Firehose Delivery Stream in the Amazon Kinesis Data Firehose Developer Guide.

You can optionally create an IAM role that grants permission to send data to your stream. If you don't create this role, Amazon Pinpoint can create one for you. For more information about creating this policy manually, see IAM Role for Streaming Events to Kinesis in the Amazon Pinpoint Developer Guide.

**Setting Up Event Streaming**

Complete the following steps in Amazon Pinpoint to set up event streaming.

**To set up event streaming**

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to set up data streaming for.
3. In the navigation pane, under Settings, choose Event stream.
4. In the Services section, choose Edit.
5. Choose Stream to Amazon Kinesis.
6. Under Choose a stream type, choose one of the following options:

   - Send events to an Amazon Kinesis Data Stream – Choose this option if you want to send Amazon Pinpoint event data to an external application for analysis.
• **Send events to an Amazon Kinesis Data Firehose stream** – Choose this option if you want to send event data to an AWS data store, such as Amazon Redshift.

7. For **Amazon Kinesis stream**, choose the Amazon Kinesis stream that you want to use to export the data.

   **Note**
   If you haven't already created an Amazon Kinesis stream, go to the Amazon Kinesis console at [https://console.aws.amazon.com/kinesis](https://console.aws.amazon.com/kinesis). For more information about creating streams, see the Amazon Kinesis Data Streams Developer Guide or the Amazon Kinesis Data Firehose Developer Guide.

8. Under **IAM role**, choose one of the following options:

   • **Use an existing role** – Choose this option to have Amazon Pinpoint assume an IAM role that already exists in your account. The role that you select must allow the `firehose:PutRecordBatch` action. For an example of a policy that allows this action, see Permissions Policies in the Amazon Pinpoint Developer Guide.

   • **Automatically create a role** – Choose this option to automatically create an IAM role with the required permissions. This role authorizes Amazon Pinpoint to send data to the stream that you chose in step 7.

9. Choose **Save**.

As Amazon Pinpoint receives events for your project, it sends this data to your Kinesis stream. For information about the data that Amazon Pinpoint sends for an event, see Streaming Amazon Pinpoint Events to Kinesis in the Amazon Pinpoint Developer Guide.
Amazon Pinpoint Message Templates

If you frequently design and send a certain type of message, such as a weekly newsletter or an appointment reminder, you can create and save it as a message template. You can then use the template as a starting point each time you need to send that type of message, instead of designing and writing the message again.

A message template is a set of content and settings that you can create, save, and then reuse in messages that you send for any of your Amazon Pinpoint projects. When you create a template, you specify the content that you want to reuse in various components of messages that are based on the template.

These components are referred to as template parts. They can contain static text, personalized content, images, and other design elements, depending on the type of template. A template part can also contain channel-specific settings. For example, a template part in a push notification template can specify a custom sound to play or an image to display when a recipient receives a push notification that's based on the template.

When you create a message, you can choose a template to use for the message. If you choose a template, Amazon Pinpoint populates the message with the content and settings in the template.

You can design the following types of message templates in Amazon Pinpoint:

- **Email templates** for email messages that you send from campaigns or journeys, or to a limited audience as direct or test messages.
- **Push notification templates** for push notifications that you send from campaigns, or to a limited audience as direct or test messages.
- **SMS templates** for SMS text messages that you send from campaigns, or to a limited audience as direct or test messages.
- **Voice templates** for voice messages that you send as direct or test messages.

In addition to supporting multiple types of message templates, Amazon Pinpoint supports versioning for message templates. Versioning provides a way for you to design and change a template over time, while also creating and maintaining a history of the template. Versioning also provides a way for you to specify which version of a template can be used in messages. To learn more about template versions, see Managing Versions of Message Templates (p. 216).

The topics in this chapter explain how to create and manage message templates for your Amazon Pinpoint account.

Topics

- Creating Email Templates (p. 202)
- Creating Push Notification Templates (p. 203)
- Creating SMS Templates (p. 206)
- Creating Voice Templates (p. 207)
- Adding Personalized Content to Message Templates (p. 208)
- Managing Message Templates (p. 213)
- Managing Versions of Message Templates (p. 216)
Creating Email Templates

An email template is a type of message template that contains content and settings that you want to create, save, and reuse in email messages that you send for any of your Amazon Pinpoint projects. You can use an email template in any type of email message that you create and send by using Amazon Pinpoint.

When you create an email template, you specify the content and settings that you want to reuse in various components of email messages that are based on the template. These components, referred to as template parts, can be the message subject, the message body, or both. The content can be static text, personalized content, images, or other design elements. A template part can also be a setting, such as the message body to use if a recipient's email application doesn't display HTML content.

When you create an email message that's based on a template, Amazon Pinpoint populates the message with the content and settings that you defined in the template.

To create an email template

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
3. Choose Create template.
4. Under Channel, choose Email.
5. Under Template details, for Template name, enter a name for the template. The name has to begin with a letter or number. It can contain up to 128 characters. The characters can be letters, numbers, underscores (_), or hyphens (-).
6. (Optional) For Version description, enter a brief description of the template. The description can contain up to 500 characters.
7. Under Email details, use the following options to specify the content for messages that use the template:
   - For Subject, enter the text that you want to display in the subject line of the message.
   - For Message, enter the content that you want to display in the body of the message.

   Tip
   For the message body, you can enter the content by using either the HTML or Design view. In the HTML view, you can manually enter HTML content, including formatting, links, and other features that you want to include in the message. In the Design view, you can use a rich text editor to enter the content. Use the formatting toolbar to apply formatting and add links and other features to the content. To switch views, choose HTML or Design from the view selector above the message editor.
   You can also include personalized content in the subject and body of the template. To do this, add message variables that refer to specific attributes that you or Amazon Pinpoint created, such as an attribute that stores a user's first name. By using message variables, you can display different content for each recipient of a message that uses the template. To use a message variable, choose the name of an existing attribute from the Attribute finder. Amazon Pinpoint creates a message variable for the attribute and copies it to your clipboard. Paste the variable in the location that you want. For more information, see Adding Personalized Content to Message Templates (p. 208).

8. (Optional) Under Plain text version, enter the content that you want to display in the body of messages that use the template and are sent to recipients whose email applications don't display HTML content.
9. If you added personalized content to the template by using message variables, specify a default value for each variable. If you do this, Amazon Pinpoint replaces the variable with the value that you specify, if a corresponding value doesn't exist for a recipient. We recommend that you do this for each variable in the template.
To specify default values for variables, expand the Default attribute values section. Then enter the default value that you want to use for each variable. If you don't specify a default value and a value doesn't exist for a recipient, Amazon Pinpoint omits all text for the variable when it sends a message to that recipient.

10. When you finish entering content and settings for the template, choose Create.

If you want to test the template before you use it in an email message that you send to users, you can send a test message (p. 171) that uses the template. If you do this, ensure that you first complete step 9 to specify default values for all the variables in the template. Otherwise, the message might not be sent or it might not render correctly.

Creating Push Notification Templates

A push notification template is a type of message template that contains content and settings that you want to create, save, and reuse in push notifications that you send for any of your Amazon Pinpoint projects. When you create a push notification that’s based on a template, Amazon Pinpoint populates the notification with the content and settings that you defined in the template. You can use a push notification template in push notifications that you send from campaigns, or to a limited audience as direct or test messages.

When you create a push notification template, you specify the content and settings that you want to reuse in various components of push notifications that are based on the template. These components, referred to as template parts, can contain text (such as the title or body of a notification) or settings (such as a custom sound to play when a recipient receives a notification).

To customize a template for specific push notification channels, you can create multiple sets of template parts in each template—a default set and one or more channel-specific sets. The default set contains the content and settings that you want to use by default for any push notification channel. For example, this can include the text to display in the title or body of a notification. A channel-specific set contains any content and settings that you want to use for a specific channel. This can include a custom image to display or an action to occur if a recipient taps a notification. For example, you can create a template that uses the same default text for the title and body of a notification that's sent through any channel, but displays a different image for each channel. By adding channel-specific settings to a template, you can tailor notifications to use features that are unique to a recipient's device.

To create a push notification template

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
3. Choose Create template.
5. Under Template details, for Template name, enter a name for the template. The name has to begin with a letter or number. It can contain up to 128 characters. The characters can be letters, numbers, underscores (_), or hyphens (-).
6. (Optional) For Version description, enter a brief description of the template. The description can contain up to 500 characters.

An additional option is to create a template that’s formatted as a raw message. A raw message is a type of push notification that specifies all of a notification's content and settings as a JSON object. This type of notification can be useful for cases such as sending custom data to a mobile app for processing by that app, instead of the push notification service.
If you choose the **Raw message** option, the message editor displays an outline of the code to use for the template. In the message editor, enter the settings that you want to use for each push notification service, including any optional settings—such as images, sounds, and actions—that you want to specify for the template. For more information, see the documentation for the push notification services that you use. When you finish entering all the raw message content, skip to step 10.

8. Choose any of the following options to specify the default content and settings for standard push notifications that use the template:

- For **Title**, enter the title that you want to display above the notification message on a recipient's device.
- For **Body**, enter the text that you want to display in the body of the notification message.

  **Tip**
  
  You can include personalized content in the title and body of the template. To do this, add message variables that refer to specific attributes that you or Amazon Pinpoint created, such as an attribute that stores a user's first name. By using message variables, you can display different content for each recipient of a push notification that uses the template.

  To use a message variable, choose the name of an existing attribute from the **Attribute finder**. Amazon Pinpoint creates a message variable for the attribute and copies it to your clipboard. Paste the variable in the location that you want. For more information, see **Adding Personalized Content to Message Templates** (p. 208).

- For **Custom alert sound**, enter the name of the audio file that contains the custom sound that you want to play when a recipient receives the push notification. This name has to match the name of an audio file on a recipient's device.
- For **Action**, choose what you want a recipient's device to do if the recipient taps the push notification:
  - **Open your app** – Open your app or bring it to the foreground if it was sent to the background.
  - **Go to a URL** – Open the default browser on the recipient's device and load a specific webpage. If you choose this option, enter the URL of the webpage in the **Destination URL** box.
  - **Open a deep link** – Open your app and display a specific user interface in the app. If you choose this option, enter the URL of the interface in the **Destination URL** box.

9. (Optional) To customize the template for specific push notification channels, choose the appropriate channel tab under **Customize content for individual push services**. Then choose the options that you want for the channel.

If you select the **Override default push content** check box on a channel tab, Amazon Pinpoint automatically replaces the default content and settings that you chose in step 8 with the options that you choose on the tab. If you want to keep the default content and settings and just customize the template to use additional channel-specific settings, don't select this check box.

**Apple**

Use these options to specify custom content and settings for push notifications that you send through the Apple Push Notification service (APNs) channel to apps that are running on iOS devices.

In addition to the standard content and settings, you can include a custom image or video in push notifications that use the template. To do this, enter the URL for the image or video file in the **iOS media** box. The URL must be publicly accessible. Otherwise, the recipient's device won't be able to display the image or video.
Google

Use these options to specify custom content and settings for push notifications that you send through the Google Firebase Cloud Messaging (FCM) channel to apps that are running on Android devices.

In addition to the standard content and settings, you can choose the following options to display custom images in push notifications that use the template:

- **Android image** – Enter the URL of the image to display in the body of the push notification.
- **Android icon** – Enter the URL of the large icon image to display in the content view of the push notification.
- **Android small icon** – Enter the URL of the small icon image to display in the status bar and in the content view of the push notification.

Amazon

Use these options to specify custom content and settings for push notifications that you send through the Amazon Device Messaging (ADM) channel to apps that are running on Amazon devices, such as Kindle Fire tablets.

In addition to the standard content and settings, you can choose the following options to display custom images in push notifications that use the template:

- **Android image** – Enter the URL of the image to display in the body of the push notification.
- **Android icon** – Enter the URL of the large icon image to display in the content view of the push notification.
- **Android small icon** – Enter the URL of the small icon image to display in the status bar and in the content view of the push notification.

Baidu

Use these options to specify custom content and settings for push notifications that you send through the Baidu channel to apps that use the Baidu Cloud Push platform.

In addition to the standard content and settings, you can choose the following options to display custom images in push notifications that use the template:

- **Android image** – Enter the URL of the image to display in the body of the push notification.
- **Android icon** – Enter the URL of the large icon image to display in the content view of the push notification.
- **Android small icon** – Enter the URL of the small icon image to display in the status bar and in the content view of the push notification.

10. If you added personalized content to the template by using message variables, specify a default value for each variable. If you do this, Amazon Pinpoint replaces the variable with the value that you specify, if a corresponding value doesn’t exist for a recipient. We recommend that you do this for each variable in the template.

   To specify default values for variables, expand the Default attribute values section. Then enter the default value that you want to use for each variable. If you don’t specify a default value and a value doesn’t exist for a recipient, Amazon Pinpoint omits all text for the variable when it sends a message to that recipient.

11. When you finish entering content and settings for the template, choose Create.

If you want to test the template before you use it in a push notification that you send to users, you can send a test notification (p. 172) that uses the template. If you do this, ensure that you first complete step 10 to specify default values for all the variables in the template. Otherwise, the push notification might not be sent or it might not render correctly.
Creating SMS Templates

An SMS template is a type of message template that contains content and settings that you want to create, save, and reuse in SMS text messages that you send for any of your Amazon Pinpoint projects. You can use an SMS template in text messages that you send from campaigns, or to a limited audience as direct or test messages.

When you create an SMS template, you specify the settings and content that you want to reuse in the body of text messages that are based on the template. When you create a message that's based on the template, Amazon Pinpoint populates the message with the settings and content that you defined in the template.

To create an SMS template

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
3. Choose Create template.
4. Under Channel, choose SMS.
5. Under Template details, for Template name, enter a name for the template. The name has to begin with a letter or number. It can contain up to 128 characters. The characters can be letters, numbers, underscores (_), or hyphens (-).
6. (Optional) For Version description, enter a brief description of the template. The description can contain up to 500 characters.
7. Under SMS details, for Message, enter the content that you want to display in the body of messages that use the template. The message body can contain up to 1,600 characters.

   Tip
   You can include personalized content in the body of the template. To do this, add message variables that refer to specific attributes that you or Amazon Pinpoint created, such as an attribute that stores a user's first name. By using message variables, you can display different content for each recipient of a message that uses the template.

   To use a message variable, choose the name of an existing attribute from the Attribute finder. Amazon Pinpoint creates a message variable for the attribute and copies it to your clipboard. Paste the variable in the location that you want. For more information, see Adding Personalized Content to Message Templates (p. 208).

8. If you added personalized content to the template by using message variables, specify a default value for each variable. If you do this, Amazon Pinpoint replaces the variable with the value that you specify, if a corresponding value doesn't exist for a recipient. We recommend that you do this for each variable in the template.

   To specify default values for variables, expand the Default attribute values section. Then enter the default value that you want to use for each variable. If you don't specify a default value and a value doesn't exist for a recipient, Amazon Pinpoint omits all text for the variable when it sends a message to that recipient.

9. When you finish entering content and settings for the template, choose Create.

If you want to test the template before you use it in a message that you send to users, you can send a test message (p. 173) that uses the template. If you do this, ensure that you first complete step 8 to specify default values for all the variables in the template. Otherwise, the message might not be sent or it might not render correctly.
Creating Voice Templates

A **voice template** is a type of message template that contains content and settings that you want to create, save, and reuse in voice messages that you send for any of your Amazon Pinpoint projects. You can use a voice template in voice messages that you send as direct or test messages.

When you create a voice template, you specify the content and settings that you want to reuse in various components of voice messages that are based on the template. These components are referred to as **template parts**. They can contain the text of the message script or settings, such as the voice to use when delivering the message. The message script can include static text and, optionally, personalized content that you define.

When you create a voice message that's based on a template, Amazon Pinpoint populates the message with the content and settings that you defined in the template.

**To create a voice template**

1. Open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. In the navigation pane, choose **Message templates**.
3. Choose **Create template**.
4. Under **Channel**, choose **Voice**.
5. Under **Template details**, for **Template name**, enter a name for the template. The name has to begin with a letter or number. It can contain up to 128 characters. The characters can be letters, numbers, underscores (_), or hyphens (‐).
6. (Optional) For **Version description**, enter a brief description of the template. The description can contain up to 500 characters.
7. Under **Voice message details**, for **Message**, enter the text that you want to use as the message script for messages that use the template. The script can contain up to 10,000 characters and has to be in plaintext format.
   
   **Tip**

   You can include personalized content in the message script. To do this, add message variables that refer to specific attributes that you or Amazon Pinpoint created, such as an attribute that stores a user's first name. By using message variables, you can play different content for each recipient of a message that uses the template.

   To use a message variable, choose the name of an existing attribute from the **Attribute finder**. Amazon Pinpoint creates a message variable for the attribute and copies it to your clipboard. Paste the variable in the location that you want. For more information, see [Adding Personalized Content to Message Templates](#) (p. 208).

8. For **Language and region**, choose the language that the text of the message script is written in. Amazon Pinpoint uses this setting to determine which phonemes and other language-specific settings to use when it converts the text of the script to speech.
9. For **Voice**, choose the voice that you want to speak the message to recipients. Each voice is created using native language speakers, so there are variations from voice to voice, even within the same language. Therefore, it's a good idea to test each voice with your script.

   The list of voices changes based on the language that you choose in step 8. In most cases, the list includes at least one male and one female voice. In some cases, only one voice is available. We continually add support for additional languages and create voices for supported languages.
10. Choose **Play message** to test how the message will sound when it's delivered to recipients. Adjust the content and settings until the template has the design that you want.
11. If you added personalized content to the template by using message variables, specify a default value for each variable. If you do this, Amazon Pinpoint replaces the variable with the value that you specify, if a corresponding value doesn’t exist for a recipient. We recommend that you do this for each variable in the template.
To specify default values for variables, expand the **Default attribute values** section. Then enter the default value that you want to use for each variable. If you don't specify a default value and a value doesn't exist for a recipient, Amazon Pinpoint omits all text for the variable when it sends a message to that recipient.

12. When you finish entering content and settings for the template, choose **Create**.

### Adding Personalized Content to Message Templates

To deliver dynamic, personalized content in messages that use a template, add *message variables* to the message template. A *message variable* is a placeholder that refers to a specific attribute that you or Amazon Pinpoint created to store information about your users. Each attribute typically corresponds to a characteristic of a user, such as a user's first name or the city where they live. By adding message variables to templates, you can use these attributes to deliver custom content to each recipient of a message that uses a template.

If a template contains message variables, Amazon Pinpoint replaces each variable with the current, corresponding value of the attribute for each recipient. It does this each time it sends a message that uses the template. This means that you can send personalized content to each recipient without creating multiple, customized versions of a message or message template. You can also feel confident that the message contains the latest information that you have for a recipient.

For example, if your project is a fitness application for runners and it includes attributes for each user's first name, preferred activity, and personal record, you could use the following text and message variables in a template:

```
```

When you send a message that uses the template, Amazon Pinpoint replaces the variables with the current value of each attribute for each recipient. The following examples show this.

**Example 1**

```
Hi Sofia, congratulations on your new half marathon record of 1:42:17!
```

**Example 2**

```
Hi Alejandro, congratulations on your new 5K record of 20:52!
```

If an attribute value doesn't exist for a recipient, Amazon Pinpoint can replace a variable with a default value that you specify for the variable. For example, if a user of your fitness application hasn't chosen their preferred activity, you could use *running* as a default value for the `{{User.UserAttributes.Activity}}` variable. In this case, Amazon Pinpoint replaces the variable as shown in the following examples:

**Example 1**

```
Hi Jane, congratulations on your new running record of 1:42:17!
```

**Example 2**

```
Hi John, congratulations on your new running record of 20:52!
```
If you don’t specify a default value and a value doesn’t exist for a recipient, Amazon Pinpoint omits all text for the variable when it sends a message to that recipient. For example:

Hi Mary, congratulations on your new record of 20:52!

As a best practice, we recommend that you specify a default value for each variable that you include in a template.

**Adding Message Variables**

You can add message variables to a new template when you create the template, or to an existing template. If you add variables to an existing template, Amazon Pinpoint doesn’t necessarily apply the changes to messages that use the template and haven’t been sent yet, such as campaign messages that are scheduled to be sent at a later time. This depends on the version of the template that you add variables to and how you configured the messages that use the template. For more information, see Managing Versions of Message Templates (p. 216).

**To add a message variable to a message template**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose **Message templates**.
3. On the **Message templates** page, do one of the following:
   - To create a new template and add a message variable to it, choose **Create template**. Then, on the template page, enter a name for the template and, optionally, a description of the template.
   - To add a message variable to an existing template, choose the template that you want to add a variable to. Then, on the template page, choose **Edit**. Under **Template details**, use the version selector to choose the version of the template that you want to use as a starting point. If you choose the most recent version, you can save your changes directly to that version of the template. Otherwise, you can save your changes as a new version of the template.
4. In the message details section, determine where you want to add a message variable. You can add a variable to the body of any type of template. For email and push notification templates, you can also add a variable to the message subject or title.
5. In the **Attribute finder**, expand the section for the type of attribute that you want to add a message variable for. You can choose from the following types of attributes:

   **Standard attributes**

   These are attributes that Amazon Pinpoint creates automatically for any project. This means that you can use them in messages that you send for any project. For detailed information about each of these attributes, see Supported Attributes (p. 210).

   To add a variable for a standard attribute, choose the attribute from the list.

   **Custom attributes**

   These are attributes that you optionally create for individual projects. Because these attributes might not be available for some of your projects, Amazon Pinpoint might not be able to replace the variable with a value for each and every recipient of a message that uses the template. To help you avoid this issue, Amazon Pinpoint provides options to help you choose an attribute that exists for specific projects or all of your projects.

   To add a variable for a custom attribute:
   1. Choose **Load custom attributes**. In the window that appears, Amazon Pinpoint lists all the projects that you created custom attributes for. To see which attributes are used by one or more projects, select each project. The right pane of the window lists all the custom attributes that you created for the selected projects.
   2. Do one of the following:
• To use an attribute that exists in one or more specific projects, select each project.
• To use an attribute that exists in all of your projects, select All shared custom attributes.

3. Choose Load custom attributes.
4. In the Attribute finder, choose the attribute that you want to add a variable for.

Recommended attributes

These are attributes that you optionally create for your account when you configure Amazon Pinpoint to retrieve personalized recommendations from a recommender model. For information about using recommender models, see Machine Learning Models (p. 222). You can add variables for this type of attribute to email templates, push notification templates, and SMS templates. You can't add them to voice templates.

To add a variable for a recommended attribute, choose the attribute from the list. If the Attribute finder doesn't list any recommended attributes, you have to first connect the template to a recommender model. To do this, choose Connect model. Next, select the model that you want to retrieve recommendations from when you send messages that use the template. Then choose Connect model.

6. When you choose an attribute from the Attribute finder, Amazon Pinpoint creates a message variable for the attribute and copies it to your clipboard. Paste the variable in the location that you want.

After you paste the variable, Amazon Pinpoint displays it as the name of the associated attribute, enclosed in two sets of curly braces—for example, {{User.UserAttributes.FirstName}}.

7. Repeat steps 4 through 6 for each message variable that you want to add.

8. To specify a default value for a message variable, expand the Default attribute values section. Then, in the list of variables, enter the default value that you want to use for the variable.

Note
We recommend that you do this for each variable in the template. Otherwise, Amazon Pinpoint might not be able to send a message that uses the template or the message might display in unexpected or unwanted ways.

9. When you finish, do one of the following:

• If you added message variables to a new template, choose Create.
• If you added message variables to an existing template and you want to save your changes as a new version of the template, choose Save as new version.
• If you added message variables to an existing template and you want to save your changes as an update to the most recent version of the template, choose Update version. This option is available only if you opened the most recent version of the template in step 3.

Supported Attributes

Each project can have standard attributes and custom attributes. Standard attributes are attributes that Amazon Pinpoint creates automatically for any project. Custom attributes are attributes that you optionally create for a project. There are three types of custom attributes:

• User attributes – These attributes describe a user—for example, a user's first name, last name, and birth date. A user is an individual who has a unique user ID for a project.
• Endpoint attributes – These attributes describe a specific endpoint for a user. An endpoint is a destination that you can send messages to—such as an email address, phone number, or mobile device. Each user can be associated with one or more endpoints. For example, if you communicate with a user by email, SMS, and phone, the user could be associated with three endpoints—one for the user's email address, another for the user's mobile phone number, and another for the user's home (landline) phone number.
- **Metric attributes** – These attributes are numeric metrics that your application reports to Amazon Pinpoint for individual endpoints, such as the number of sessions for a mobile app or the number of items left in a cart.

In addition to custom and standard attributes that you or Amazon Pinpoint creates for your projects, Amazon Pinpoint supports **recommended attributes**. A recommended attribute is an attribute that temporarily stores personalized recommendations for users or endpoints. Amazon Pinpoint retrieves these recommendations from recommender models that you configure it to use. Recommended attributes aren’t associated with specific projects. Instead, they’re associated with your Amazon Pinpoint account. For information about using recommender models, see Machine Learning Models (p. 222).

You can use any standard, custom, or recommended attribute in a message variable. The following table indicates the text that appears in the message variable for each supported attribute, and it describes each attribute. In the table, `custom_attribute` indicates text that appears in a variable for a custom attribute. In those cases, replace `custom_attribute` with the name of the custom attribute. For example, if your project stores users’ first names in a custom user attribute named `FirstName` and you add a variable for that attribute, the text for the variable is `{{User.UserAttributes.FirstName}}`.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Address</td>
<td>The destination address for messages or push notifications that you send to the endpoint—for example, an email address, phone number, or device token.</td>
</tr>
<tr>
<td>Attributes. <code>custom_attribute</code></td>
<td>A custom endpoint attribute that describes the endpoint.</td>
</tr>
<tr>
<td>ChannelType</td>
<td>The channel to use when sending messages or push notifications to the endpoint. For example:</td>
</tr>
<tr>
<td></td>
<td>• APNS – For an endpoint that can receive push notifications that you send through the Apple Push Notification service (APNs) channel to apps that are running on iOS devices.</td>
</tr>
<tr>
<td></td>
<td>• EMAIL – For an endpoint that can receive email messages.</td>
</tr>
<tr>
<td></td>
<td>• GCM – For an endpoint that can receive push notifications that you send through the Firebase Cloud Messaging (FCM) channel to apps that are running on Android devices.</td>
</tr>
<tr>
<td></td>
<td>• SMS – For an endpoint that can receive SMS text messages.</td>
</tr>
<tr>
<td></td>
<td>• VOICE – For an endpoint that can receive voice messages.</td>
</tr>
<tr>
<td>CreationDate</td>
<td>The date and time when the endpoint was added to the project, in ISO 8601 format. For example, 2019-06-30T11:45:25.220Z for 11:45 AM UTC June 30, 2019.</td>
</tr>
<tr>
<td>Demographic.AppVersion</td>
<td>The version number of the application that’s associated with the endpoint.</td>
</tr>
<tr>
<td>Demographic.Locale</td>
<td>The locale of the endpoint, in the following format: the ISO 639-1 alpha-2 code, followed by an underscore ( ), followed by an ISO 3166-1</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Alpha-2 value. For example, en_US is the English language locale for the United States.</td>
<td></td>
</tr>
<tr>
<td>Demographic.Make</td>
<td>The manufacturer of the endpoint device, such as apple or samsung.</td>
</tr>
<tr>
<td>Demographic.Model</td>
<td>The model name or number of the endpoint device, such as iPhone or SM-G900F.</td>
</tr>
<tr>
<td>Demographic.ModelVersion</td>
<td>The model version of the endpoint device.</td>
</tr>
<tr>
<td>Demographic.Platform</td>
<td>The operating system on the endpoint device, such as ios or android.</td>
</tr>
<tr>
<td>Demographic.PlatformVersion</td>
<td>The version of the operating system on the endpoint device.</td>
</tr>
<tr>
<td>Demographic.Timezone</td>
<td>The endpoint's time zone, as a tz database value. For example, America/Los_Angeles for Pacific Time (North America).</td>
</tr>
<tr>
<td>EffectiveDate</td>
<td>The date and time when the endpoint was last updated, in ISO 8601 format. For example, 2019-08-23T10:54:35.220Z for 10:54 AM UTC August 23, 2019.</td>
</tr>
<tr>
<td>EndpointStatus</td>
<td>Whether to send messages or push notifications to the endpoint: ACTIVE, send messages to the endpoint; or, INACTIVE, don't send messages to the endpoint.</td>
</tr>
<tr>
<td>Id</td>
<td>The unique identifier for the endpoint.</td>
</tr>
<tr>
<td>Location.City</td>
<td>The city where the endpoint is located.</td>
</tr>
<tr>
<td>Location.Country</td>
<td>The two-character code, in ISO 3166-1 alpha-2 format, for the country or region where the endpoint is located. For example, US for the United States.</td>
</tr>
<tr>
<td>Location.Latitude</td>
<td>The latitude coordinate of the endpoint's location, rounded to one decimal place.</td>
</tr>
<tr>
<td>Location.Longitude</td>
<td>The longitude coordinate of the endpoint's location, rounded to one decimal place.</td>
</tr>
<tr>
<td>Location.PostalCode</td>
<td>The postal or ZIP code for the area where the endpoint is located.</td>
</tr>
<tr>
<td>Location.Region</td>
<td>The name of the region, such as a state or province, where the endpoint is located.</td>
</tr>
<tr>
<td>Metrics.custom_attribute</td>
<td>A custom, numeric metric that your application reports to Amazon Pinpoint for the endpoint.</td>
</tr>
<tr>
<td>Attribute</td>
<td>Description</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>OptOut</td>
<td>Whether the user opted out of receiving messages and push notifications from you: <strong>ALL</strong>, the user opted out and doesn’t want to receive any messages or push notifications; or, <strong>NONE</strong>, the user hasn’t opted out and wants to receive all messages and push notifications.</td>
</tr>
<tr>
<td>RecommendationItems</td>
<td>A standard recommended attribute that stores one recommendation for the endpoint or user. This attribute contains text that’s provided directly by a recommender model.</td>
</tr>
<tr>
<td>RecommendationItems.[#]</td>
<td>A standard recommended attribute that stores an ordered list of 2–5 recommendations for the endpoint or user. This attribute contains text that’s provided directly by a recommender model. The numeric placeholder ([#]) indicates that the attribute contains multiple values. A message variable for this attribute can refer to a specific value in the list.</td>
</tr>
</tbody>
</table>
| Recommendations.

**custom_attribute**                | A custom recommended attribute that stores one recommendation for the endpoint or user. This attribute contains content that’s provided by a recommender model and enhanced by an AWS Lambda function.                                                                      |
| Recommendations.

**custom_attribute.**[#]           | A custom recommended attribute that stores multiple recommendations for the endpoint or user. This attribute contains content that’s provided by a recommender model and enhanced by an AWS Lambda function. The numeric placeholder ([#]) indicates that the attribute contains multiple values. A message variable for this attribute can refer to one of those values specifically. |
| RequestId                          | The unique identifier for the most recent request to update the endpoint.                                                                                                                                                                                                                                                                    |
| User.

**UserAttributes.**

**custom_attribute**            | A custom user attribute that describes the user.                                                                                                                                                                                                                                      |
| User.

**UserID**                        | A unique identifier for the user.                                                                                                                                                                                                                                                                                                           |

## Managing Message Templates

The **Message templates** page on the Amazon Pinpoint console provides a single location for you to create, view, and manage all the message templates for your Amazon Pinpoint account in the current AWS Region. By using this page, you can manage your message templates as a single collection. This can help you design consistent messages and reuse content more easily and effectively. You can use this page to perform management tasks such as viewing and editing templates, and copying, deleting, and creating templates.
For information about creating a message template, see Creating Email Templates (p. 202), Creating Push Notification Templates (p. 203), Creating SMS Templates (p. 206), or Creating Voice Templates (p. 207), depending on the type of template that you want to create.

For information about viewing and managing versions of templates, see Managing Versions of Message Templates (p. 216).

**Viewing Your Collection of Message Templates**

The **Message templates** page displays a list of all the message templates for your Amazon Pinpoint account in the current AWS Region. To browse the list more easily or find specific templates quickly, you can sort and filter the list, choose which columns to display, and change other display settings for the list.

**To view your collection of message templates**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose **Message templates**. The **Message templates** page opens and displays the number of templates in your collection and a list of those templates.
3. To customize the list or find a specific template quickly, choose any of the following options:
   - To sort the list by a specific type of value, click the column heading for that value. To change the sort order from ascending to descending or vice versa, click the column heading again.
   - To apply a filter that displays only a specific type of template, use the channel selector at the top of the page to choose the channel. To remove the filter, choose **All message channels** from the channel selector.
   - To apply a filter that displays only those templates whose names contain specific text, enter the text in the **Search** box above the list. To remove the filter, choose **X** in the **Search** box.
   - To change the number of templates that are displayed in the list, choose the settings icon at the top of the page. Then, for **Page size**, choose the number of templates that you want to display, and choose **Save changes**.
   - To add or remove columns from the list, choose the settings icon at the top of the page. Then, for **Choose visible columns**, turn each column on or off, and choose **Save changes**.

**Opening a Message Template**

By using the **Message templates** page, you can quickly find and open a specific message template to view the contents of the template and information about the template. For example, you can view current and previous versions of the template, and determine when the template was last updated. After you open a template, you can also edit the template (p. 215).

**To open a message template**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose **Message templates**.
3. On the Message templates page, choose the template that you want to open. The template page opens and displays information about the template. It also displays the contents of the active version of the template.
4. To view a different version of the template, use the version selector under Template details to choose the version that you want to view.

Editing a Message Template

You can open a message template for editing in two ways: while you're authoring a message that uses the template, and by using the Message templates page. This topic explains how to open and edit a template by using the Message templates page.

If you edit a template, Amazon Pinpoint might apply your changes to existing messages that use the template and haven't been sent yet, such as campaign messages that are scheduled to be sent at a later time. This depends on whether you edit the active version of the template and how you configured the messages that use the template. For more information, see Managing Versions of Message Templates (p. 216).

To edit a message template
1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
3. On the Message templates page, choose the template that you want to edit. The template page opens and displays information about the template. It also displays the contents and settings for the active version of the template.
4. Choose Edit.
5. Under Template details, use the version selector to choose the version of the template that you want to use as a starting point for your changes. If you choose the most recent version of the template, you can save your changes directly to that version of the template. Otherwise, you can save your changes as a new version of the template.
6. Make the changes that you want. You can change any of the template's content or settings, except the name of the template. To change the name of the template, you can create a copy of the template (p. 215), save the copy with the name that you want, and then optionally delete the original template.
7. When you finish making changes, do one of the following:
   - To save your changes as a new version of the template, choose Save as new version. To help ensure that your changes don't affect any existing messages, we recommend that you choose this option.
   - To save your changes as an update to the most recent version of the template, choose Update version. This option is available only if you chose the most recent version of the template in step 5. If you choose this option, your changes might affect existing messages that use the template.

Copying a Message Template

To quickly create a new message template that's similar to an existing template, you can create a copy of the template. You can then edit the template copy without changing the original template.

To copy a message template
1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
Deleting a Message Template

If you want to remove a message template from Amazon Pinpoint completely, you can delete the template. If you delete a template, it doesn’t affect any existing messages that use the template, such as campaign messages that are scheduled to be sent at a later time.

Warning
If you delete a template, Amazon Pinpoint deletes all versions, content, and settings for the template. In addition, the template becomes unavailable for all future messages. You can’t recover a template after you delete it.

To delete a message template
1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
3. On the Message templates page, select the check box next to each template that you want to delete.
4. On the Actions menu, choose Delete.

Managing Versions of Message Templates

To help you manage the development and use of individual message templates, Amazon Pinpoint supports versioning for all types of message templates. Versioning provides a way for you to create a history of changes to a template—each version is a snapshot of a template at a certain point in time. Versioning also provides a way for you to control the contents and settings of messages that use a template.

Each time you change a template, you can specify whether you want to save your changes as a new version of the template or as an update to the most recent, existing version of the template. As you design, develop, and refine a template, each of these versions serves as a snapshot that can help you track the progress and status of the template. That is to say, you can use versioning to store, track, and manage a template as it changes over time. You can:

- **Track the history of a template** – For each template, Amazon Pinpoint provides a list of versions of the template. This list displays the name of each version, and it indicates when each version was last changed. The list is sorted in descending chronological order with the most recent version listed first.
- **View and compare versions of a template** – By using the version list, you can browse previous versions of a template. If you choose a version from the list, Amazon Pinpoint displays the contents and settings that are stored in that version.
- **Restore a previous version of a template** – If you find issues in the most recent version of a template, you can open and edit a previous version that doesn’t contain the issues. You can then save that previous version as a new version of the template. The new version then becomes the most recent version of the template.
You can also use versioning to control which version of a template can be used in messages. You do this by designating a specific version as the active version of a template. The active version is typically the version that's been most recently reviewed and approved for use in messages, depending on your organization's workflow for developing and managing templates.

When you designate a version as the active version, you enable that version for use in messages. As a template changes over time, you can designate a different version as the active version, and you can change that designation multiple times.

**Topics**
- How Versioning Works (p. 217)
- Viewing Versions of a Message Template (p. 218)
- Viewing the Active Version of a Message Template (p. 219)
- Designating the Active Version of a Message Template (p. 219)
- Editing the Active Version of a Message Template (p. 220)

## How Versioning Works

In a typical development workflow, a message template has many versions. These versions extend from the start of design and development through testing, review, and, ultimately, approval for use in messages. In some cases, you might create and approve additional versions after the initial approval, as you refine and update a template. For example, you might add links or change the layout of a template in response to analytics data for a campaign that uses the template.

### Version Numbering

When you create a template, there is only one version of the template—Version 1. Each time you subsequently change a template, you specify whether you want to save your changes as a new version of the template, or as an update to the most recent version of the template.

If you save your changes as a new version, Amazon Pinpoint automatically increments the version number by 1 and assigns that version number to the version—Version 1 for the first version, Version 2 for the second version, Version 3 for the third version, and so on. Version numbers are never reused. You can save as many as 5,000 versions of a template.

If you save your changes as an update to the most recent version, Amazon Pinpoint overwrites the most recent version to include your changes. To ensure that you have an accurate view of a template's history, you can overwrite only the most recent version of a template by using the Amazon Pinpoint console. You can't overwrite any earlier versions of a template by using the console.

### Current and Active Versions

To support long-term, continuous development of templates, two versions of a template can be current at the same time. They are: the latest version, which is the version that was most recently changed; and, the active version, which is the version that can be used in messages.

Depending on your organization's workflow, the active version is typically the version that's been most recently reviewed and approved for use in messages. It isn't necessarily the latest version of a template. In addition, any version other than the active version is considered a draft or archival version of a template. This means that you can use only the active version of a template in messages that you create by using the Amazon Pinpoint console.

For example, you might create several versions of a template as you design and develop the template. When the latest version of the template is complete and approved for use in messages, you can designate that version as the active version of the template. You can then use that active version of the
template in messages. If you later decide to change the template, you can create additional versions for those changes, without affecting the active version of the template or any existing messages that use the template.

Of all the versions of a template, one version has to be designated as the active version of the template. As a template changes over time, you can designate a different version as the active version, and you can change that designation multiple times.

**Version Settings for Messages**

To use a specific version of a template in a message, the version must be the active version of the template when you create the message or when Amazon Pinpoint sends the message. This depends on how you configure a message to use a template. When you create a message and choose a template for it, you have two options:

- **Use the version that's currently active** – If you choose this option, Amazon Pinpoint always sends the same message content and settings, as specified in the version of the template that's active when you create the message. This means that the message remains the same, regardless of any changes that you make to the template later.

- **Use the version that's active when the message is sent** – If you choose this option, Amazon Pinpoint automatically updates the message content and settings to match whichever version of the template is active when it sends the message. This means that the message changes if you designate a different version as the active version after you create the message.

For example, if you do the following:

1. Create Version 1 of a template.
2. Designate Version 1 as the active version of the template.
3. Create a message that uses the template and schedule that message to be sent at a later time.
4. Change the template several times.
5. Designate a new version (Version 5) as the active version of the template.

Amazon Pinpoint does the following for each option when it sends the message:

- **Use the version that's currently active** – If you chose this option for the message, Amazon Pinpoint uses the content and settings specified by Version 1 of the template. It does this because Version 1 was the active version of the template when the message was created.

- **Use the version that's active when the message is sent** – If you chose this option for the message, Amazon Pinpoint automatically updates the message content and settings to match whichever version of the template is active when it sends the message. This means that the message changes if you designate a different version as the active version after you create the message.

If you want to ensure that changes to a template don't affect any existing messages that you haven't sent yet, we recommend that you configure your messages to use the version of the template that's active when messages are created, not sent. Alternatively, if you want to continue to develop a template after you start using it in messages, you can create a copy of the template (p. 215), and then edit and use the template copy in new messages.

**Viewing Versions of a Message Template**

By using the Message templates page, you can quickly find and open a specific message template. You can then view a list of the versions that exist for the template. From that list, you can choose a specific version to view the contents and settings for that version of the template.
To view versions of a message template

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
3. On the Message templates page, choose the template whose versions you want to view. The template page opens and displays information about the template. It also displays the contents and settings for the active version of the template.
4. Under Template details, open the version selector to display a list of versions for the template.
5. To view the contents and settings for a specific version, use the version selector to choose the version. After you choose a version, Amazon Pinpoint displays the contents and settings for that version of the template.

Viewing the Active Version of a Message Template

You can view the active version of a message template in two ways: while you're creating a message that uses the template, and by using the Message templates page. To view the active version of a template while you're creating a message, choose the template for the message. Amazon Pinpoint automatically displays a preview of the active version of the template.

To view the active version of a template by using the Message templates page, follow the steps in this topic.

To view the active version of a message template

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
3. On the Message templates page, choose the template whose active version you want to view. The template page opens and displays information about the template. It also displays the contents and settings for the active version of the template. Under Template details, note that ACTIVE VERSION appears (in green) next to the version name in the version selector.
4. To view a different version of the template, use the version selector under Template details to choose the version that you want. To view the active version again, use the version selector to choose the version that displays ACTIVE VERSION (in green) next to the version name.

Designating the Active Version of a Message Template

When you create a message template, Amazon Pinpoint automatically designates the first version of the template as the active version of the template. As you create and develop subsequent versions of a template, you can designate a different version as the active version of the template, and you can change that designation multiple times.

Before you designate a version as the active version of a template, it's a good idea to ensure that all the content and settings in the proposed active version are complete and ready for use.

It's also a good idea to verify that the differences between the current and proposed active versions won't affect existing messages in unexpected or unwanted ways. If you designate a different version as the active version, Amazon Pinpoint might apply your change to existing messages that use the template and haven't been sent yet. This depends on how you configured the messages that use the template. For more information, see the section called “Version Settings for Messages” (p. 218).

If the template is being used in messages that haven't been sent yet, compare the version that's currently active to the version that you want to make active. Also, review any journey activities and campaigns that
use the template. Then, edit the template as necessary to address any issues that you find before you
designate a different version as the active version.

If you’re concerned about the effects of designating a different version as the active version, you can
create a copy of the template (p. 215) instead. You can then edit and use the template copy in new
messages.

**To designate the active version of a message template**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose **Message templates**.
3. On the **Message templates** page, choose the template that you want to designate the active version
for. The template page opens and displays information about the template. It also displays the
contents and settings for the version that's currently the active version of the template.
4. Under **Template details**, use the version selector to choose the version that you want to designate
as the active version. After you choose a version, Amazon Pinpoint displays the contents and settings
for that version of the template.
5. Choose **Make active version**.

The new active version of the template is now available for use in new messages. In addition, it's used in
any existing messages that haven't been sent yet and are configured to use the version of the template
that's active when the message is sent.

**Editing the Active Version of a Message Template**

Before you edit the active version of a template, it's important to remember that only the active version
of a template can be used in messages that you create by using the Amazon Pinpoint console. For this
reason, it's a good idea to first verify that your changes are complete and ready for use.

It's also a good idea to verify that your changes won't affect existing messages in unexpected or
unwanted ways. Amazon Pinpoint might apply your changes to existing messages that use the template
and haven't been sent yet. This depends on how you configured the messages that use the template. For
more information, see the section called “Version Settings for Messages” (p. 218).

To determine how your changes might affect existing messages, review the contents and settings for the
version of the template that's currently active. Also, review any journey activities and campaigns that use
the template. Then, consider the changes that you plan to make and ensure that your changes align with
your goals for existing messages that use the template.

Finally, if you're concerned about the effects of editing the active version of the template, you can create
a copy of the template (p. 215) instead. You can then edit and use the template copy in messages that
you create later.

**To edit the active version of a message template**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose **Message templates**.
3. On the **Message templates** page, choose the template whose active version you want to edit. The
template page opens and displays information about the template. It also displays the contents and
settings for the version that's currently designated as the active version of the template.
4. Choose **Edit**.
5. Under **Template details**, use the version selector to ensure that you're editing the active version of
the template. **ACTIVE VERSION** appears (in green) next to the name of the active version.
6. Make the changes that you want, and then choose **Save as new version**.
7. Under **Template details**, use the version selector to choose the version of the template that you created in the preceding step.

8. Choose **Make active version**.

The new active version of the template is now available for use in new messages. In addition, it's used in any existing messages that haven't been sent yet and are configured to use the version of the template that's active when the message is sent.
Machine Learning Models in Amazon Pinpoint

A machine learning (ML) model is a mathematical representation of a real-world problem. An ML model finds patterns in data and generates predictions based on the patterns that it finds. These predictions typically improve over time, as an ML model receives more data and people retrain or tune the model to refine and optimize the model's analysis of data.

In Amazon Pinpoint, you can connect to a certain type of ML model, referred to as a recommender model, to predict which items a user will interact with and to send those items to message recipients as personalized recommendations. A recommender model is an ML model that's designed to answer the question, "What will a user like or be interested in?" It predicts what a particular user will prefer from a given set of products or items, and it provides that information as a set of recommendations for the user. By using recommender models with Amazon Pinpoint, you can send personalized recommendations to message recipients based on each recipient's attributes and behavior.

To use a recommender model with Amazon Pinpoint, start by working with your data science team to create and deploy the model as an Amazon Personalize campaign. Next, configure Amazon Pinpoint to use recommendation data from the Amazon Personalize campaign. You do this by setting up a connection between Amazon Pinpoint and the Amazon Personalize campaign. When you set up the connection, you specify how you want to retrieve and use data from the Amazon Personalize campaign.

After you set up the connection to the Amazon Personalize campaign, you can start adding recommendations to messages. To do this, create a message template. In the template, add message variables for the recommendations that you want to use. You can add these variables to the following types of templates:

- Email templates, for email messages that you send from campaigns or journeys.
- Push notification templates, for push notifications that you send from campaigns.
- SMS templates, for SMS text messages that you send from campaigns.

Then, create a campaign or journey to send messages that use the template. When you send the messages, Amazon Pinpoint retrieves the latest data from the Amazon Personalize campaign, and replaces each variable with values that your model recommends for each message recipient.

This feature is available in the following AWS Regions: US East (N. Virginia); US West (Oregon); Asia Pacific (Mumbai); Asia Pacific (Sydney); and, Europe (Ireland).

The topics in this chapter explain how to configure Amazon Pinpoint to use recommendation data from an Amazon Personalize campaign. They also explain how to include that data in messages.

Topics

- How Recommendations Work in Amazon Pinpoint (p. 223)
- Preparing to Use a Recommender Model with Amazon Pinpoint (p. 223)
- Setting Up a Recommender Model in Amazon Pinpoint (p. 226)
- Using Recommendations in Messages (p. 229)
- Managing Machine Learning Models in Amazon Pinpoint (p. 232)
How Recommendations Work in Amazon Pinpoint

In a typical workflow, your team performs a series of activities to create and use a recommender model with Amazon Pinpoint. In general, those activities are:

1. In Amazon Personalize, create a solution for the model and deploy it as an Amazon Personalize campaign. Then train, evaluate, and update the model in a continuous cycle to refine the predictions and recommendations that it makes.
2. Configure Amazon Pinpoint to connect to the Amazon Personalize campaign. Use the configuration settings for the connection to specify how you want to retrieve and process data from the Amazon Personalize campaign.
3. Create one or more email, push notification, or SMS message templates. Design those templates to include message variables that refer to recommended attributes. A message variable is a placeholder that refers to a specific attribute. A recommended attribute is an attribute that temporarily stores data that Amazon Pinpoint retrieves from an Amazon Personalize campaign.
4. Create one or more Amazon Pinpoint campaigns that use the message templates. Or, if you created email templates in the preceding activity, create one or more journey activities that use those templates.

After your team performs these activities, Amazon Pinpoint does the following each time it sends a message that includes recommendations from the model:

1. Evaluates the settings and contents of the message and message template.
2. Determines that you connected the message template to a recommender model.
3. Checks the configuration settings that you entered for using the recommender model.
4. Finds one or more message variables for recommended attributes that you created for the recommender model.
5. Connects to the Amazon Personalize campaign that you specified in the configuration settings for the recommender model.
6. For each message recipient:
   a. Retrieves recommendations from the Amazon Personalize campaign.
   b. Adds the recommendations to the recommended attributes that you created for the recommender model.
   c. Replaces each message variable with the corresponding value of the recommended attribute. If you configured the model to enhance recommendations by using an AWS Lambda function, Amazon Pinpoint uses that function as part of this step.
7. Sends a version of the message that contains the personalized recommendations for each message recipient.

Preparing to Use a Recommender Model with Amazon Pinpoint

To work with Amazon Pinpoint, a recommender model has to be deployed as an Amazon Personalize campaign. In addition, certain AWS Identity and Access Management (IAM) roles and policies need to be in place. If you want to enhance recommendations that Amazon Pinpoint receives from the model, an AWS Lambda function also needs to be in place to process the recommendations.

Before you set up a recommender model in Amazon Pinpoint, work with your data science and development teams to design and create these resources. Also, work with those teams to ensure that the model meets certain technical requirements to work with Amazon Pinpoint. After you create these
resources, work with your administrator to ensure that you and Amazon Pinpoint can access them. As you take these steps, gather the information that you'll need to set up the model in Amazon Pinpoint.

Topics
- Amazon Personalize Campaigns (p. 224)
- AWS Identity and Access Management Roles and Policies (p. 225)
- AWS Lambda Functions (p. 226)

Amazon Personalize Campaigns

Amazon Personalize is an AWS service that's designed to help you create machine learning models that provide real-time, personalized recommendations for customers who use your applications. Amazon Personalize guides you through the process of creating and training a machine learning model, primarily by using a combination of data and a recipe. A recipe is an algorithm that's configured to support a specific use case, such as predicting items that a person will like and interact with.

This combination of data and a recipe is referred to as a solution. After a solution is trained, it becomes a solution version. The solution version is then tested, refined, and prepared for use. When a solution version is ready for use, it's deployed as an Amazon Personalize campaign. The campaign is then used to provide real-time, personalized recommendations. To learn more about Amazon Personalize, see the Amazon Personalize Developer Guide.

For Amazon Pinpoint to retrieve recommendations from an Amazon Personalize campaign, the campaign and its components have to meet the following requirements:

- The recipe has to be a USER_PERSONALIZATION recipe. It can use any supported algorithm settings (hyperparameters) for this type of recipe. For information about this type of recipe, see Using Predefined Recipes in the Amazon Personalize Developer Guide.
- The solution has to be trained using user IDs that can be correlated with endpoint IDs or user IDs in Amazon Pinpoint projects. Amazon Pinpoint uses the userId field in Amazon Personalize to correlate data between users in Amazon Personalize and endpoints or users in Amazon Pinpoint projects.
- The solution has to support use of the GetRecommendations operation of the Amazon Personalize Runtime API.
- The campaign has to use the solution version that you want to retrieve recommendations from.
- The campaign has to be deployed and have a status of active.
- The campaign has to be running in the same AWS Region as the Amazon Pinpoint projects that will use recommendations from it. Otherwise, Amazon Pinpoint won't be able to retrieve recommendations from the campaign, which could cause an Amazon Pinpoint campaign or journey activity to fail.

In addition to these requirements, we recommend configuring the campaign to support at least 20 provisioned transactions per second.

As you work with your team to implement an Amazon Personalize campaign that meets the preceding requirements, also be sure to answer the following questions:

**Which campaign?**

To set up the model in Amazon Pinpoint, you'll need to know the name of the Amazon Personalize campaign to retrieve recommendations from. Later, if you work with your administrator to manually configure access to the campaign, you'll also need to know the Amazon Resource Name (ARN) of the campaign.

**Which type of ID?**

When you set up the model in Amazon Pinpoint, you choose whether to associate users in the Amazon Personalize campaign with endpoints or users in your Amazon Pinpoint projects. This
enables the model to provide recommendations that are truly specific to a particular message recipient.

In an Amazon Personalize campaign, each user has a user ID (userId or USER_ID, depending on the context). This is a sequence of characters that uniquely identifies a particular user in the campaign.

In an Amazon Pinpoint project, a message recipient can have two types of IDs:

- **Endpoint ID** – This is a sequence of characters that uniquely identifies a destination that you can send messages to—such as an email address, mobile phone number, or mobile device.
- **User ID** – This is a sequence of characters that uniquely identifies a particular user. Each user can be associated with one or more endpoints. For example, if you communicate with a user by email, SMS, and a mobile app, the user could be associated with three endpoints—one for the user's email address, another for the user's mobile phone number, and another for the user's mobile device.

When you choose the type of Amazon Pinpoint ID to associate with Amazon Personalize user IDs, choose the type that you use most consistently in your Amazon Pinpoint projects. If you or your application hasn't assigned an ID to an endpoint or user, Amazon Pinpoint can't retrieve recommendations for the endpoint or user. This might prevent Amazon Pinpoint from sending messages to the endpoint or user. Or, it might cause Amazon Pinpoint to send messages that display in unexpected or unwanted ways.

**How many recommendations?**

Each time Amazon Pinpoint retrieves recommendations, Amazon Personalize returns an ordered list of recommendations for each recipient of a message. You can configure Amazon Pinpoint to retrieve between 1 and 5 of these recommendations for each recipient. If you choose one recommendation, Amazon Pinpoint retrieves only the first item from the list for each recipient—for example, the most highly recommended movie for a recipient. If you choose two recommendations, it retrieves the first and second items from the list for each recipient—for example, the top two recommended movies for a recipient. And so on.

Your choice for this setting depends primarily on your goals for messages that include recommendations from the model. However, it might also depend on how your team designed the solution and your team's evaluation of the solution's performance. For this reason, work with your team to ensure that you choose an appropriate number for this setting.

**What does a recommendation contain?**

When Amazon Pinpoint retrieves recommendations, Amazon Personalize returns an ordered list of 1-5 recommended items, depending on how many recommendations you choose to retrieve for each message recipient. Each item consists only of text, such as a product ID or a movie title. However, the nature and contents of these items can vary from one Amazon Personalize campaign to another, based on the design of the underlying solution and the campaign.

Therefore, it's a good idea to ask your team exactly what content the campaign provides for recommended items. Their answer will probably affect how you design messages that use recommendations from the campaign. If you want to enhance the content that the campaign provides, you might also choose to implement an AWS Lambda function that can perform this task.

**AWS Identity and Access Management Roles and Policies**

AWS Identity and Access Management (IAM) is an AWS service that helps administrators control access to AWS resources. To learn more about IAM and how it works with Amazon Pinpoint, see Identity and Access Management for Amazon Pinpoint in the Amazon Pinpoint Developer Guide.

When you set up a recommender model in Amazon Pinpoint, you specify which Amazon Personalize campaign you want to retrieve recommendations from. To choose the campaign, your administrator
needs to first allow you to view the campaigns for your organization's AWS account. Otherwise, the campaign won't appear in the list of campaigns that you can choose from. If you don't see the campaign in the list, ask your administrator to provide you with this access.

In addition, you or your administrator needs to create an IAM role and policy that allows Amazon Pinpoint to retrieve recommendations from Amazon Personalize campaigns. When you set up a recommender model, you can choose to have Amazon Pinpoint create this role and policy for you automatically. Another option is for you or your administrator to create this role and policy manually, before you set up the recommender model in Amazon Pinpoint. To learn how to do this, see IAM Role for Retrieving Recommendations in the Amazon Pinpoint Developer Guide.

AWS Lambda Functions

For some models, you might want to enhance the recommendations that Amazon Pinpoint receives from Amazon Personalize. For example, instead of including only a single recommended value (such as a product name) in messages, you might want to include additional content (such as a product's name, description, and image) in messages. You can do this by working with your team to design and create an AWS Lambda function that transforms recommendation data into the content that you want.

AWS Lambda is an AWS service that's designed to help people run code without provisioning or managing servers. You or your team develops and packages code, and uploads it to AWS Lambda as a Lambda function. AWS Lambda then runs the function each time the function is invoked by an application or service, such as Amazon Pinpoint. To learn more about AWS Lambda, see the AWS Lambda Developer Guide.

When you set up a recommender model in Amazon Pinpoint, you specify how you want Amazon Pinpoint to process the recommendations that it receives. One option is to use a Lambda function. If you want to use a Lambda function, work with your team to:

- Define what the function does.
- Define the custom recommended attributes that you want the function to use when it processes recommendations. This includes the number of attributes, and the name and purpose of each one. A Lambda function can use as many as 10 custom attributes for each message recipient. You'll need to enter information about these attributes when you set up the recommender model in Amazon Pinpoint.
- Ensure that the function is hosted in the same AWS Region as the Amazon Pinpoint projects that will use it. Otherwise, Amazon Pinpoint won't be able to send recommendation data to the function, which could cause an Amazon Pinpoint campaign or journey activity to fail.

Finally, work with your administrator to create a policy that allows Amazon Pinpoint to invoke the Lambda function each time it sends messages that include recommendations from the model.

For detailed information about using a Lambda function to process recommendations, see Customizing Recommendations with AWS Lambda in the Amazon Pinpoint Developer Guide.

Setting Up a Recommender Model in Amazon Pinpoint

A recommender model is a type of machine learning (ML) model that's designed to predict what a particular user will prefer from a given set of products or items. It provides that information as a set of recommendations for the user. In Amazon Pinpoint, you can use these models to send personalized recommendations to message recipients based on each recipient's attributes and behavior.
Before you can use a recommender model in this way, you have to set up a connection between Amazon Pinpoint and the Amazon Personalize campaign that has the model to use. When you set up the connection, you specify how you want to retrieve and use recommendations from the Amazon Personalize campaign. You also add settings for attributes that temporarily store recommendations from the campaign.

Before You Begin

Before you set up a recommender model in Amazon Pinpoint, review the information in Preparing to Use a Recommender Model with Amazon Pinpoint (p. 223). This will help you gather the resources and information that you need to set up the model in Amazon Pinpoint.

Step 1: Set Up the Model

For this step, you specify which Amazon Personalize campaign you want to retrieve recommendations from. You also choose settings that specify how you want to retrieve and use those recommendations.

To set up a recommender model

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Machine learning models.
4. Under Model details, for Recommender model name, enter a name for the model in Amazon Pinpoint. The name has to begin with a letter or number. It can contain up to 128 characters. The characters can be letters, numbers, underscores (_), or hyphens (‐).
5. (Optional) For Recommender model description, enter a brief description of the model. The description can contain up to 128 characters. The characters can be letters, numbers, spaces, or the following symbols: _ ; () , ‐.
6. Under Model configuration, for IAM role, choose the AWS Identity and Access Management (IAM) role that authorizes Amazon Pinpoint to connect to and retrieve recommendations from the Amazon Personalize campaign that uses the model. You have the following options:
   - Use an existing role – Choose this option to use an IAM role that already exists for your AWS account. Then, from the list of roles, choose the role that you want.
   - Automatically create a role – Choose this option to automatically create an IAM role that has the required permissions. Then, enter a name for the role.

Another option is to work with your administrator to create the role manually. For information about creating the role manually, see IAM Role for Retrieving Recommendations in the Amazon Pinpoint Developer Guide.

7. For Recommender model, choose the Amazon Personalize campaign that you want to retrieve recommendations from.

   This list displays all the Amazon Personalize campaigns that you’re allowed to access with your AWS account in the current AWS Region. If the list doesn’t include the campaign that you want, ask your administrator to give you access to the campaign and verify that you chose the correct IAM role in the preceding step. Also, verify that the campaign exists in the current AWS Region.

8. Under Settings, for Identifier to use for recommendations, specify whether you want to associate unique users in the Amazon Personalize campaign with endpoints (Endpoint ID) or users (User ID) in your Amazon Pinpoint projects.

9. For Number of recommendations per message, choose the number of recommended items that you want to retrieve for each endpoint or user in your Amazon Pinpoint projects, depending on your choice in the preceding step.
This setting determines how many recommendations Amazon Pinpoint retrieves and you can add to individual messages. You can retrieve as many as five recommended items. If you choose 1, Amazon Pinpoint retrieves only the first item from the list of recommendations for each message recipient—for example, the most highly recommended movie for a recipient. If you choose 2, it retrieves the first and second items from the list for each recipient—for example, the top two recommended movies for a recipient. And so on, for as many as five recommendations.

10. For **Processing method**, choose one of the following options to specify how you want Amazon Pinpoint to process the recommendations that it retrieves:

- **Use the value returned by the model** – With this option, messages display the exact text of the recommendations that are provided by the Amazon Personalize campaign. In addition, all the recommendations for each endpoint or user are temporarily stored in one standard recommended attribute for each endpoint or user.

- **Use a Lambda function** – With this option, messages can display enhanced recommendations instead of or in addition to the text of the recommendations that are provided by the Amazon Personalize campaign. If you choose this option, Amazon Pinpoint sends recommendations to an AWS Lambda function for additional processing, before it sends a message that includes the recommendations. In addition, you can temporarily store recommendations in as many as 10 custom recommended attributes for each endpoint or user.

If you choose this option, also use the **Lambda function** list to choose the function that you want to use. This list displays all the Lambda functions that you're allowed to access with your AWS account in the current AWS Region. If the list doesn't include the function that you want, ask your administrator to give you access to the function. If the function doesn't exist yet, choose **Create new Lambda function**, and work with your development team to create the function. For more information, see Customizing Recommendations with AWS Lambda in the Amazon Pinpoint Developer Guide.

11. When you finish entering these settings, choose **Next** to proceed to the next step—adding attribute settings for the recommender model.

### Step 2: Add Attributes to the Model

After you choose settings for connecting to and retrieving recommendations from the Amazon Personalize campaign, you're ready to enter settings for the attributes that will store the recommendation data. These options vary depending on the processing method that you chose in the preceding step:

**Use the value returned by the model**

If you chose this option, recommendations are temporarily stored in one attribute. This is a standard recommended attribute for each endpoint or user, depending on the option that you chose for the **Identifier to use for recommendations** setting in the preceding step. The underlying name of this attribute is RecommendationItems.

For **Display name**, enter a descriptive name for the attribute. This name will appear in the **Attribute finder** in the template editor when you add a variable for the attribute to a message template. The name can contain up to 25 characters. The characters can be letters, numbers, spaces, underscores (_), or hyphens (-).

**Use a Lambda function**

If you chose this option, you can use as many as 10 attributes to store data for each recommendation. These are custom recommended attributes for each endpoint or user, depending on the option that you chose for the **Identifier to use for recommendations** setting in the preceding step. For example, if you retrieve one product recommendation for each endpoint or user, the
Lambda function can process the recommendation and add the results to three custom attributes for the recommendation—product name, price, and image.

For each custom attribute that you want to add, choose **Add attribute**, and then do the following:

- **For Attribute name**, enter a name for the attribute. This name, preceded by the **Recommendations** prefix, will appear in the template editor after you add a variable for the attribute to a message template. The name has to match the name of an attribute that the Lambda function uses to store recommendation data.

  An attribute name has to start with a letter or number and it can contain up to 50 characters. The characters can be letters, numbers, underscores (_), or hyphens (-). Attribute names are case sensitive and must be unique.

- **For Display name**, enter a descriptive name for the attribute. This name will appear in the **Attribute finder** in the template editor when you add a variable for the attribute to a message template. The name has to start with a letter or number and it can contain up to 25 characters. The characters can be letters, numbers, spaces, underscores (_), or hyphens (-).

When you finish entering attribute settings, choose **Next** to proceed to the next step—reviewing and publishing the configuration settings for the recommender model.

### Step 3: Review and Publish the Model

After you finish entering all the settings for connecting to and using the recommender model, you're ready to review the settings.

When you finish reviewing the settings, choose **Publish** to save them. Amazon Pinpoint then checks the settings to verify that they're correct. If any settings are missing or incorrect, it displays a message for each error to help you determine which setting to fix. If you need to fix a setting, use the navigation pane to go directly to the page that contains the setting.

After you publish the settings, you can start using recommendations in messages.

### Using Recommendations in Messages

To add dynamic, personalized recommendations to messages, create and use message templates that include message variables for recommended attributes. A **message variable** is a placeholder that refers to a specific attribute that you or Amazon Pinpoint created to store information about your users. A **recommended attribute** is an attribute that temporarily stores recommendations for your users. Amazon Pinpoint retrieves these recommendations from a recommender model that you deployed as an Amazon Personalize campaign and configured Amazon Pinpoint to use.

If a template contains message variables, Amazon Pinpoint replaces each variable with the current, corresponding value of the attribute for each recipient. For recommendations, this process includes retrieving the latest recommendations for each recipient from an Amazon Personalize campaign. Amazon Pinpoint does this each time it sends a message that uses the template. This means that you can feel confident that the message contains the latest recommendations for a recipient.

For example, if your project is an application that recommends movies and TV shows to users, you might have the following attributes for each user:

- The user's first name.
- The rating that the user most recently submitted.
- The title of the movie or show that the user most recently rated.
- The titles of the top three movies and shows that the model recommends for the user.
For this project, you could use the following text and message variables in a template:

Hi {{User.UserAttributes.FirstName}}, based on your recent {{User.UserAttributes.LatestRating}}-star rating for {{User.UserAttributes.LatestRatedTitle}}, we think you might also enjoy: {{RecommendationItems.[0]}}, {{RecommendationItems.[1]}}, and {{RecommendationItems.[2]}}.

When you send a message that uses the template, Amazon Pinpoint replaces the variables with the current value of each attribute for each recipient. The following examples show this.

Example 1

Hi Sofia, based on your recent 5-star rating for *The Marvelous Mrs. Maisel* – *Season 3*, we think you might also enjoy: *Fleabag*, *Late Night*, and *Catastrophe*.

Example 2

Hi Alejandro, based on your recent 4-star rating for *Tom Clancy's Jack Ryan* – *Season 2*, we think you might also enjoy: *Hanna*, *Hunters*, and *Agatha Christie's The ABC Murders*.

If you configured a recommender model to enhance recommendations by using an AWS Lambda function, a template and the resulting message might use additional variables and recommended attributes. For example, they might also use variables for attributes that provide an image and a URL for each recommended movie or show.

For more information about using message variables in templates, see Adding Personalized Content to Message Templates (p. 208).

**Adding Recommendations to Messages**

To add personalized recommendations to messages, create and use message templates that include message variables for the recommendations that you want to use. You can add these variables to the following types of message templates:

- Email templates, for email messages that you send from campaigns or journeys.
- Push notification templates, for push notifications that you send from campaigns.
- SMS templates, for SMS text messages that you send from campaigns.

Each template can use variables and recommended attributes from one recommender model at a time.

You can add the variables to a new template when you create the template, or to an existing template. If you add variables to an existing template, Amazon Pinpoint doesn't necessarily apply the changes to messages that use the template and haven't been sent yet, such as campaign messages that are scheduled to be sent at a later time. This depends on the version of the template that you add variables to and how you configured the messages that use the template. For more information, see Managing Versions of Message Templates (p. 216).

**To add recommendations to a message template**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
3. On the Message templates page, do one of the following:
   - To create a new template and add recommendations to it, choose Create template. Then, on the template page, enter a name for the template and, optionally, a description of the template.
To add recommendations to an existing template, choose the template that you want. Then, on the template page, choose Edit. Under Template details, use the version selector to choose the version of the template that you want to use as a starting point. If you choose the most recent version, you can save your changes directly to that version of the template. Otherwise, you can save your changes as a new version of the template.

4. In the Attribute finder, expand the Recommended attributes section.

If you haven't selected a recommender model for the template yet, choose Connect model. Next, select the model that you want to retrieve recommendations from when you send messages that use the template. Then choose Connect model.

5. Under Recommended attributes, choose the attribute that you want to add a message variable for. Amazon Pinpoint creates a variable for the attribute and copies it to your clipboard. Then, in the message editor, paste the variable where you want the recommendation to appear in messages.

   After you paste the variable, Amazon Pinpoint displays it as the name of the associated attribute, enclosed in two sets of curly braces—for example, {{RecommendationItems}}.

6. If the recommender model provides more than one recommended attribute, repeat the preceding step for each additional attribute that you want to add a variable for.

   You can also add variables for other types of attributes. To do this, expand other sections in the Attribute finder, choose each additional attribute that you want, and then paste the variable in the location that you want. To learn about using variables for other types of attributes, see Adding Personalized Content to Message Templates (p. 208).

7. To specify a default value for a message variable, expand the Default attribute values section. Then, in the list of variables, enter the default value that you want to use for the variable. We recommend that you do this for each variable in the template.

8. When you finish, do one of the following:

   • If you added message variables to a new template, choose Create.
   • If you added message variables to an existing template and you want to save your changes as a new version of the template, choose Save as new version.
   • If you added message variables to an existing template and you want to save your changes as an update to the most recent version of the template, choose Update version. This option is available only if you opened the most recent version of the template in step 3.

You can now use the template to include personalized recommendations in messages that you send from campaigns and journeys.

Note that you can't include recommendations in messages that you send to a limited audience as direct or test messages. Although you can use templates in these messages more generally, Amazon Pinpoint can't correlate recommendations from a model with recipients of a direct or test message. To test the appearance and formatting of a template that uses recommendations, specify a default value for each message variable that refers to a recommended attribute, and then send a test message that uses the template.

### Removing Recommendations from Messages

To remove personalized recommendations from messages, update the message template that the messages use. When you update the template, remove all or only some message variables for recommendations.

If you remove recommendations from a template, Amazon Pinpoint doesn't necessarily apply the changes to messages that use the template and haven't been sent yet, such as campaign messages that are scheduled to be sent at a later time. This depends on the version of the template that you
remove recommendations from and how you configured the messages that use the template. For more information, see Managing Versions of Message Templates (p. 216).

To remove recommendations from a message template

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Message templates.
3. On the Message templates page, choose the template that you want to remove recommendations from. Then, on the template page, choose Edit.
4. Under Template details, use the version selector to choose the version of the template that you want to use as a starting point. If you choose the most recent version, you can save your changes directly to that version of the template. Otherwise, you can save your changes as a new version of the template.
5. In the message editor, delete all the text of the message variable for each recommended attribute that you want to remove. Each message variable consists of two sets of curly braces and the name of the associated attribute—for example, {{RecommendationItems}}.

To remove the recommender model from the template completely, delete all the variables for recommended attributes that the model provides. Then, in the Attribute finder, expand the Recommended attributes section and choose X next to the name of the model.
6. When you finish, do one of the following:
   - To save your changes as a new version of the template, choose Save as new version.
   - To save your changes as an update to the most recent version of the template, choose Update version. This option is available only if you chose the most recent version of the template in step 4.

Managing Machine Learning Models in Amazon Pinpoint

The Machine learning models page on the Amazon Pinpoint console provides a single location for you to view, change, and manage Amazon Pinpoint configuration settings for all the machine learning (ML) models that you’ve connected to your Amazon Pinpoint account in the current AWS Region. By using this page, you can perform management tasks such as viewing, changing, and deleting configuration settings for connections to ML models. You can also configure Amazon Pinpoint to connect to and use data from additional ML models.

Topics
- Viewing Your Collection of Models (p. 232)
- Viewing the Settings for a Model (p. 233)
- Changing the Settings for a Model (p. 233)
- Copying a Model (p. 234)
- Deleting a Model (p. 234)

To learn how to add and configure a connection to a model, see Setting Up a Recommender Model in Amazon Pinpoint (p. 226).

Viewing Your Collection of Models

The Machine learning models page displays a list of all the configurations that you created to enable Amazon Pinpoint to connect to and use data from specific ML models for your account. To browse the
list more easily or find specific configurations quickly, you can sort and filter the list, choose which
columns to display, and change other display settings for the list.

To view your collection of ML models

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Machine learning models. The Machine learning models page
   opens and displays the number of configurations in your collection and a list of those configurations.
3. To customize the list or find a specific configuration quickly, choose any of the following options:
   • To sort the list by a specific type of value, click the column heading for that value. To change the
     sort order from ascending to descending or vice versa, click the column heading again.
   • To apply a filter that displays only those configurations whose names contain specific text, enter
     the text in the Search box above the list. To remove the filter, choose X in the Search box.
   • To change the number of configurations that are displayed in the list, choose the settings icon at
     the top of the page. Then, for Page size, choose the number of configurations that you want to
     display, and choose Save changes.
   • To add or remove columns from the list, choose the settings icon at the top of the page. Then, for
     Choose visible columns, turn each column on or off, and choose Save changes.

Viewing the Settings for a Model

By using the Machine learning models page, you can quickly find and open a specific configuration to
view its settings and other information. For example, you can view a list of the attributes that the model
provides for use in messages. After you open a configuration to view its settings, you can also change the
settings for the configuration (p. 233).

To view the settings for an ML model

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Machine learning models.
3. On the Machine learning models page, choose the configuration whose settings you want to view.

The configuration page opens and displays the current settings for the configuration.

Changing the Settings for a Model

Before you change the configuration settings for an ML model, it's important to note that Amazon
Pinpoint automatically applies your changes to message templates that use the model. (It applies the
changes to both the active and latest versions of the template.) This means that your changes also affect
any messages that use those templates and haven't been sent yet, such as campaign messages that are
scheduled to be sent at a later time.

For this reason, your changes might prevent Amazon Pinpoint from sending messages that use the
configuration and haven't been sent yet. Or, your changes could cause those messages to display in
unexpected or unwanted ways. This depends on the configuration settings that you change. It also
depends on how you designed the templates that use the model.

If you change the configuration settings for an ML model, be sure to also review and make the
appropriate changes to any templates that use the current configuration for the model. For example, if
you delete an attribute, be sure to also remove or replace that attribute in every template that uses the
attribute. Also, be sure to make those changes to the appropriate versions of each message template. For
more information, see Editing a Message Template (p. 215).
If you don’t want to apply your changes to existing templates and messages, you can create a copy of the configuration (p. 234), and save the copy with the changes that you want. You can then use the configuration copy in new templates, or update existing templates to use the configuration copy.

**To change the settings for an ML model**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Machine learning models.
3. On the Machine learning models page, choose the configuration that you want to change. The configuration page opens and displays the current settings for the configuration.
4. Choose Edit model.
5. On the Set up model page, make any changes that you want. You can change any of the settings, except the name of the configuration. To change the name of the configuration, you can create a copy of the configuration (p. 234), save the copy with the name that you want, and then optionally delete the original configuration (p. 234).
6. When you finish making any changes to these settings, choose Next.
7. On the Add attributes page, make any changes that you want, and then choose Next.
8. On the Review and publish page, review the new settings and make sure that they’re what you want. If they are, choose Publish to save your changes.

**Copying a Model**

To quickly create a new configuration that’s similar to an existing configuration for an ML model, you can create a copy of the configuration. You can then change settings for the configuration copy, without changing the original configuration.

**To copy an ML model**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Machine learning models.
3. On the Machine learning models page, select the check box next to the configuration that you want to copy.
4. On the Actions menu, choose Duplicate.
5. For Recommender model name, enter a name for the configuration copy. The name has to begin with a letter or number. It can contain up to 128 characters. The characters can be letters, numbers, underscores (_), or hyphens (-).
6. When you finish entering the name, choose Duplicate model. The configuration page opens and displays the current settings for the configuration that you copied.
7. (Optional) To change the configuration copy, choose Edit model, and then make the changes that you want. When you finish, choose Publish.

**Deleting a Model**

If you want to remove the configuration for an ML model from Amazon Pinpoint completely, you can delete the configuration. When you delete a configuration, Amazon Pinpoint deletes all settings for the configuration and the configuration becomes unavailable for use in both new and existing message templates. You can’t recover a configuration after you delete it.

**Warning**

If you delete a configuration, Amazon Pinpoint won’t be able to send messages that use the configuration and haven’t been sent yet, such as campaign messages that are scheduled to be sent at a later time. Before you delete a configuration, review and update the contents and
settings for message templates that use the configuration. Also, review any campaigns and journey activities that use those templates, and update them as necessary.

If you delete a configuration, Amazon Pinpoint doesn't delete any resources or data that's used by the configuration and stored in other AWS services. This includes Amazon Personalize solutions and campaigns, and any AWS Lambda functions.

To delete an ML model

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. In the navigation pane, choose Machine learning models.
3. On the Machine learning models page, select the check box next to each configuration that you want to delete.
4. On the Actions menu, choose Delete.
5. In the window that appears, enter delete to confirm that you want to delete the selected configurations, and then choose Delete models.
Amazon Pinpoint Settings

Generally, you configure settings for each project, and these settings apply by default to all the campaigns and journeys in the project. If you want to tailor an individual campaign or journey to meet specific needs, you can change certain settings for the campaign or journey. Your changes then override the default settings for the project, and the campaign or journey uses the custom settings that you chose.

In addition to the settings that are specific to an individual project, campaign, or journey, there are also some account-level settings. These account-level settings apply to all the projects for your Amazon Pinpoint account and, in some cases, other AWS services. These settings include:

- Production access and sending quotas for channels.
- SMTP credentials and other settings for sending email by using the Amazon Pinpoint SMTP interface.
- Dedicated phone numbers for sending SMS and voice messages, and for receiving SMS messages.
- Verified identities for sending email and SMS messages.
- SMS information such as short codes, long codes, keywords, and registered sender IDs for sending SMS messages.

To view all the settings for your Amazon Pinpoint account, open an Amazon Pinpoint project, choose Settings in the navigation pane, and then choose the type of setting that you want to view.

Topics
- General Settings (p. 236)
- Email Settings (p. 239)
- SMS and Voice Settings (p. 243)
- Push Notification Settings (p. 247)
- Mobile and Web App Analytics Settings (p. 249)
- Event Stream Settings (p. 249)

General Settings

Use the General settings page to specify when Amazon Pinpoint can send messages for campaigns and journeys in the current project and how many messages Amazon Pinpoint can send for those campaigns and journeys. This includes settings such as the time frame for sending messages and the maximum number of messages to send to each endpoint. You can also use the General settings page to delete a project.

Topics
- Configuring Default Settings for a Project (p. 236)
- Deleting a Project (p. 238)

Configuring Default Settings for a Project

On the General settings page, you can configure default settings and quotas that you want to apply to campaigns and journeys in a project. When you change these settings, Amazon Pinpoint automatically
applies them to all new campaigns and journeys that you create for the project. The settings aren't applied to any campaigns or journeys that you previously created. You can also configure these same settings for individual campaigns and journeys. If you configure settings for an individual campaign or journey, those settings override the settings that you choose on the General settings page.

**To configure default settings for a project**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to change the default settings for.
3. In the navigation pane, under Settings, choose General settings.
4. Choose Edit.
5. On the Edit general settings page, change any of the following settings:

   **Quiet time hours**

   Use these settings to prevent Amazon Pinpoint from sending messages during specific hours. When you configure these settings, you provide a Start time and an End time. If a message would be sent between the start and end times in an endpoint's local time zone, Amazon Pinpoint doesn't attempt to send the message to that endpoint.

   **Note**

   In order for this setting to observe local time zones, the endpoint definition for a recipient has to include a properly-formatted Demographic.Timezone attribute.

   The times that you specify have to use 24-hour notation and be in HH:MM format. For example, for 9:30 PM, enter 21:30.

   **Maximum number of daily messages per endpoint**

   Use this setting to specify the maximum number of messages that can be sent to a single endpoint during a 24-hour period by all the campaigns and journeys in the project. The value that you specify can't be larger than 100.

   **Maximum number of messages per endpoint**

   Use this setting to specify the maximum number of messages that can be sent to a single endpoint by each campaign or journey. If a campaign recurs, this setting applies to all runs of the campaign. The value that you specify can't be larger than 100.

   **Note**

   This setting considers the number of messages that target an endpoint, as opposed to the number of messages that are actually delivered to an endpoint. For example, if a campaign is configured to automatically send a message when a customer creates a new account, but the endpoint isn't able to receive the message (for example, if the quiet time setting applies to the endpoint), then the endpoint is still counted as having been targeted. In this situation, the endpoint would be removed from subsequent runs of the campaign.

   **Maximum number of messages per second**

   Use this setting to specify the maximum number of messages that can be sent each second by a campaign or journey. The value that you specify has to be a number between 50 and 20,000.

   **Maximum amount of time for a campaign run**

   Use this setting to specify the maximum amount of time, in seconds, that a campaign can attempt to deliver a message after the scheduled start time. The minimum value for this setting is 60 seconds.

6. When you finish, choose Save.
Deleting a Project

If you want to remove a project from Amazon Pinpoint completely, you can delete the project by using the Amazon Pinpoint console.

**Warning**
If you delete a project, Amazon Pinpoint deletes all project-specific settings, campaigns, journeys, and other information for the project. The information can't be recovered.

When you delete a project, Amazon Pinpoint deletes all project-specific settings for the push notification and two-way SMS messaging channels, and all segments, campaigns, journeys, and project-specific analytics data that's stored in Amazon Pinpoint, such as the following:

- **Segments** – All segment settings and data. For dynamic segments, this includes segment groups and filters that you defined. For imported segments, this includes endpoints, user IDs, and other data that you imported, and any filters that you applied.
- **Campaigns** – All messages, message treatments and variables, analytics data, schedules, and other settings.
- **Journeys** – All activities, analytics data, schedules, and other settings.
- **Analytics** – Data for all engagement metrics, such as the number of messages sent and delivered for campaigns and journeys, and all journey execution metrics. For mobile and web apps, all event data that wasn't streamed to another AWS service such as Amazon Kinesis, all funnels, and data for application usage, revenue, and demographic metrics. Before you delete a project, we recommend that you export this data to another location. For more information, see the section called “Exporting Dashboards” (p. 176).

Note that account-level settings and data for your Amazon Pinpoint account and your AWS account aren't deleted. This includes:

- Message templates.
- Production access and sending quotas for channels.
- Dedicated phone numbers for sending SMS and voice messages, and for receiving SMS messages.
- Verified identities for sending email and SMS messages.
- SMS information such as short codes, long codes, keywords, and registered sender IDs for sending SMS messages.
- SMTP credentials and other settings for sending email by using the Amazon Pinpoint SMTP interface.
- Configuration settings for connecting to and using machine learning models.

In addition, data that's stored in other AWS services isn't deleted. This includes event data that you streamed to other AWS services such as Amazon Kinesis, files that you imported from an Amazon Simple Storage Service (Amazon S3) bucket to define a segment, and any Amazon Pinpoint metrics and spending alarms that you configured in Amazon CloudWatch.

**To delete a project**

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the **All projects** page, choose the project that you want to delete.
3. In the navigation pane, under **Settings**, choose **General settings**.
4. Choose **Delete project**.
5. Enter the name of the project that you want to delete, and then choose **Ok**.
Email Settings

Use the Email settings page to view information about email usage for your Amazon Pinpoint account, such as the number of emails that you’ve sent during the past 24 hours and whether there are sending restrictions on your account.

You can also use the Email settings page to enable or disable the email channel for the current project. If you disable the email channel for the project, you can’t send email from campaigns or journeys in the project. However, you can send transactional email from your Amazon Pinpoint account.

In addition, you can use the Email settings page to verify email identities for the current project. In Amazon Pinpoint, an identity is an email address or domain that you use to send email. Every email address that you want to use as a "From," "Source," "Sender," or "Return-Path" address in email has to be verified before you can send email with it by using Amazon Pinpoint.

Topics
- Viewing Details About Email Usage (p. 239)
- Enabling and Disabling the Email Channel (p. 239)
- Verifying Identities (p. 240)

Viewing Details About Email Usage

The Email usage and restrictions section of the Email settings page provides information about email usage for your Amazon Pinpoint account. You can see how many emails have been sent from your account during the past 24 hours. You can compare that number to the maximum number of emails that your account is allowed to send during a 24-hour period, referred to as your sending quota. You can also see the maximum number of emails that you can send per second, referred to as your sending rate. For additional detailed reports, see the analytics pages for Campaigns (p. 186) and Transactional Messaging (p. 192).

Note
The email sending quota, rate, and usage values that are shown in this section apply to your entire AWS account in the current AWS Region. If you’ve used Amazon SES to send email in the same Region, then this section shows how many email messages you’ve sent from both Amazon SES and Amazon Pinpoint.

The Email usage and restrictions section also indicates whether your account is in the sandbox. If your account is in the sandbox, your sending quota and sending rate are set to relatively low values, and you can send email only to verified email addresses or domains. For information about requesting an increase to your sending quota or sending rate, see Managing Email Sending Quotas (p. 34). For information about removing your account from the sandbox, see the section called “Requesting Production Access” (p. 32).

Enabling and Disabling the Email Channel

To send email for campaigns and journeys in the current project, you first have to enable the email channel for the project. If you don’t plan to send email for any campaigns or journeys in a project, you can disable the email channel for the project.

Note that you don’t need to enable the email channel to send transactional email, which is email that is typically sent only once in response to a specific action. For information about sending transactional email, see the section called “Sending Email” (p. 37).

To enable the email channel for a project

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to enable the email channel for.
3. In the navigation pane, under Settings, choose Email.
4. On the Identities tab, choose Edit.
5. Select Enable the email channel for this project.
6. If you haven't verified an email identity yet, complete the appropriate procedure in the section called “Verifying Identities” (p. 240) section. Otherwise, choose the identity that you want to use.
7. Choose Save.

The process for disabling the email channel is similar. If you disable the email channel, you can't send email for any campaigns or journeys in the project. However, you can send transactional email from your Amazon Pinpoint account.

To disable the email channel
1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, choose the project that you want to disable the email channel for.
3. In the navigation pane, under Settings, choose Email.
4. On the Identities tab, choose Edit.
5. Clear Enable the email channel for this project, and then choose Save.

Verifying Identities

An identity is an email address or domain that you use to send email. Every identity that you use as a “From,” “Source,” “Sender,” or “Return-Path” address in email has to be verified before you can send email with it by using Amazon Pinpoint. You can verify as many as 10,000 email addresses or domains, in any combination, in each AWS Region. If your account is still in the Amazon Pinpoint sandbox, you also need to verify the identities that you plan to send email to.

Verifying an Email Address

If you aren't able to change DNS settings for your domain or you want to send email from an address on a commercial domain, such as gmail.com or hotmail.com, you can verify individual email addresses that you want to use when you send email from a project.

To verify an email address
1. Complete the procedure in the previous section (p. 239) to enable the email channel.
2. Under Identity type, choose Email address, and then choose Verify a new email address.
3. For Default sender address, enter the email address that you want to verify. The email address must be an address that you can access and is able to receive mail.
4. Choose Verify email address.
5. Choose Save.
6. Check the inbox of the address that you entered and look for an email from no-reply-aws@amazon.com. Open the email and click the link in the email to complete the verification process for the email address.

Note
You should receive the verification email within five minutes. If you don't receive the email, do the following:

- Make sure you typed the address correctly.
• Make sure the email address that you're attempting to verify can receive email. You can test this by using another email address to send a test email to the address that you want to verify.
• Check your junk mail folder.

The link in the verification email expires after 24 hours. To resend the verification email, choose Send verification email again on the Identities tab of the Email settings page.

When you verify an email address, consider the following:

• Amazon Pinpoint has endpoints in multiple AWS Regions and the verification status of an email address is separate for each Region. If you want to send email from the same identity in more than one Region, you must verify that identity in each Region. You can verify as many as 10,000 identities (email addresses and domains, in any combination) in each AWS Region.
• The local part of the email address, which is the part that precedes the at sign (@), is case sensitive. For example, if you verify user@example.com, you can't send email from USER@example.com unless you verify that address too.
• Domain names are case insensitive. For example, if you verify user@example.com, you can also send email from user@EXAMPLE.com.
• You can apply labels to verified email addresses by adding a plus sign (+) followed by a string of text after the local part of the address and before the at sign (@). For example, to apply label1 to the address user@example.com, use user+label1@example.com. You can use as many labels as you want for each verified address. You can also use labels in the "From" and "Return-Path" fields to implement Variable Envelope Return Path (VERP).

   Note
   When you verify an unlabeled address, you are verifying all addresses that could be formed by adding a label to the address. However, if you verify a labeled address, you can't use other labels with that address.

Verifying a Domain

If you plan to send email from a domain that you own, you should verify that domain, rather than individual email addresses from that domain. After you verify a domain, you can send email from any address in that domain. For example, if you verify the example.com domain, you can send email from carlos@example.com, jane@example.com, and any other address in the example.com domain. You can also send email from any address in any subdomain of the domain. For example, if you verify the domain example.com, you can send email from jane@example.com and john@subdomain.example.com.

   Important
   To verify a domain, you have to be able to modify the DNS settings for the domain. The procedures for modifying the DNS settings for a domain vary depending on the DNS or web hosting provider. For information about changing the DNS settings for your domain, see the documentation for your provider.

To verify a domain

1. Complete the procedure in the previous section (p. 239) to enable the email channel.
2. Under Identity type, choose Domain, and then choose Verify a new domain.
3. For Domain, enter the name of the domain that you want to verify.
4. For Default sender address, enter the email address that you want to use by default when you send email from this domain. When you send email, you can specify a different address. However, if you don't specify a different address for specific email, Amazon Pinpoint sends the email from this default address.
5. Choose **Verify domain**.

6. Under **DNS records for domain verification**, copy the three CNAME records and save them to a location on your computer. Or, to download and save the records in a .csv file, choose **Download record set**.

7. Log in to the management console for your DNS provider, and then create three new CNAME records that contain the values that you saved in the previous step. See the next section for links to the documentation for several major providers.

It usually takes 24–48 hours for changes to DNS settings to propagate. As soon as Amazon Pinpoint detects all three of these CNAME records in the DNS configuration of your domain, the verification process is complete. You can't send email from a domain until the verification process is complete.

When you verify a domain, consider the following:

- You can send email from any subdomain of the verified domain without verifying the subdomain specifically. For example, if you verify `example.com`, you don't need to verify `a.example.com` or `a.b.example.com`.
- As specified in RFC 1034, each DNS label can have up to 63 characters. In addition, the whole domain name must not exceed a total length of 255 characters.
- Amazon Pinpoint has endpoints in multiple AWS Regions and the verification status of a domain is separate for each Region. If you want to send email from the same identity in more than one Region, you must verify that identity in each Region. You can verify as many as 10,000 identities (domains and email addresses, in any combination) in each AWS Region.

**Instructions for Configuring DNS Records for Various Providers**

The procedures for updating the DNS records for a domain vary depending on which DNS or web hosting provider you use. The following table lists links to the documentation for several common providers. This list isn't exhaustive and inclusion in this list isn't an endorsement or recommendation of any company's products or services. If your provider isn't listed in the table, you can probably use the domain with Amazon Pinpoint.

<table>
<thead>
<tr>
<th>DNS/Hosting Provider</th>
<th>Documentation Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon Route 53</td>
<td>Creating Records by Using the Amazon Route 53 Console</td>
</tr>
<tr>
<td>GoDaddy</td>
<td>Add a CNAME record</td>
</tr>
<tr>
<td>Dreamhost</td>
<td>How do I add custom DNS records?</td>
</tr>
<tr>
<td>Cloudflare</td>
<td>Managing DNS records in Cloudflare</td>
</tr>
<tr>
<td>HostGator</td>
<td>Manage DNS Records with HostGator/eNom</td>
</tr>
<tr>
<td>Namecheap</td>
<td>How do I add TXT/SPF/DKIM/DMARC records for my domain?</td>
</tr>
<tr>
<td>Names.co.uk</td>
<td>Changing your domains DNS Settings</td>
</tr>
<tr>
<td>Wix</td>
<td>Adding or Updating CNAME Records in Your Wix Account</td>
</tr>
</tbody>
</table>

242
Domain Verification Tips and Troubleshooting

If you completed the preceding steps but your domain still isn't verified after 72 hours, check the following:

• Make sure that you entered the values for the DNS records in the correct fields. Some providers refer to the Name/host field as Host or Hostname. In addition, some providers refer to the Record value field as Points to or Result.

• Make sure that your provider didn't automatically append your domain name to the Name/host value that you entered in the DNS record. Some providers append the domain name without indicating that they've done so. If your provider appended your domain name to the Name/host value, remove the domain name from the end of the value. You can also try adding a period to the end of the value in the DNS record. This period indicates to the provider that the domain name is fully qualified.

• The underscore character (_) is required in the Name/host value of each DNS record. If your provider doesn't allow underscores in DNS record names, contact the provider's customer support department for additional assistance.

• The validation records that you have to add to the DNS configuration for your domain are different for each AWS Region. If you want to use a domain to send email from multiple AWS Regions, you have to verify the domain in each of those Regions.

SMS and Voice Settings

Use the SMS and voice settings page to enable or disable the SMS and voice channels for the current project. You can also use this page to manage the default SMS settings that apply to all SMS messages that you send from your AWS account, including messages that you send by using other AWS services.

In addition, you can use this page to view a list of the phone numbers that you can use to send voice messages. This page also provides options for requesting additional phone numbers and relinquishing phone numbers for the voice channel. To learn more about using the voice channel to send voice messages, see the section called “Voice” (p. 100).

Topics

• Changing SMS Settings (p. 243)
• Managing Number Settings (p. 244)

Changing SMS Settings

The Amazon Pinpoint console provides several options to help you update and manage SMS channel settings to match your use case and budget. For example, you can enable or disable the SMS channel for a specific project, set a monthly SMS spending quota for your AWS account, or change the default message type for your AWS account.

To change SMS settings

1. Open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the All projects page, do one of the following:
   • To change SMS settings for a specific project, choose the project.
   • To change SMS settings for your AWS account, choose any project.
3. In the navigation pane, under Settings, choose SMS and voice.
4. On the SMS and voice settings page, next to General, choose Edit.
5. On the **Edit SMS** page, change any of the following settings:

   - **Enable the SMS channel for this project** – Select this option to enable the SMS channel for the current project. To disable the SMS channel for the project, clear this option.
   - **Account-level settings** – Change these settings to modify the SMS settings for your AWS account. These settings apply to your entire Amazon Pinpoint account and to all AWS services that you can use to send SMS messages, such as Amazon Simple Notification Service. You can change the following settings:
     - **Default message type** – Choose the type of SMS messages that you plan to send. If you plan to send time-sensitive content, such as alerts and one-time passwords, choose **Transactional**. If you plan to send marketing-related content, choose **Promotional**.
     - **Account spending limit** – Specify the maximum amount of money, in US Dollars, that you want to spend sending SMS messages during each calendar month.
     - **Default sender ID** – Optionally, specify the sender ID that you plan to use to send SMS messages. A sender ID is an alphanumeric identifier that appears on recipients’ devices when they receive messages from you. Support for sender IDs varies by country or region. For more information, see Supported Countries and Regions (SMS Channel) (p. 89).

6. When you finish making changes, choose **Save changes**.

### Managing Number Settings

You can use the options in the **Number settings** section of the **SMS and voice** settings page to manage settings for the dedicated short codes and long codes that you requested from AWS Support and assigned to your account. A short code is a five-digit or six-digit number that's meant for high-volume SMS messaging. To learn how to request a dedicated short code, see the section called **Requesting Short Codes** (p. 73). A long code is a standard 10-digit phone number that's meant for low-volume, person-to-person communication. To learn how to request a dedicated long code, see the section called **Requesting Long Codes** (p. 77).

After you receive one or more dedicated short codes or long codes from AWS Support, those numbers appear in the **Number settings** section, where you can manage SMS keyword settings and two-way SMS messaging settings for the numbers.

### Keyword Settings

A **keyword** is a specific word or phrase that a customer can send to your number to elicit a response, such as an informational message or a special offer. When your number receives a message that begins with a keyword, Amazon Pinpoint responds with a customizable message.

For short codes, the console shows the keywords and responses that you initially define when you request a short code from AWS Support. AWS Support registers your keywords and responses with wireless carriers when it provisions your short code.

For long codes, the console shows the default keywords and responses.

**Important**

Your keywords and response messages must comply with the guidelines that are set by wireless carriers and wireless industry groups. Otherwise, following an audit, such groups might take action against your short code or long code. This action can include blacklisting your number and blocking your messages.

### Default Keywords

Wireless carriers in the US require short codes to support the following keywords. In addition, AWS expects all long codes and short codes to support these keywords:
HELP

Used to obtain customer support. The response message must include customer-support contact information, as in the following example:

"For assistance with your account, call 1 (NNN) 555-0199."

STOP

Used to opt out of receiving messages from your number. In addition to STOP, your audience can use any supported opt-out keyword, such as CANCEL or OPTOUT. For a list of supported opt-out keywords, see SMS Opt Out (p. 84). After your number receives an SMS message that contains an opt-out keyword, Amazon Pinpoint stops sending SMS messages from your account to the individual who opted out.

The response message must confirm that messages will stop being sent to the individual who opted out, as in the following example:

"You are now opted out and will no longer receive messages."

Registered Keyword

A registered keyword is a keyword that's specific to your SMS use case. When you use short codes, you're required to register this keyword with wireless carriers. Customers can send this keyword to your short code to get more information about the products and services that you offer.

Changing Keyword Settings

Use the Amazon Pinpoint console to customize the keyword responses for your number.

1. On the SMS and voice settings page, under Number settings, choose the short code or long code that you want to manage keyword responses for.

   Under Keywords, the console provides options for:

   • The default HELP and STOP keywords. You can edit the response messages, but you can’t edit the keywords.

   • Your registered keyword. If you want to change your registered keyword, you need to first open a case with AWS Support and request to update the keyword with wireless carriers. Then, you need to edit the keyword in the Amazon Pinpoint console to match. You can also edit the response message, but the intent of the message must remain consistent with the message that you provide to AWS Support.

2. In the table that contains the keyword that you want to edit, choose Edit, and then edit the keyword and response message.

3. When you finish making changes, choose Save.

Two-Way SMS Settings

You can define keywords for SMS messages that you want to receive and process by using a service other than Amazon Pinpoint. When your number receives an SMS message that begins with one of these keywords, Amazon Pinpoint sends the message and related data to an Amazon Simple Notification Service (Amazon SNS) topic in your account. You can then use Amazon SNS to publish the message to topic subscribers or to AWS services for further processing.

To set up two-way SMS

1. On the All projects page, choose the project that you want to manage two-way SMS settings for.

2. In the navigation pane, under Settings, choose SMS and voice.
3. Under **Number settings**, choose the phone number that you want to configure two-way SMS for.

   **Note**
   You can enable two-way SMS for a phone number only if the value in the **SMS** column is **Enabled**.

4. Under **Two-way SMS**, choose **Enable 2-way SMS**.

5. Under **Incoming messages destination**, specify the Amazon SNS topic that receives your SMS messages by choosing one of the following options:

   - **Create a new Amazon SNS topic** – Amazon Pinpoint creates a topic in your account.
   - **Choose an existing Amazon SNS topic** – Specify the ARN of a topic in your account.

   **Note**
   Amazon Pinpoint currently doesn’t support the use of encrypted Amazon SNS topics for two-way SMS messaging. You have to choose a topic that isn’t encrypted.

6. Under **Two-way SMS keywords**, you can add or edit keywords and response messages. When your number receives an SMS message that contains one of these keywords, Amazon Pinpoint does the following:

   - Sends the message to your Amazon SNS topic.
   - Responds with the keyword response message, if you specified one.

   To add a keyword, choose **Add another keyword**.

7. When you finish making changes, choose **Save**.

**Self-Managed Opt-Outs**

By default, when a customer sends a message that begins with **HELP** or **STOP** to one of your dedicated numbers, Amazon Pinpoint automatically replies with a customizable message. In the case of incoming **STOP** messages, Amazon Pinpoint also opts the customer out of receiving future SMS messages. If you prefer to manage **HELP** and **STOP** responses by using a service other than Amazon Pinpoint, you can enable self-managed opt-outs.

**Note**
To enable self-managed opt-outs for a number, you must first enable two-way SMS messaging for that number.

When you enable this feature, there are three changes to the way that Amazon Pinpoint handles incoming messages that your customers send to the specified long or short code. First, it stops sending automatic responses to incoming **HELP** and **STOP** messages. (However, you can use **keyword settings** (p. 245) to manually configure responses to these messages.) Second, Amazon Pinpoint stops automatically opting your customers out of receiving future SMS messages when they send a **STOP** message. And finally, it routes incoming **HELP** and **STOP** messages to the Amazon SNS topic that you use to receive two-way SMS messages, rather than responding to the sender automatically.

If you enable this feature, you’re responsible for responding to **HELP** and **STOP** requests. You’re also responsible for tracking and honoring opt-out requests.

**Important**
Many countries, regions, and jurisdictions impose severe penalties for sending unwanted SMS messages. If you enable this feature, make sure you have systems and processes in place for capturing and managing opt-out requests.

**To enable self-managed opt-outs**

1. Under **Number settings**, choose the short code or long code that you want to enable self-managed opt-outs for.
2. On the **Number settings** page, choose **Two-way SMS**.
3. Enable and set up two-way SMS messaging, if you haven't already done so. For information about setting up two-way SMS messaging, see the section called "Two-Way SMS Messaging" (p. 87).

## Push Notification Settings

Use the **Push notifications** settings page to specify the credentials that Amazon Pinpoint should use to send push notifications for the current project to iOS, Android, or Amazon devices. You can provide credentials for the following push notification services, each of which is supported by an Amazon Pinpoint channel:

- Amazon Device Messaging (ADM)
- Apple Push Notification service (APNs)
- Baidu Cloud Push
- Firebase Cloud Messaging (FCM)

**Topics**

- Updating Push Notification Settings (p. 247)
- Managing APNs Settings (p. 248)

## Updating Push Notification Settings

By using the console, you can update the credentials that Amazon Pinpoint uses to send push notifications for the current project to iOS, Android, and Amazon devices.

**To update push notification settings**

1. Open the Amazon Pinpoint console at [https://console.aws.amazon.com/pinpoint/](https://console.aws.amazon.com/pinpoint/).
2. On the **All projects** page, choose the project that you want to update push notification settings for.
3. In the navigation pane, under **Settings**, choose **Push notifications**.
4. Next to **Push notifications**, choose **Edit**.
5. To update settings for the Baidu Cloud Push or ADM service, choose **Show more push notification services**.
6. Enter the correct credentials for the push notification services that you want to use:
   - **APNs** – Requires an authentication token signing key or a TLS certificate, which you get from your Apple developer account. For more information, see the next section, Managing APNs Settings.
   - **FCM** – Requires a Web API Key, also referred to as an API_KEY or server key, which you get from the Firebase console. For information about obtaining FCM credentials, see Credentials in the Firebase documentation.
   - **Baidu** – Requires an API key and a secret key, which you get from your Baidu Cloud Push project.
   - **ADM** – Requires the OAuth credentials (client identifier and client secret) from your Amazon Developer account. For more information, see Obtaining Amazon Device Messaging Credentials in the Amazon Developer documentation.
7. When you finish, choose **Save**.
Managing APNs Settings

For the Apple Push Notification service (APNs), you can authorize Amazon Pinpoint to send push notifications to your iOS app by providing information about your APNs key or certificate:

**Key**

A private signing key that Amazon Pinpoint uses to cryptographically sign APNs authentication tokens. You obtain the signing key from your Apple developer account.

If you provide a signing key, Amazon Pinpoint uses a token to authenticate with APNs for every push notification that you send. With your signing key, you can send push notifications to APNs production and sandbox environments.

Unlike certificates, your signing key doesn't expire. You provide your key only once, and you don't need to renew it later. In addition, you can use the same signing key for multiple apps. For more information, see Communicate with APNs using authentication tokens in Apple Developer Account Help.

**Certificate**

A TLS certificate that Amazon Pinpoint uses to authenticate with APNs when you send push notifications. An APNs certificate can support both the production and sandbox environments, or it can support only the sandbox environment. You obtain the certificate from your Apple developer account.

A certificate expires after one year. When this happens, you must create a new certificate, which you then provide to Amazon Pinpoint to renew push notification deliveries. For more information, see Communicate with APNs using a TLS certificate in Apple Developer Account Help.

To manage APNs settings

1. On the Edit push notifications page, select Apple Push Notification service (APNs).
2. Under Authentication type, choose Key credentials or Certificate credentials, depending on the type of authentication that you want to use.
   - If you choose Key credentials, provide the following information from your Apple developer account at https://developer.apple.com/account/. Amazon Pinpoint requires this information to construct authentication tokens.
     - **Key ID** – The ID assigned to your signing key. To find this value, choose Certificates, IDs & Profiles, and choose your key in the Keys section.
     - **Bundle identifier** – The ID assigned to your iOS app. To find this value, choose Certificates, IDs & Profiles, choose App IDs in the Identifiers section, and choose your app.
     - **Team identifier** – The ID assigned to your Apple developer account team. This value is provided on the Membership page.
     - **Authentication key** – The .p8 file that you download from your Apple developer account when you create an authentication key. Apple allows you to download your authentication key only once.
   - If you choose Certificate credentials, provide the following information:
     - **SSL certificate** – The .p12 file for your TLS certificate. You can export this file from Keychain Access after you download and install your certificate from your Apple developer account.
     - **Certificate password** – If you assigned a password to your certificate, enter it here.
3. For Production support, choose Enabled if your certificate supports sending push notifications to the APNs production environment. If your certificate supports the sandbox environment only, choose Disabled.
4. For **Default authentication type**, choose how you want Amazon Pinpoint to authenticate with APNs by default: **Key**, to use your signing key, or **Certificate**, to use your TLS certificate. Amazon Pinpoint uses this default setting for every APNs push notification that you send by using the console. You can override the default setting when you send a message programmatically by using the Amazon Pinpoint API, the AWS CLI, or an AWS SDK. If your default authentication type fails, Amazon Pinpoint doesn't attempt to use the other authentication type.

5. When you finish, choose **Save**.

**Mobile and Web App Analytics Settings**

Use the **Mobile app analytics** and **Web app analytics** pages as guides to help you integrate and configure your mobile and web apps to send usage data to Amazon Pinpoint. This data includes metrics that can help you determine how your customers use your apps. For example, you can determine how many customers logged in to your app during the past 30 days, how many customers used a specific feature of your app, and the percentage of customers who accessed your app by using a specific type of device. You can use this data to improve the usability of your apps and to increase customer engagement, satisfaction, and retention.

**Event Stream Settings**

Use the **Event stream** settings page to enable or disable streaming of usage and engagement data, known as **event data**, for the current project to supported AWS services. If you enable streaming, you can also choose the type of stream and the AWS Identity and Access Management role that you want to use.

**To set up event streaming**

1. Sign in to the AWS Management Console and open the Amazon Pinpoint console at https://console.aws.amazon.com/pinpoint/.
2. On the **All projects** page, choose the project that you want to set up data streaming for.
3. In the navigation pane, under **Settings**, choose **Event stream**.
4. In the **Services** section, choose **Edit**.
5. Choose **Stream to Amazon Kinesis**.
6. Under **Choose a stream type**, choose one of the following options:
   - **Send events to an Amazon Kinesis Data Stream** – Choose this option if you want to send Amazon Pinpoint event data to an external application for analysis.
   - **Send events to an Amazon Kinesis Data Firehose stream** – Choose this option if you want to send event data to an AWS data store, such as Amazon Redshift.
7. For **Amazon Kinesis stream**, choose the Amazon Kinesis stream that you want to use to export the data.
   - **Note**
     If you haven't already created an Amazon Kinesis stream, go to the Amazon Kinesis console at https://console.aws.amazon.com/kinesis. For more information about creating streams, see the Amazon Kinesis Data Streams Developer Guide or the Amazon Kinesis Data Firehose Developer Guide.
8. Under **IAM role**, choose one of the following options:
   - **Use an existing role** – Choose this option to have Amazon Pinpoint assume an IAM role that already exists in your account. The role that you select must allow the `firehose:PutRecordBatch` action. For an example of a policy that allows this action, see Permissions Policies in the Amazon Pinpoint Developer Guide.
• **Automatically create a role** – Choose this option to automatically create an IAM role with the required permissions. This role authorizes Amazon Pinpoint to send data to the stream that you chose in step 7.

9. Choose **Save**.

As Amazon Pinpoint receives events for your project, it sends this data to your Kinesis stream. For information about the data that Amazon Pinpoint sends for an event, see *Streaming Amazon Pinpoint Events to Kinesis* in the *Amazon Pinpoint Developer Guide*. 

250
Monitoring Amazon Pinpoint with Amazon CloudWatch

You can use Amazon CloudWatch to collect, view, and analyze several important metrics related to your Amazon Pinpoint account and projects. When you configure CloudWatch for Amazon Pinpoint, you gain insight into the delivery of your Amazon Pinpoint campaigns, as well as the status of your endpoint registrations and import jobs. You can also use CloudWatch to create alarms that notify you when certain metrics exceed values that you define. For example, you can create an alarm that automatically sends you an email if a certain number of campaign messages fail within a specific time period.

Topics in this chapter:
- Amazon Pinpoint Metrics That Are Exported to CloudWatch (p. 251)
- View Amazon Pinpoint Metrics in CloudWatch (p. 254)
- Create CloudWatch Alarms for Amazon Pinpoint Metrics (p. 254)

Amazon Pinpoint Metrics That Are Exported to CloudWatch

The following topics describe the metrics that Amazon Pinpoint exports to CloudWatch.

Topics in this section:
- Metrics Related to Message Delivery (p. 251)
- Metrics Related to Endpoints (p. 253)
- Metrics Related to Import Jobs (p. 253)
- Metrics Related to Events (p. 253)

Metrics Related to Message Delivery

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DirectSendMessagePermanentFailure</td>
<td>The number of direct messages that weren't sent because of a permanent issue.</td>
</tr>
<tr>
<td></td>
<td>This type of issue usually occurs when an endpoint token is expired or invalid.</td>
</tr>
<tr>
<td></td>
<td>Units: Count</td>
</tr>
<tr>
<td></td>
<td>Dimensions: ApplicationId, ChannelType</td>
</tr>
<tr>
<td>DirectSendMessageTemporaryFailure</td>
<td>The number of direct messages that failed to send because of a temporary issue.</td>
</tr>
<tr>
<td></td>
<td>This type of issue usually indicates that an internal issue with the Amazon Pinpoint service prevented the message from being sent. When this type of</td>
</tr>
<tr>
<td>Metric</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Issue</td>
<td>issue occurs, Amazon Pinpoint doesn't attempt to redeliver the message.</td>
</tr>
<tr>
<td>Units: Count</td>
<td></td>
</tr>
<tr>
<td>Dimensions: ApplicationId, ChannelType</td>
<td></td>
</tr>
<tr>
<td>CampaignSendMessagePermanentFailure</td>
<td>The number of campaign messages that weren't sent because of a permanent issue. This type of issue usually occurs when an endpoint token is expired or invalid.</td>
</tr>
<tr>
<td>Units: Count</td>
<td></td>
</tr>
<tr>
<td>Dimensions: ApplicationId, ChannelType</td>
<td></td>
</tr>
<tr>
<td>CampaignSendMessageTemporaryFailure</td>
<td>The number of campaign messages that weren't sent because of a temporary issue. This type of issue usually indicates that an internal issue with the Amazon Pinpoint service prevented the message from being sent. When this type of issue occurs, Amazon Pinpoint doesn't attempt to redeliver the message.</td>
</tr>
<tr>
<td>Units: Count</td>
<td></td>
</tr>
<tr>
<td>Dimensions: ApplicationId, ChannelType</td>
<td></td>
</tr>
<tr>
<td>DirectSendMessageThrottled</td>
<td>The number of direct messages that weren't sent because your account's ability to send messages was throttled.</td>
</tr>
<tr>
<td>Units: Count</td>
<td></td>
</tr>
<tr>
<td>Dimensions: ApplicationId, ChannelType</td>
<td></td>
</tr>
<tr>
<td>CampaignSendMessageThrottled</td>
<td>The number of campaign messages that weren't sent because your account's ability to send messages was throttled.</td>
</tr>
<tr>
<td>Units: Count</td>
<td></td>
</tr>
<tr>
<td>Dimensions: ApplicationId, ChannelType</td>
<td></td>
</tr>
<tr>
<td>CampaignSendMessageLatency</td>
<td>The amount of time, in seconds, that passed between the time when the campaign started running and the time when it finished running.</td>
</tr>
<tr>
<td>Units: Count</td>
<td></td>
</tr>
<tr>
<td>Dimensions: ApplicationId, ChannelType</td>
<td></td>
</tr>
</tbody>
</table>
## Metrics Related to Endpoints

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EndpointRegistrationFailure</td>
<td>The number of endpoint registrations submitted through an AWS SDK or the Amazon Pinpoint API that couldn't be imported.</td>
</tr>
<tr>
<td></td>
<td>This type of issue usually occurs when an incoming endpoint record is invalid.</td>
</tr>
<tr>
<td></td>
<td>Units: Count</td>
</tr>
<tr>
<td></td>
<td>Dimensions: ApplicationId</td>
</tr>
</tbody>
</table>

## Metrics Related to Import Jobs

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ImportedEndpointFailure</td>
<td>The number of endpoints in an import job that couldn't be imported because they were invalid.</td>
</tr>
<tr>
<td></td>
<td>Units: Count</td>
</tr>
<tr>
<td></td>
<td>Dimensions: ApplicationId</td>
</tr>
<tr>
<td>ImportJobFailure</td>
<td>The number of import jobs that couldn't be completed for any reason.</td>
</tr>
<tr>
<td></td>
<td>Units: Count</td>
</tr>
<tr>
<td></td>
<td>Dimensions: ApplicationId</td>
</tr>
<tr>
<td>ImportJobDuration</td>
<td>The amount of time, in seconds, that elapsed between the beginning and the end of each import job.</td>
</tr>
<tr>
<td></td>
<td>Units: Count</td>
</tr>
<tr>
<td></td>
<td>Dimensions: ApplicationId</td>
</tr>
</tbody>
</table>

## Metrics Related to Events

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TotalEvents</td>
<td>The total number of events that Amazon Pinpoint recorded. This metric includes events that were recorded by AWS SDKs or by the Amazon Pinpoint API.</td>
</tr>
<tr>
<td></td>
<td>Units: Count</td>
</tr>
<tr>
<td></td>
<td>Dimensions: ApplicationId</td>
</tr>
</tbody>
</table>
### Amazon Pinpoint User Guide

**View Amazon Pinpoint Metrics**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ExportedEvents</td>
<td>The total number of events that were successfully written to the event stream for exporting.</td>
</tr>
<tr>
<td></td>
<td>Units: Count</td>
</tr>
<tr>
<td></td>
<td>Dimensions: ApplicationId</td>
</tr>
<tr>
<td>ExportEventErrors</td>
<td>The total number of errors that occurred after writing to the event stream.</td>
</tr>
<tr>
<td></td>
<td>These errors can include issues that aren't related to Amazon Pinpoint.</td>
</tr>
<tr>
<td></td>
<td>For example, this error could occur when the volume of events that you stream to Kinesis Data Firehose exceeds your provisioned throughput.</td>
</tr>
<tr>
<td></td>
<td>Units: Count</td>
</tr>
<tr>
<td></td>
<td>Dimensions: ApplicationId, ErrorCode</td>
</tr>
</tbody>
</table>

#### View Amazon Pinpoint Metrics in CloudWatch

You can monitor metrics for Amazon Pinpoint by using the Amazon CloudWatch console or the Amazon CloudWatch API. The following procedure explains how to view the metrics by using the CloudWatch console.

**To view metrics by using the CloudWatch console**

2. In the navigation pane, choose **Metrics**.
3. On the All metrics tab, choose **Pinpoint**.
4. Select the type of metric that you want to view.
5. Select a metric to add it to the chart.

You can also use CloudWatch to create alarms that send you notifications about changes in these metrics. For more information, see Create CloudWatch Alarms for Amazon Pinpoint Metrics (p. 254).

#### Create CloudWatch Alarms for Amazon Pinpoint Metrics

In Amazon CloudWatch, you can create an alarm that sends a notification when the value of a certain metric is within or outside a threshold that you define. For example, you can create an alarm that notifies you if more than a certain number of campaign messages weren’t sent due to a temporary issue. In this example, the alarm sends a notification if the value of the **CampaignSendMessageTemporaryFailure** metric is greater than the value that you specify.

This topic explains how to create an alarm for an Amazon Pinpoint metric by using the CloudWatch console. For more information about creating alarms, including detailed information about alarm configuration settings, see Using Amazon CloudWatch Alarms in the Amazon CloudWatch User Guide.
To create an alarm for an Amazon Pinpoint metric

2. In the navigation pane, choose Alarms.
3. Choose Create alarm.
4. Choose Select metric.
5. On the All metrics tab, choose Pinpoint, and then choose the type of metric that you want to create an alarm for. The types of available metrics depends on the Amazon Pinpoint features that you use.
6. Select the metric that you want to create an alarm for, and then choose Select metric. The Specify metric and conditions page appears, showing a graph and other information about the metric.
7. Under Conditions, complete the following steps:
   - For Threshold type, choose Static.
   - For Whenever metric is, specify whether you want the value of the metric to be greater than, greater than or equal to, less than, or less than or equal to the threshold to trigger the alarm. Then, under than, enter the threshold value that you want to trigger the alarm.
8. Under Additional configuration, complete the following steps:
   - For Datapoints to alarm, enter the number of evaluation periods (datapoints) during which the metric value must meet the threshold conditions to trigger the alarm.
   - For Missing data treatment, choose what you want the alarm to do if some data is missing.
9. Choose Next.
10. Under Notification, complete the following steps:
    - For Whenever this alarm state is, choose in Alarm.
    - For Select an SNS topic, choose or create an Amazon Simple Notification Service (Amazon SNS) topic that you want the alarm notification to be sent to.
11. Choose Next.
12. Enter a name and, optionally, a description for the alarm, and then choose Next.
13. Under Preview and create, review and confirm that the alarm settings are what you want, and then choose Create alarm.
## Document History for Amazon Pinpoint

The following table describes important changes in each release of the *Amazon Pinpoint User Guide* after December 2018. For notification about updates to this documentation, you can subscribe to an RSS feed.

- **Latest documentation update:** April 30, 2020

<table>
<thead>
<tr>
<th>update-history-change</th>
<th>update-history-description</th>
<th>update-history-date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional availability (p. 256)</td>
<td>Amazon Pinpoint is now available in the AWS GovCloud (US) Region.</td>
<td>April 30, 2020</td>
</tr>
<tr>
<td>Custom channels (p. 256)</td>
<td>Your campaigns can now send messages using custom channels.</td>
<td>April 23, 2020</td>
</tr>
<tr>
<td>Machine learning (p. 256)</td>
<td>You can now use machine learning models with message templates to add dynamic, personalized recommendations to messages that you send from campaigns and journeys.</td>
<td>March 4, 2020</td>
</tr>
<tr>
<td>Templates (p. 256)</td>
<td>You can now create, view, and manage versions of message templates.</td>
<td>December 20, 2019</td>
</tr>
<tr>
<td>Templates (p. 256)</td>
<td>You can now create, view, and manage message templates for voice messages. You can also specify default values for message variables that you use in any type of message template.</td>
<td>November 18, 2019</td>
</tr>
<tr>
<td>Journeys (p. 256)</td>
<td>Your Amazon Pinpoint projects can now include journeys—multi-step campaign messaging workflows.</td>
<td>October 31, 2019</td>
</tr>
<tr>
<td>Templates (p. 256)</td>
<td>You can now create, view, and manage all the message templates for your Amazon Pinpoint account from a single location. You can use these templates in messages that you send for any of your Amazon Pinpoint projects.</td>
<td>October 7, 2019</td>
</tr>
<tr>
<td>Analytics (p. 256)</td>
<td>For campaigns that send email, push notifications, or SMS messages, we replaced the</td>
<td>July 25, 2019</td>
</tr>
</tbody>
</table>
endpoints messaged metric with metrics and charts that show the number of unique endpoints that a campaign was sent to in a 24-hour period. For campaigns that send push notifications, we replaced the event count metrics for sessions per unique endpoint and purchases per unique endpoint with metrics and charts that show the number of times an app was opened and the number of units that were purchased in a 24-hour period after a campaign was sent. All the new metrics and charts are available for both standard and A/B test campaigns.

**Deliverability dashboard (p. 256)**

The Deliverability dashboard now includes deliverability for individual campaigns. It also lets you easily create alarms that notify you when your bounce, complaint, inbox placement, or IP blacklist rates reach specific values.

Date: June 13, 2019

**Regional availability (p. 256)**

Amazon Pinpoint is now available in the AWS Asia Pacific (Mumbai) and Asia Pacific (Sydney) Regions.

Date: April 25, 2019

**General settings (p. 256)**

Added information about using the Amazon Pinpoint console to delete a project.

Date: January 10, 2019

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**Earlier Updates**

The following table describes important changes in each release of the *Amazon Pinpoint User Guide* through December 2018.

<table>
<thead>
<tr>
<th>Change</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional availability</td>
<td>Amazon Pinpoint is now available in the AWS US West (Oregon) and Europe (Frankfurt) Regions.</td>
<td>December 21, 2018</td>
</tr>
<tr>
<td>Deliverability dashboard</td>
<td>Amazon Pinpoint now includes a deliverability dashboard (p. 46), which you can use to identify issues that could impact the delivery of emails that you send by using Amazon Pinpoint.</td>
<td>December 3, 2018</td>
</tr>
<tr>
<td>Change</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>Event triggers</td>
<td>You can now configure campaigns to be sent when specific events occur. For example, if a customer adds an item to their cart but doesn't purchase it, you can send them an email. To learn more about configuring campaigns to be sent when specific events occur, see Step 4: Choose When to Send the Campaign (p. 131).</td>
<td>November 19, 2018</td>
</tr>
<tr>
<td>Voice channel</td>
<td>You can use the new Amazon Pinpoint voice channel to create voice messages and deliver them to your customers over the phone. Currently, you can only send voice messages by using the Amazon Pinpoint SMS and Voice API. For more information, see Amazon Pinpoint Voice Channel (p. 100).</td>
<td>November 15, 2018</td>
</tr>
<tr>
<td>Transactional email</td>
<td>You can now use Amazon Pinpoint to send email directly to individual recipients, without having to create segments or campaigns first. For more information about sending transactional email, see Sending Email in Amazon Pinpoint (p. 37). For more information about setting up the email channel, see Email Settings (p. 239).</td>
<td>November 5, 2018</td>
</tr>
<tr>
<td>Europe (Ireland) availability</td>
<td>Amazon Pinpoint is now available in the AWS Europe (Ireland) Region.</td>
<td>October 25, 2018</td>
</tr>
<tr>
<td>New console design</td>
<td>The Amazon Pinpoint console has been completely redesigned to make it easier to use. We've also streamlined the project creation process so that you can create projects directly on the Amazon Pinpoint console, rather than having to create them in AWS Mobile Hub.</td>
<td>October 4, 2018</td>
</tr>
<tr>
<td>Advanced segmentation</td>
<td>Added the ability to create dynamic segments (p. 108) that include advanced logic and comparisons.</td>
<td>October 4, 2018</td>
</tr>
<tr>
<td>Change</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------</td>
</tr>
<tr>
<td>Monitoring with CloudWatch</td>
<td>You can now use Amazon CloudWatch to monitor and analyze metrics related to your Amazon Pinpoint account.</td>
<td>October 4, 2018</td>
</tr>
<tr>
<td>Email tutorial</td>
<td>Added a tutorial (p. 12) that includes complete procedures for setting up a campaign and sending an email.</td>
<td>June 19, 2018</td>
</tr>
<tr>
<td>Analytics chart references</td>
<td>The Analytics section now includes several new and updated reports. We've added documentation (p. 175) that gives you additional information about each metric.</td>
<td>June 12, 2018</td>
</tr>
<tr>
<td>Testing campaigns</td>
<td>You can now test your messages (p. 129) by sending them to a segment or to a list of individual recipients.</td>
<td>May 7, 2018</td>
</tr>
<tr>
<td>Define segments by importing user IDs</td>
<td>Define a segment by importing a file that contains a list of user IDs (p. 113). When you send a message to the segment, the potential destinations include each endpoint that's associated with each user ID in the file.</td>
<td>May 7, 2018</td>
</tr>
<tr>
<td>Self-managed opt-outs and dashboard exports</td>
<td>You can configure your SMS account settings so that you can manage SMS opt-outs outside of Amazon Pinpoint (p. 246). You can also export Amazon Pinpoint dashboards (p. 176) for further analysis.</td>
<td>March 28, 2018</td>
</tr>
<tr>
<td>Email project creation and identity verification</td>
<td>Added information about creating email projects (p. 28) and verifying identities used to send email (p. 29).</td>
<td>March 21, 2018</td>
</tr>
<tr>
<td>SMS best practices</td>
<td>Added a best practices guide (p. 96) that contains tips and information related to SMS campaigns.</td>
<td>February 23, 2018</td>
</tr>
<tr>
<td>Requesting support for SMS use cases</td>
<td>Contact AWS Support to request support for your SMS use case (p. 70) if you want to increase your spending quota, reserve an origination number, or reserve a sender ID.</td>
<td>February 21, 2018</td>
</tr>
<tr>
<td>Change</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
<td>------</td>
</tr>
<tr>
<td>Segment import documentation</td>
<td>Amazon Pinpoint can now create an IAM role for you automatically.</td>
<td>February 6, 2018</td>
</tr>
<tr>
<td>Two-way SMS support by country</td>
<td>Updated the table of Supported Countries and Regions for the SMS channel (p. 89) to list the countries and regions that support 2-way SMS.</td>
<td>February 5, 2018</td>
</tr>
<tr>
<td>Time to Live value for mobile push</td>
<td>On the Amazon Pinpoint console, you can specify a Time to Live (TTL) value when you write a mobile push message (p. 127) for a campaign.</td>
<td>December 22, 2017</td>
</tr>
<tr>
<td>Removal of Amazon S3 export documentation</td>
<td>The ability to export Amazon Pinpoint event data directly to Amazon S3 has been deprecated. Instead, you can use Amazon Kinesis Data Firehose to send event data to Amazon S3, Amazon Redshift, and other AWS services. For more information, see the section called “Streaming Event Data” (p. 198).</td>
<td>December 18, 2017</td>
</tr>
<tr>
<td>Segment import documentation</td>
<td>Importing Segments (p. 113) includes updated information about how to create endpoint files, the attributes you can use within these files, and how to create an IAM role for importing.</td>
<td>October 26, 2017</td>
</tr>
<tr>
<td>APNs token authentication and APNs sandbox support</td>
<td>The APNs channel settings (p. 26) accept a .p8 signing key so that Amazon Pinpoint can construct authentication tokens for your push notifications. Use the APNs channel to send notifications to production and sandbox environments.</td>
<td>September 27, 2017</td>
</tr>
<tr>
<td>ADM and Baidu mobile push</td>
<td>Enable mobile push channels (p. 25) for Amazon Device Message and Baidu Cloud Push in your projects.</td>
<td>September 27, 2017</td>
</tr>
<tr>
<td>User analytics with Amazon Cognito user pools</td>
<td>To enable analytics about users and authentication (p. 179), use Amazon Cognito user pools to manage user sign-in.</td>
<td>September 26, 2017</td>
</tr>
<tr>
<td>Change</td>
<td>Description</td>
<td>Date</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Account settings</td>
<td>Use the SMS settings (p. 243) page on the console to manage account-level SMS settings that take effect for all of your projects.</td>
<td>September 11, 2017</td>
</tr>
<tr>
<td>Users analytics</td>
<td>Users charts (p. 179) on the Amazon Pinpoint console provide metrics about app usage and user authentication.</td>
<td>August 31, 2017</td>
</tr>
<tr>
<td>Direct email messages</td>
<td>You can send email messages directly (p. 171), to a limited audience, without creating a campaign or engaging a segment.</td>
<td>July 05, 2017</td>
</tr>
<tr>
<td>New channels: email and SMS</td>
<td>In addition to the mobile push (p. 24) channel, you can enable email (p. 27) and SMS (p. 65) channels as part of your Amazon Pinpoint projects. With these channels enabled, you can send emails or text messages with your campaigns.</td>
<td>June 08, 2017</td>
</tr>
<tr>
<td>Direct messaging</td>
<td>You can send push notifications and text messages directly (p. 171), to a limited audience, without creating a campaign or engaging a segment.</td>
<td>June 08, 2017</td>
</tr>
<tr>
<td>Revenue charts</td>
<td>You can view revenue charts (p. 182) on the Amazon Pinpoint console to see the revenue that’s generated by your app and the number of items purchased by users.</td>
<td>March 31, 2017</td>
</tr>
<tr>
<td>Event streams</td>
<td>You can configure Amazon Pinpoint to send your app and campaign events to a Kinesis stream (p. 198).</td>
<td>March 24, 2017</td>
</tr>
<tr>
<td>Amazon Pinpoint general availability</td>
<td>This release introduces Amazon Pinpoint.</td>
<td>December 1, 2016</td>
</tr>
</tbody>
</table>