AWS Snowball:

Petabyte-scale data transport with on-board storage and compute capabilities.

AWS Snowball, a part of the AWS Snow Family, is;
1. An edge computing.
2. Data migration.
3. Edge storage device

Best use-cases:

➢ They are well suited for local storage and large scale-data transfer
➢ You can use these devices for data collection, machine learning and processing, and storage in environments with intermittent connectivity (like manufacturing, industrial, and transportation) or in extremely remote locations (like military or maritime operations) before shipping them back to AWS.
➢ Snowball supports specific Amazon EC2 instance types and AWS Lambda functions, so you can develop and test in the AWS Cloud, then deploy applications on devices in remote locations to collect, pre-process, and ship the data to AWS.
➢ Common use cases include data migration, data transport, image collation, IoT sensor stream capture, and machine learning.

Benefits:

- Easy data movement
- Simple to use
- Process & analyze data locally
- Stand-alone storage
- Secure
- Scalable

AWS Snow Family members:

1. AWS Snowcone:

AWS Snowcone is the smallest member of the AWS Snow Family of edge computing and data transfer devices. Snowcone is portable, rugged, and secure. You can use Snowcone to collect, process, and move data to AWS, either offline by shipping the device, or online with AWS DataSync.

2. **AWS Snowball Edge:**
    AWS Snowball is a data migration and edge computing device that comes in two
    device options: Compute Optimized and Storage Optimized.

3. **AWS Snowmobile:**
    AWS Snowmobile moves up to 100 PB of data in a 45-foot-long ruggedized shipping
    container and is ideal for multi-petabyte or Exabyte-scale digital media migrations
    and data center shutdowns. A Snowmobile arrives at the customer site and appears as
    a network-attached data store for more secure, high-speed data transfer. After data is
    transferred to Snowmobile, it is driven back to an AWS Region where the data is
    loaded into Amazon S3.

Demo: **Optional Demo**: briefly snowball review via console

Creating an AWS Snowball Job

Topics

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- Step 2: Choose Your Shipping Preferences
- Step 3: Choose Your Job Details
- Step 4: Choose Your Security Preferences
- Step 5: Choose Your Notification Preferences
- Step 6: Download AWS OpsHub
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Step 1: Plan Your Job

To plan your job

1. Sign in to the AWS Management Console, and open the [AWS Snow Family Management Console](). If this is your first time creating a job in this AWS Region, you will see the **AWS Snow Family** page. Otherwise, you will see the **Plan your job** page.
2. On the **AWS Snow Family** page, choose **Next step** to open the **Plan your job** page.
3. Depending on your use case, choose one of the following job types:
   - **Import into Amazon S3** — Choose this option to have AWS ship an empty Snowball device to you. You connect the device to your local network and run the Snowball client. You copy data onto the device, ship it back to AWS, and your data is uploaded to AWS.
   - **Local compute and storage only** — Choose this option to perform compute and storage workloads on the device without transferring any data.
4. Choose **Next** to continue.

Step 2: Choose Your Shipping Preferences

Receiving and returning a Snowball device involves shipping the device back and forth, so it's important that you provide accurate shipping information.

To provide shipping details

1. On the [AWS Snow Family Management Console](), in the **Provide shipping information** section, choose an existing address or add a new address.
   - If you choose **Use recent address**, the addresses on file are displayed. Carefully choose the address you want from the list.
     - If you choose **Add a new address**, provide the requested address information. The AWS Snow Family Management Console saves your new shipping information.

2. In the **Shipping speed** section, choose a shipping speed for the job. This speed shows how quickly the device ships between destinations and doesn't reflect how soon it will arrive after today's date.
   - One-Day Shipping (1 business day)
   - Two-Day Shipping (2 business days)
3. Choose **Next**.

Step 3: Choose Your Job Details

In this step, you provide details for your AWS Snowball job, including job name, AWS Region, device type, Amazon S3 bucket name, and Amazon Machine Image (AMI).

To add job details

1. On the [AWS Snow Family Management Console](#), in the **Name your job** section, provide a name for your job in the **Job name** box.
2. In the **Choose your Snow device** section, choose the Snowball.
3. In the **Choose your S3 storage** section, choose to create a new S3 bucket, or choose the Amazon S3 bucket that you want to use in the **Bucket name** list. You can include additional S3 buckets. These buckets appear on your device as directories.
4. In the **Compute using EC2 instances (Optional)** section, choose **EC2 AMI name**. This option enables you to use compute EC2 instances in a cluster. It loads your Snowball with EC2 AMIs, and enables your device to function as a mobile data center.
5. Choose an AMI in the **Source AMI name** list. Or, search for an AMI in the **Source AMI name** box and choose **Next**.

Step 4: Choose Your Security Preferences

Setting security adds the permissions and encryption settings for your AWS Snowball job to help protect your data while in transit.

To set security for your job

1. In the **Encryption** section, choose the **KMS key** you want to use.
    - If you want to use the default AWS Key Management Service (AWS KMS) key, choose **aws/importexport (default)**. This is the default master key that protects your import and export jobs when no other key is defined.
    - If you want to provide your own AWS KMS key, choose **Enter key ARN**, provide the Amazon Resource Name (ARN) in the **key ARN** box, and choose **Use this KMS key**. The key ARN will be added to the list.
2. In the **Service access** section, choose **Create service role** to grant Snow Family permissions to use Amazon S3 and Amazon SNS on your behalf.
3. Choose **View details** to choose the **IAM role** that you want, or you can use the default role.
4. For **Policy name**, choose the import policy that you want to use.
    Example policies for Snowball
    The following is an example of an Amazon S3 import-only role policy.

```
{
 "Version": "2012-10-17",
 "Statement": [
  {
   "Effect": "Allow",
   "Action": [
    "s3:GetBucketPolicy",
    "s3:GetBucketLocation",
    "s3:ListBucketMultipartUploads"
   ],
   "Resource": "arn:aws:s3:::*"
  },
```

```
  {
    "Effect": "Allow",

    "Action": [

      "s3:PutObject",

      "s3:AbortMultipartUpload",

      "s3:ListMultipartUploadParts",

      "s3:PutObjectAcl"

    ],

    "Resource": "arn:aws:s3:::*"

  }

 ]

}
```

The following is an example of an Amazon S3 export role policy.

```
 "Version": "2012-10-17",

 "Statement": [

  {

    "Effect": "Allow",

    "Action": [

      "s3:GetBucketLocation",

      "s3:GetObject",

      "s3:ListBucket"

    ],

    "Resource": "arn:aws:s3:::*"

  }

 ]

}
```

5. Choose **Allow**.
6. Choose **Next**.

Step 5: Choose Your Notification Preferences

Notifications update you on the latest status of your AWS Snowball jobs. You create an SNS topic and receive emails from Amazon Simple Notification Service (Amazon SNS) as your job status changes.

To set up notifications

1. In the **Set notifications** section, do one of the following:
    *   If you want to use an existing SNS topic, choose **Use an existing SNS topic**, and choose the topic Amazon Resource Name (ARN) from the list.
    *   If you want to create a new SNS topic, choose **Create a new SNS topic**. Enter a name for your topic and provide an email address.
2. Choose **Next**.

The notification will be about one of the following states of your job:

*   Job created
*   Preparing device
*   Preparing shipment
*   In transit to you
*   Delivered to you
*   In transit to AWS
*   At sorting facility
*   At AWS
*   Importing
*   Completed
*   Canceled

Step 6: Download AWS OpsHub

The Snow Family Devices offer a user-friendly tool, AWS OpsHub for Snow Family, that you can use to manage your devices and local AWS services.

With AWS OpsHub installed on your client computer, you can perform tasks such as the following:

- Unlocking and configuring single or clustered devices
- Transferring files
- Launching and managing instances running on Snow Family Devices.

To download and install AWS OpsHub for Snow Family

1. On the [AWS Snow Family Management Console](#), in the **Download AWS OpsHub** section, choose **Get AWS OpsHub**. You are redirected to the AWS Snowball resources website.
2. In the **AWS OpsHub** section, choose **Download** for your operating system, and follow the installation steps. When you are finished, choose **Next**.

Step 7: Review and Create Your Job

After you provide all the necessary job details for your AWS Snowball job, review the job and create it.

1. On the [AWS Snow Family Management Console](#), in the **Review Job order** page, review all the sections before you create the job. If you want to make changes, choose **Edit** for the appropriate section, and edit the information.
2. When you are done reviewing and editing, choose **Create Job**. After you create a job, you can cancel it within an hour without incurring any charges.

   Jobs are subject to export control laws in specific countries and might require an export license. US export and re-export laws also apply. Diversion from the country and US laws and regulations is prohibited.

After your job is created, you can see the status of the job in the **Job status** section.