# Snowball FAQs

## General

**Q. What is AWS Snowball?**

AWS Snowball is a data transport solution that accelerates moving terabytes to petabytes of data into and out of AWS using storage appliances designed to be secure for physical transport. Using Snowball helps to eliminate challenges that can be encountered with large-scale data transfers including high network costs, long transfer times, and security concerns.

**Q. How does Snowball work?**

AWS Snowball uses secure appliances and the Snowball client to accelerate petabyte-scale data transfers into and out of AWS. You start by using the AWS Management Console to create one or more jobs to request one or multiple Snowball appliances (depending on how much data you need to transfer), and download and install the Snowball client. Once the appliance arrives, connect it to your local network, set the IP address either manually or with DHCP, and use the client to identify the directories you want to copy. The client will automatically encrypt and copy the data to the appliance and notify you when the transfer job is complete. When the transfer is complete and the appliance is ready to be returned, the E Ink shipping label will automatically update to indicate the correct AWS facility to ship to, and you can track the job status by using Amazon Simple Notification Service (Amazon SNS), text messages, or directly in the console.

**Q. Who should use Snowball?**

Snowball is the right data transfer choice if you need to securely and quickly transfer terabytes to many petabytes of data to AWS. Snowball can also be the right choice if you don't want to make expensive upgrades to your network infrastructure, if you frequently experience large backlogs of data, if you're located in a physically isolated environment, or if you're in an area where high-bandwidth Internet connections are not available or cost-prohibitive.

**Q. How much data can I transfer using Snowball?**

You can transfer virtually any amount of data with Snowball, from a few terabytes to many petabytes. You can typically transfer multiple TB of data to each Snowball appliance. You can transfer larger data sets by using multiple

Snowballs, either in parallel, or one after another. For example, you can transfer 100 TB of data using two Snowballs in parallel, or you can transfer the data using two Snowballs one after another.

**Q. What is the Snowball client?**

The Snowball client is software that you install on a local host computer and use to efficiently identify, compress, encrypt, and transfer data from the directories you specify to a Snowball.

**Q. How long does it take to transfer my data?**

You can use the Snowball client to estimate the time it takes to transfer your data (refer to the user guide for more details). Data transfer speed is affected by a number of factors including local network speed, file size, and the speed at which data can be read from your local servers.

The Snowball client will copy data to the Snowball as fast as conditions allow, (as little as a day to copy 48TB of data, depending on your local environment). End-to-end time to transfer the data into AWS is approximately a week, including the usual shipping and handling time in AWS data centers. You can copy twice that much data in the same amount of time by using two 48TB Snowballs in parallel, or you could copy 80TB of data in two and a half days on a single 80TB Snowball, which would increase your end-to-end time to about a week and a half.

**Q. What are the specifications on the Snowball appliance?**

Check this Snowball documentation page for the complete list of hardware specs, including interfaces, thermal and power requirements, decibel output, and dimensions.

**Q. How long can I have a Snowball for a specific job?**

For security purposes, data transfers must be completed within 90 days of a Snowball's preparation.

**Q. What network interfaces does Snowball support?**

Snowball has 10Gbps network interfaces with RJ45, SFP+ copper, and SFP+ optical network ports.

**Q. What is Snowball's default shipping option? Can I choose expedited shipping?**

As a default, Snowball uses two-day shipping by UPS. You can choose expedited shipping if your jobs are time-sensitive.

# Snowball Regional Availability

**Q. In what regions is Snowball available?**

Check the Regional Service Availability pages for the latest information.

Snowball is available for use in all states in the USA.

Please note that 50TB models are only available in the USA.

**Q. Can a Snowball be shipped to an alternate AWS region?**

No. Snowballs are designed to be requested and used within a single AWS region. It may not be requested from one region and returned to another. Snowball devices used for imports or exports from an AWS region in the EU may be used with any of the 28 EU countries.

## When to Use Snowball

**Q. When should I consider using Snowball instead of the Internet?**

Snowball is a strong choice for data transfer if you need to securely and quickly transfer terabytes to many petabytes of data to AWS. Snowball can also be the right choice if you don't want to make expensive upgrades to your network infrastructure, if you frequently experience large backlogs of data, if you're located in a physically isolated environment, or if you're in an area where high-speed Internet connections are not available or cost prohibitive.

As a rule of thumb, if it takes more than one week to upload your data to AWS using the spare capacity of your existing Internet connection, then you should consider using Snowball. For example, following the guidelines in the table below, if you have a 100 Mb connection that you can solely dedicate to transferring your data and need to transfer 100 TB of data, it takes more than 100 days to complete data transfer over that connection. You can make the same transfer by using multiple Snowballs in about a week.

| Available Internet Connection | Theoretical Min. Number of Days to Transfer 100TB at 80% Network Utilization | When to Consider AWS Snowball? |
|---|---|---|
| T3 (44.736Mbps) | 269 days | 2TB or more |
| 100Mbps | 120 days | 5TB or more |
| 1000Mbps | 12 days | 60TB or more |

**Q. When should I consider using Snowball instead of AWS Direct Connect?**

AWS Direct Connect provides you with dedicated, fast connections from your premises to the AWS network. If you need to transfer large quantities of data to AWS on an ongoing basis, AWS Direct Connect might be the right choice.

Snowball can be a strong alternative to Direct Connect if you need to transfer data in large batches or as a one-time transfer, potentially from distributed locations. For these workloads, Snowball can be a simpler, more cost-effective option than setting up a new Direct Connect connection to transfer your data and then terminating the connection upon completion.

**Q. When should I consider using Snowball instead of AWS Import/Export Disk?**

Snowball provides a faster, simpler, and more cost-effective experience for most use cases when compared to AWS Import/Export Disk.

With Snowball, you don't need to purchase any hardware or write any code to transfer your data. Each Snowball appliance can transfer as much as 80 TB of data and you can use multiple appliances in parallel for larger workloads. Snowball uses tamper-resistant enclosures, 256-bit encryption, and an industry-standard Trusted Platform Module (TPM) that is designed to ensure both security and full chain of custody for your data, and also to reduce management overhead involved with transferring data into or out of AWS.

You can create transfer jobs right from the AWS Management Console. When your transfer is complete and the appliance is ready to be returned, the E Ink shipping label will automatically update to indicate the correct AWS facility to ship to, and you can track the job status by using Amazon SNS, or text messages, or directly in the console.

**Q. Can I use Snowball to migrate data from one AWS region to another AWS region?**

No. Snowball is intended to serve as a data transport solution for moving high volumes of data into and out of a designated AWS region. For use cases that require data transfer between AWS regions, we recommend using S3 Cross-Region Replication as an alternative.

# Security

**Q. Does Snowball encrypt my data?**

Snowball encrypts all data with 256-bit encryption. You manage your encryption keys by using the AWS Key Management Service (AWS KMS). Your keys are never sent to or stored on the appliance.

**Q. Does AWS have a way to tell if the device was tampered with during transit?**

In addition to using a tamper-resistant enclosure, Snowball uses an industry-standard Trusted Platform Module (TPM) with a dedicated processor designed to detect any unauthorized modifications to the hardware, firmware, or software. AWS inspects every appliance for any signs of tampering and to verify that no changes were detected by the TPM.

**Q. What happens to the data on the appliance when it has been successfully transferred to AWS?**

When the data transfer job has been processed and verified, AWS performs a software erasure of the Snowball appliance that follows the National Institute of Standards and Technology (NIST) guidelines for media sanitization.

**Q. Is there a way to easily track my data transfer jobs?**

Snowball uses an innovative, E Ink shipping label designed to ensure the appliance is automatically sent to the correct AWS facility and which also helps in tracking. When you have completed your data transfer job, you can track it by using Amazon SNS, text messages, and the console.

**Q. Can I use AWS Snowball for data with Protected Health Information (PHI)?**

Yes. AWS Snowball is a HIPAA-eligible service. If you currently have a Business Associate Agreement (BAA) with AWS, you can begin using Snowball immediately to transfer data into your HIPAA accounts.

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# Using Snowball to Import Data

**Q: How do I get started with Snowball?**

To get started with Snowball, visit the Getting Started page.

**Q: How do I transfer my data to the Snowball appliance?**

When you connect the Snowball appliance to your network and set the IP address using the E Ink display, you'll need to download three things from the AWS Management Console:

1. **Snowball client**: The software tool that is used to transfer data from your on-premises storage to the Snowball appliance. For more information on the Snowball client, see the Tools page.

2. **Job manifest file:** An encrypted metadata file that is used to uniquely identify your data transfer job.

3. **Job manifest unlock code:** A 25-character code to unlock the job manifest file.

When you have downloaded these files, you launch the Snowball client and provide the Snowball appliance's IP address, the manifest file path, and the unlock code. A sample Start command is below:

*snowball start -i {Snowball IP} -m path/to/the/job/manifest} -u {unlock code}*

After you launch the client and provide this information, the cilent is now connected to the Snowball appliance and is ready for use. Next you'll need to identify the file directories you want to transfer to the appliance and then wait for the transfer to complete. A sample Copy command is below:

*snowball cp /path/to/data/on/source/storage/device/directories Snowball/bucketname*

**Q: What do I do when the data has been transferred to the Snowball appliance?**

When the data transfer job is complete, the Snowball appliance's E Ink display automatically updates the return shipping label to indicate the correct AWS facility to ship to. Just drop off the Snowball appliance at the nearest UPS shipping facility and you're all set. You can track the status of your transfer job by using Amazon SNS, or text messages, or directly in the AWS Management Console.

**Q: Can I import data from a Hadoop Distributed File System to Snowball?**

Yes. You can copy data from a HDFS cluster to Snowball using the Snowball CLI. To learn more, please refer to the Snowball documentation.

# Using Snowball to Export Data

**Q: What is the Snowball export feature?**

Export is a feature of Snowball that enables customers to export terabytes to petabytes of data from Amazon Simple Storage Service (Amazon S3) to on-premises storage.

**Q: How do I get my data from AWS with export?**

To use Snowball Export simply sign in to the AWS Management Console, choose Snowball, and create an export job. As with an import job, you specify the region and buckets that you want to use. If you don't want to export all of the data from a particular bucket, you can specify a beginning and ending S3 key range sorted in UTF-8 binary order to indicate what data should be exported. The key range that you choose, and all keys between them, are exported. Details on using the console can be found here.

**Q: How quickly can I access my exported data?**

We typically start exporting your data within 24 hours of receiving your request, and exporting data can take as long as a week. Once the job is complete and the device is ready, we ship it to you using the shipping options selected when you created the job.

**Q: Can I pick up the Snowball from your data center so I don't have to wait for shipping?**

No. Although you can select one-day shipping, we do have to ship the Snowball to an address that you provide. We don't have a way for you to pick up a Snowball from our data center.

**Q: Can I track the export data-writing progress while you prepare my Snowball?**

Yes. You can see when we start provisioning a Snowball and get real-time updates as data is written to the device. As with import jobs, you can get notification when the provisioning is complete and when the device has been shipped.

**Q: Will AWS encrypt my data before copying it to the Snowball?**

Yes. All data that is written is encrypted and the encryption keys for that data are never present on the Snowball.

**Q: How do I read my data from the Snowball when I receive the device?**

Using the Snowball client, you can copy your data from the Snowball to local storage. The client decrypts your data when it reads it from the Snowball and writes the data to your local storage in the same format as the data was stored in Amazon S3.

**Q: How much data can I export?**

There is almost no limit the amount of data you can export. If you want to export more data than can fit on one appliance, additional export jobs will be created automatically for you so that all of the data you select can be exported.

**Q: Can I retrieve data from more than one bucket?**

Yes. You can select as many buckets as you want for export.

**Q: How are my Amazon S3 objects mapped to files when I copy them to my local storage?**

Each key is copied to your device in a directory tree that starts with the bucket's name. For example, if the key is "images/orange.jpg" and the bucket is "fruit" then the object is saved to /fruit/images/orange.jpg. Meta data associated with each object is not copied to your storage device.

**Q: Can I export data that is in the Amazon Glacier storage class?**

No. Before Amazon Glacier data can be exported it needs to be restored to Amazon S3 using the S3 Lifecycle Restore feature.

**Q: Do I get a log of what was exported?**

Yes. For each job, import or export, a log of the files that were copied and those that could not be copied is generated and available from the Snowball console.

**Q: What does it cost to export my data?**

In addition to the Snowball Export fees detailed on our pricing page, you will also be charged all Amazon S3 and Amazon Glacier fees incurred to retrieve your data from those services.

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# Billing

**Q. How much does it cost to transfer data using Snowball?**

Each Snowball data transfer job costs a flat fee for device handling and import and export operations at AWS data centers. Snowball is free for use for 10 days at your site. The day that the device is received and the day that the device is shipped are not counted towards these 10 days. Beyond that, a Snowball device costs $15/day for each extra day that it is at your site. There is no cost for transferring data into AWS. Transferring data out of AWS costs are region specific, please see our pricing page for pricing details.

The following example illustrates Snowball pricing for an 80 TB model.

**Example:**

Assume you transfer 60 TB of data into AWS using one Snowball and you keep the Snowball for 14 days (receiving the Snowball from the shipper on day 1 and returning the Snowball to the shipper on day 14).

**Service charge for this job:**

The service charge for this job is $250.

**Extra day charge:**

Snowball is free for use for 10 days at your site. The day that the device is received and the day that the device is shipped are not counted toward these 10 days, meaning day 1 and day 14 are free in this case. There are 12 days between day 1 and day 14, and 10 out of 12 days are free. The remaining 2 days are 2 extra days used to transfer your data. The total extra day charge is:

2 days x $15/day = $30

**Data transfer:**

In this example, you transferred data into AWS, so the data transfer cost is free.

**Shipping:**

Shipping charges are based on your shipment destination and the shipping option you choose (for example, overnight, or two-day).

**Q. How am I charged for Amazon S3 usage?**

Snowball will transfer data on your behalf from Snowball appliances to AWS services, such as Amazon S3. Standard AWS service charges apply. Data transferred **in** to AWS does not incur any data transfer fees, and Standard Amazon S3 pricing applies for data stored in S3.

**Q. Can I purchase a Snowball appliance?**

Snowballs are only available on a per-job pay-as-you-go basis, and are not available for purchase.

# Workflow Integration Tools

**Q. Does the Snowball service support API access?**

Yes. The Snowball Job Management API provides programmatic access to the job creation and management features of a Snowball. It is a simple, standards-based REST web service interface, designed to work with any Internet development environment.

**Q. What can I do with the Snowball Job Management API?**

The API allows partners and customers to build custom integrations to manage the process of requesting Snowballs and communicating job status. The API provides a simple web service interface that you can use to create, list, update, and cancel jobs from anywhere on the web. Using this web service, developers can easily build applications that manage Snowball job workflow. To learn more, please refer to Snowball documentation.

**Q. What is the S3 Adapter?**

The S3 Adapter provides an S3-compatible interface to the Snowball client for reading and writing data on a Snowball.

**Q. What can I do with the S3 Adapter?**

The S3 Adapter provides functions to communicate with Snowball, allowing customers to build tools to copy data from file and non-file sources. It includes interfaces to copy data to Snowball with the same encryption that is available

through our Snowball command line tool. To learn more, please refer to Snowball [documentation](#).

**Q. Why would I use the S3 Adapter rather than the Snowball Client?**

The Snowball Client is a turnkey tool that makes it easy to copy file based data to Snowball. Customers who prefer a tighter integration can use the S3 Adapter to easily extend their existing applicaitons and workflows to seamlessly integrate with Snowball.

**Q. How is my data secured when I use the S3 Adapter?**

The S3 Adapter writes data using the same advanced encryption mechanism that the Snowball Client provides.

**Q. Which programming languages does the Snowball S3 Adapter support?**

The S3 Adapter communicates over REST which is language-agnostic.