Foreign LUN Import

ONTAP FLI

NetApp
January 07, 2026

Table of Contents

Foreign LUN Import

Foreign LUN Import overview

Foreign LUN Import (FLI) is a feature built into ONTAP that allows users to import data from foreign array LUNs to NetApp LUNs in a simple and efficient manner.

All FLI migrations operate at the LUN level. FLI is a strictly block-based tool; file, record, NFS, and CIFS-based migrations are not supported. For a discussion of other migration methodologies for file-level protocols, such as NFS and CIFS/SMB, review the Data Migration Tools Quick Reference.

Although ONTAP no longer requires a professional-services-run migration, NetApp does strongly recommend professional services involvement in scoping, planning, and training for all but the simplest migrations.

FLI was developed to migrate SAN LUNs to ONTAP. FLI supports a range of migration requirements, including, but not limited to, the following:

- Migrating data between heterogeneous storage arrays from EMC, Hitachi, HP, and other vendors to NetApp.
- Simplifying and accelerating block data migrations during data center relocation, consolidation, and array replacements.
- Consolidating migration and LUN realignments into a single workflow.

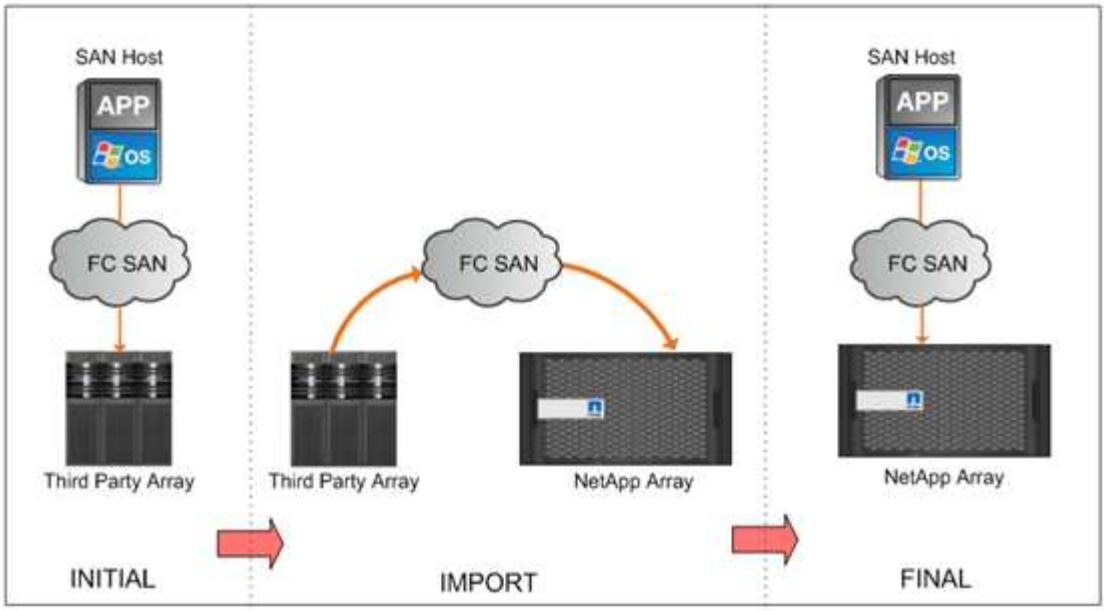
In addition, the 7-Mode to ONTAP transition procedure is able to convert from 32-bit to 64-bit aggregates, fix alignment problems, and migrate LUNS as a single operation.

FLI enables the NetApp storage to discover the LUNs to be imported for data migration. The foreign LUNs are shown as disks on the NetApp storage and have no ownership assigned to them automatically so that the user data is not overwritten by mistake. The disks that contain foreign array LUNs must be marked as foreign. The rules for configuring foreign array LUNs must be strictly adhered to in order to use FLI for NetApp storage. See the topic, LUN requirements and limitations.

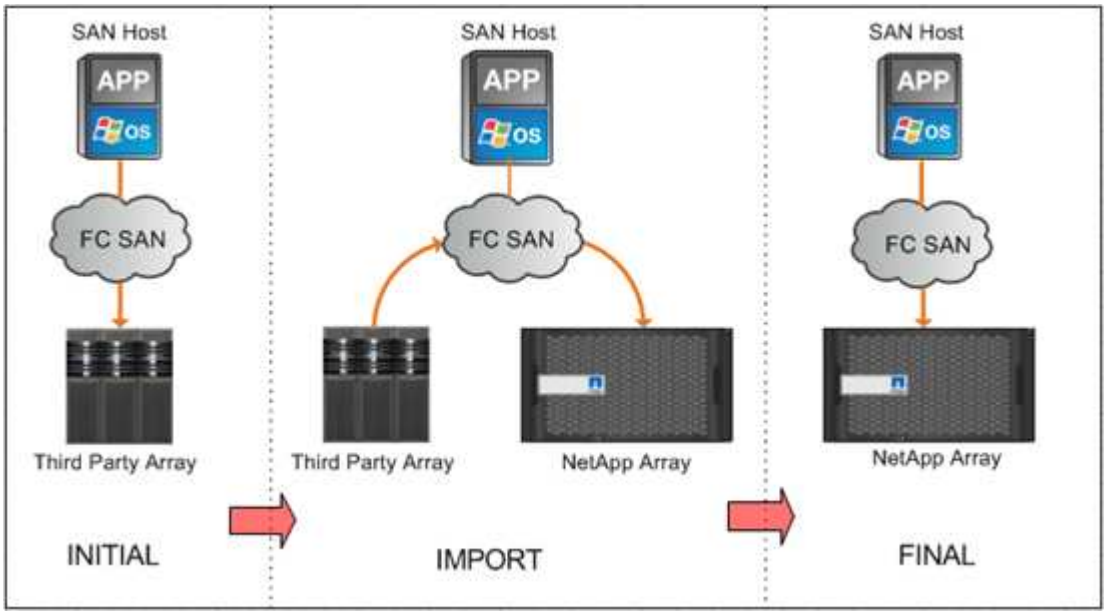
FLI requires at least one physical FC port on each controller and to have LUNs migrate directly in Initiator mode. Two ports, one to each fabric, are preferred, but a single port can be used. These ports are used to connect to the source array and need to be zoned and masked in order to be able to see and mount the source LUNs. If you need to change a port from target to initiator, see Configure FC adapters.

FLI migrations can be performed either offline, which disrupts operations for the duration of the import, or online, which is mainly non-disruptive.

This figure shows an FLI offline data migration, where the host is taken offline for the migration. The NetApp array copies the data directly from the third-party array.



This figure shows an FLI online data migration. The host is connected to the NetApp controller where the new LUN is now hosted. Host operation can then resume and continue during the import.



Foreign LUN Import features

FLI features allow you to migrate data from third-party SAN storage to ONTAP systems. FLI migration features support a variety of processes and systems.

- Support for online and offline migrations.
- Operating system independence: block-level data migration does not rely on volume managers or operating system utilities.
- Fibre Channel fabric independence: FLI is fully compatible with Brocade and Cisco FC fabrics.
- Support for most Fibre Channel storage arrays. See the Interoperability Matrix for a list of supported arrays.
- Support for native multipath and load balancing.

- CLI-based management.

Related information

NetApp Interoperability Matrix Tool

Benefits of an FLI-based solution

The FLI solution is designed to give NetApp customers exceptional value with these benefits.

- FLI is built into ONTAP and requires no additional licensing.
- FLI does not require an additional hardware appliance for data migration.
- FLI-based solutions support a variety of migration types and configurations of third-party storage platforms.
- FLI automatically aligns LUNs and can migrate a LUN hosted in a 32-bit aggregate to a 64-bit aggregate hosted on an ONTAP array. This makes FLI for 7-Mode to ONTAP an excellent choice for transitioning 7-Mode-hosted LUNs that are hosted on 32-bit aggregates and/or are misaligned.

LUN requirements and limitations

Your LUNs should meet the following requirements before beginning an FLI migration.

- FLI requires at least one FC port on each controller and to have LUNS migrate directly in Initiator mode.
- The foreign LUN must be marked foreign on the destination array to prevent assignments from ONTAP.
- The foreign LUN must be in an import relationship before starting import.
- The LUN must be the same size as the foreign LUN .This requirement is taken care of during the LUN creation steps.
- The foreign LUN block size must be 512b. NetApp LUNs support only 512b block size.
- The LUN must not be expanding or contracting.
- The LUN must be mapped to at least one igroup.
- The NetApp LUN should be brought offline before creating a relationship. However, after the LUN relationship is created, it can be brought back online in case of online FLI.

Limitations

- All migrations are at the LUN level.
- FLI supports Fibre Channel (FC) connections only.
- FLI does not support iSCSI connections directly. In order for iSCSI LUNs to be migrated using FLI, the LUN type must be changed to FC. After the migration is complete, the LUN type is changed back to iSCSI.

FLI supported configurations

The FLI environment must be deployed in a supported manner to ensure proper operation and support. As engineering qualifies new configurations, the list of supported configurations will change. Refer to the NetApp Interoperability Matrix to verify support for

specific configurations.

ONTAP 8.3 and later are the only supported destination storage. Migrations to third-party storage are not supported.

For a list of supported source storage arrays, switches, and firmware, see the Interoperability Matrix. The data migration program will provide support for the configurations in the NetApp Interoperability Matrix.

Once the import is complete and all LUNs have been migrated to NetApp controllers, ensure that all configurations are supported.

Related information

NetApp Interoperability Matrix Tool

Copyright information

Trademark information