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Brocade Fabric OS

Target Path Selection Guide

Brocade Fabric OS (Brocade FOS) Target Path releases are recommended code levels for Brocade Fibre Channel switch platforms. Use these guidelines when trying to determine the ideal version of Brocade FOS software; consider these guidelines in conjunction with other requirements that may be unique to a particular environment. This document is updated on a periodic basis when Brocade has modified or added new Target Path release recommendations.

Document History

Date Published	Comments
January 4, 2016	Updated Brocade FOS v7.3.1d and v7.2.1g as official Target Path releases.
September 29, 2015	Updated with Brocade FOS v7.3.1c as the official Target Path release; also updated with Brocade FOS v7.2.1f and FOS v6.4.3h.
July 23, 2015	Updated recommendations to show Brocade FOS v7.3.1x and v7.4.0x Target Path releases.
February 2, 2015	Clarified recommendations for the Brocade 7800.
January 22, 2015	Updated for Brocade FOS v7.2 with v7.2.1d and FICON v7.3.0b recommended release. Added minimum information for the Brocade 7800 and Access Gateway.
July 10, 2014	Added Brocade FOS v7.2.1a and v7.0.2e to the list of Open Systems Target Path releases. Added Brocade FOS 7.2.0d and 7.2.0d1 as recommendations for FICON environments.
January 24, 2014	Added Brocade FOS v7.1.1c to the list of Open Systems Target Path releases. Removed Brocade FOS v7.2.0b as a recommendation for FICON environments.
January 10, 2014	Updated with new Brocade FOS v7.1.1a/b Target Path recommendations and v7.2.0b FICON environment recommendations. Clarified FICON environment recommendations.
March 6, 2013	Updated with new Brocade FOS v6.4.3d and v7.0.2c Target Path recommendations.
N/A	Skipped—synchronizing of versioning with Brocade internal documents.
May 28, 2012	First version.

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Overview

This document provides guidance for selecting an ideal Brocade® Fabric OS® (Brocade FOS) code version for use on Brocade Fibre Channel (FC) switch platforms and also for selecting optimum versions of code to use when migrating from one version of Brocade FOS to another. These recommended Brocade FOS versions are referred to as "Target Path" releases.

Use the Brocade FOS Target Path release recommendations in this document in conjunction with advice and guidance from your Brocade switch vendor, as well as any special requirements and needs of your particular environment. Always refer to the Brocade FOS release notes and carefully review the "Important Notes and Known Defects" information before selecting and installing any version of Brocade FOS on a switch.

This document is updated on a periodic, as-needed basis to reflect the latest Brocade FOS Target Path release recommendations. Always check the latest version of this document when planning to install a new Brocade FOS release.

Definition of a Target Path Release

A Brocade FOS release is identified as a Target Path release only if it meets the following criteria:

- It is a Brocade FOS version of firmware that was created primarily for stability and reliability and not for the introduction of new features. This version of firmware may contain Reliability, Availability, and Serviceability (RAS) improvements and enhancements, but it typically does not contain any new software features or support for new hardware.

- Most of the Brocade partners and OEMs have qualified and support the firmware version or are planning to do so in the immediate future. This qualification makes it an ideal option for environments in which customers procure Brocade equipment from more than one vendor.

- The specified code level (or an earlier patch at the same release level) must be deployed in a sufficient number of end-user production environments for a period of at least three months and must have no known critical issues or defects, including firmware-related issues identified in a Technical Service Bulletin (TSB).

Once a specific Brocade FOS code version is identified as a Target Path release, newer patches (that is, releases that vary only with a different letter appended to the release number) that are released on the same code stream can also be considered recommended Target Path releases. In some situations, it may be ideal to select one of the later patch releases in order to pick up a fix for an issue that is applicable to a particular site or environment. These newer patch releases may be formally announced as a Target Path release for that code level the next time this document is updated for new major release designations of Target Path. These newer patch releases may be considered Target Path releases after less than the three months of customer exposure time because patch releases typically contain minimal changes from their predecessors. Because the stability of the major code level release has already been verified, it is unnecessary to wait for this additional field exposure.

Note that for FICON® environments, the use of patch releases that are not specifically designated as qualified and supported for FICON is not recommended.

The Target Path release designation in no way implies or guarantees that a release will be free of defects or will not contain behavioral issues that could cause an impact in a production environment. However, following the Target Path release recommendations produces the most trouble-free environments for data center storage area networks (SANs) that use Brocade switching platforms.

Always review the latest version of the Brocade FOS release notes for the code level you are loading—as well as for the code level you are migrating from—before you update the firmware. The Target Path designation is not a guarantee that you will not encounter limitations in upgrading or downgrading firmware levels. Brocade recommends that all customers review the release notes to ensure a trouble-free migration and production environment.

Target Path Release Designations

Table 1 specifies the Target Path release for each major version or family of Brocade FOS releases, beginning with Brocade FOS v6.4. In general, Brocade recommends running the most recent major code level that is supported by a particular hardware platform, although it is not necessary to upgrade if you do not need the new features or capabilities introduced in the later major release levels.

For some release levels, the Target Path release may contain some exceptions for special-purpose hardware platforms and functionality, such as encryption platforms, extension platforms, or embedded switches. These exceptions are called out for each major release level in the Notes column of Table 1.

Table 1. Target Path Releases by Major Brocade FOS Level

Major Brocade FOS Level	Target Path Release	Notes
FOS v6.4	v6.4.3g v6.4.3h	FOS v6.4.3d/e/f are also supported for Open Systems environments. Changes to address CVE-2014-6271, CVE-2014-7169, and CVE-2014-3566 (AKA the "Bash Bug," "Shellshock," and "Poodle" vulnerabilities) were introduced in the v6.4.3g patch. OpenSSL advisory CVE-2015-0286 and CVE-2015-0292 were addressed with the v6.4.3h patch.
FOS v7.1	v7.1.1c	FOS v7.1.1a/b are also supported for Open Systems environments. FOS v7.1.1b or later is recommended for the Brocade Encryption Switch, for Brocade DCX and DCX 8510 platforms with one or more FS8-18 encryption blades, and for switches that operate in Access Gateway mode. FOS v7.2.1d is recommended for Brocade 7800 platform switches. There is no FOS v7.1-based code version recommended for these platforms.
FOS v7.2	v7.2.1g	FOS v7.2.1a/b/c are also supported for Open Systems environments including Access Gateway and NPIV solutions. FOS v7.2.1d/e are also supported for Open Systems environments that do not operate in Access Gateway mode or that have NPIV hosts/storage ports. Changes to address CVE-2014-6271, CVE-2014-7169, and CVE-2014-3566 (AKA the "Bash Bug," "Shellshock," and "Poodle" vulnerabilities) were introduced in the v7.2.1d patch. FOS v7.2.1d is recommended as a minimum version for Brocade 7800 platform switches. FOS v7.2.1g contains a code change to address TSB-2015-228-A.

FOS v7.3	v7.3.1d	FOS v7.3.1b is recommended as a minimum version for switches that operate in Access Gateway mode or that have NPIV hosts/storage ports. FOS v7.3.1d contains a code change to address TSB-2015-228-A.
FOS v7.4	TBD	A FOS v7.4.1x release is expected to be named as Target Path for Open Systems.

Note: More recent versions of Brocade FOS code will be available that provide additional functionality. As a general recommendation, customers who wish to deploy these latest features and who cannot wait for a Target Path designation on that release level should use the latest release available.

Customers who do not have an immediate need for the latest features should follow the provided Target Path recommendations, selecting the latest Target Path release that provides the level of functionality required.

Brocade FOS Recommendations for FICON Environments

For customers with FICON environments, Brocade generally recommends the use of the most recently released version of Brocade FOS that is supported for a particular platform that has been qualified for FICON. Table 2 lists the latest Brocade FOS release at each major Brocade FOS level that has been qualified for use in FICON environments.

Table 2. Recommended FICON Qualified Releases by Major Brocade FOS Level

Major Brocade FOS Level	FICON Qualified Release	Notes
FOS v6.4	v6.4.2a	Target Path for the Brocade 48000 platform.
FOS v7.0	v7.0.0d	For FCIP FICON Emulation (XRC, Tape, etc.), Brocade recommends FOS v7.0.0c_CVR_381210_33.
FOS v7.1	v7.1.0c	For FCIP FICON Emulation (XRC, Tape, etc.), Brocade recommends FOS v7.1.0cc.
FOS v7.2	v7.2.1d	FOS v7.2.0d is also supported for FICON environments. For FCIP FICON Emulation (XRC, Tape, etc.), Brocade recommends FOS v7.2.0dc or v7.2.1d4. FOS v7.2.1d is recommended as a minimum version for Brocade 7800 platform switches.
FOS v7.3	v7.3.1c	FOS v7.3.0b and v7.3.1b are also FICON certified. For FCIP FICON Emulation (XRC, Tape, etc.), Brocade recommends FOS v7.3.0b8.
FOS v7.4	v7.4.0a	A known issue connecting to 16-Gb hosts with 8-Gb SFPs installed in the switch exists in this version. For FCIP FICON Emulation (XRC, Tape, etc.), Brocade recommends FOS v7.4.0a1.

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Note: More recent versions of Brocade FOS code will be available that provide additional functionality. As a general recommendation, customers who wish to deploy these latest features and who cannot wait for a Target Path designation on that release level should use the latest release available.

Customers who do not have an immediate need for the latest features should follow the provided Target Path recommendations, selecting the latest Target Path release that provides the level of functionality required.

Migrating to Target Path and FICON Recommended Releases

The following upgrade paths are recommended for customers who are running older versions of Brocade FOS and wish to upgrade to a Target Path release in order to avoid the known issues or pitfalls that might exist in some older versions of firmware. If a switch is already running at a major release level that is different from the specific code version recommended in the migration path, simply move forward to the next major release level's recommended Target Path release, and continue the migration process from there.

Note: Before installing the new code, always carefully review the Brocade FOS release notes for both the version of code that you are moving from and the version of code that is being installed.

Upgrade Path to Brocade for Open Systems Environments

FOS v6.4.3d/e/f/g → FOS v7.0.2c/d/e → FOS v7.1.1a/b/c* → FOS v7.2.1a/b/c/d/e** → FOS v7.3.1d

*Note:** Brocade FOS v7.1.1b or later is recommended for the Brocade Encryption Switch, for Brocade DCX and DCX 8510 platforms with one or more FS8-18 encryption blades, and for switches operating in Access Gateway mode.

Note: Brocade FOS 7.2.1d or later is recommended for the Brocade 7800.

Upgrade Path to Brocade for FICON Environments

FOS v6.4.2a → FOS v7.0.0d* → FOS v7.1.0c* → FOS v7.2.1d* → FOS v7.3.1c → FOS v7.4.0a

*Note:** For FCIP FICON Emulation (XRC, Tape, etc.), substitute the recommended releases noted in Table 2.

Future Target Path Releases

Because a Target Path release is based on proven reliability and a lack of critical issues, it is impossible to predict future Target Path releases. However, based on the very mature qualification process and planned release schedules for maintenance and patch releases, Brocade can provide some guidance as to the main code stream and expected timeframe for the next Target Path release.

Brocade currently expects the next Target Path release to be designated on the Brocade FOS v7.4.1a code level. This release is also expected to be a Target Path recommendation for both Open Systems and FICON.

The future Target Path release level and timeframe are both subject to change without notice.