Extended Fast Software Upgrade Quick Reference Guide

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Extended Fast Software Upgrade

About Extended Fast Software Upgrade

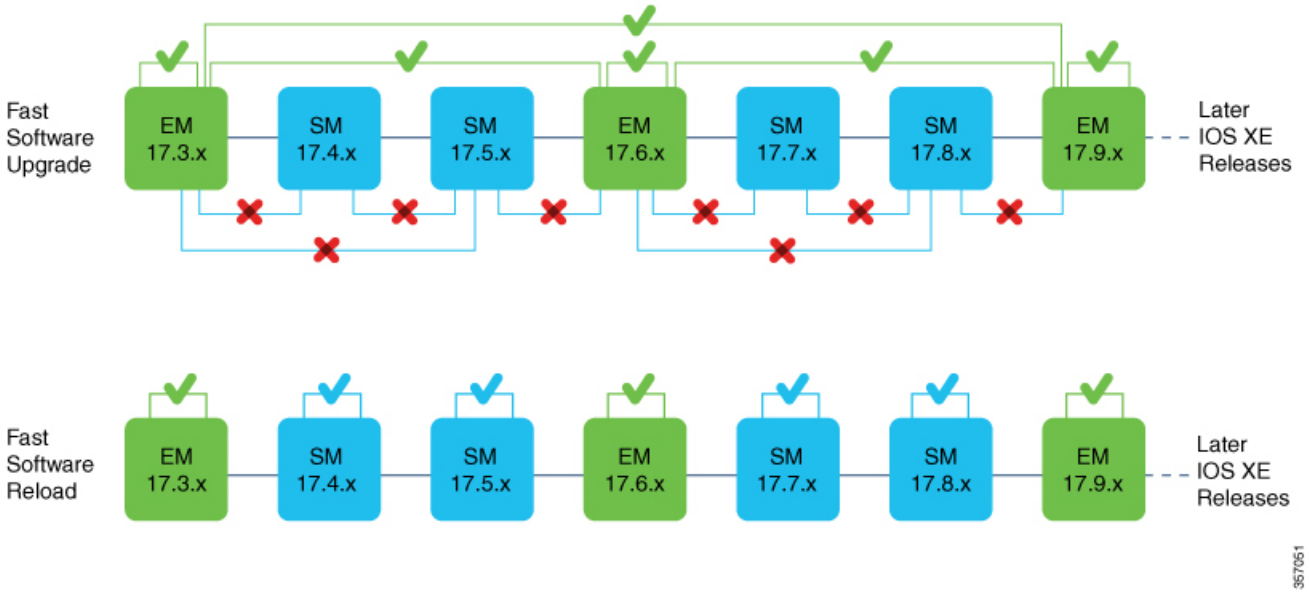
Extended Fast Software Upgrade is a software enhancement process aimed to reduce the traffic downtime during software reload or upgrade operations. Extended Fast Software Upgrade introduces the following commands:

- **reload fast**: This command reloads the existing software.
- **install add file** *image* **activate reloadfast commit**: This command upgrades the software version.

Extended Fast Software Upgrade is supported in install mode.

Extended Fast Software Upgrade is supported on both standalone and stacked switches.

Extended Fast Software Upgrade Support between Releases



Software Operations	Supported Scenarios	Unsupported Scenarios

Fast Software Upgrade	• Works within a major release train (for example, 17.x, 18.x) for 3 years.
	• Within a major release train, software upgrade is supported from:
	  • Any EM (EM1, EM2, EM3) to another EM (EM1, EM2, EM3)
	  Example: 17.3.x to 17.6.x, 17.6.x to 17.9.x
	  • Any release within the same EM
	  Example:17.3.2 to 17.3.3 or 17.3.4 or 17.3.x
	• Switching Recommendation:
	  • From any EM recommended release on CCO to current EM Recommended release on CCO
		• Downgrades are not supported.
		• Not supported on engineering special releases and .s (or similar) images.
		• Within a major release train, software upgrade is not supported from:
		  • An SM to EM or EM to SM
		  Example: 17.3.x or 17.4.x to 17.5.x is not supported
		  • An SM to SM
		  Example: 17.7.x to 17.8.x is not supported

Fast Software Reload	• Software reload works within a major release train (for example, 17.x, 18.x) for 3 years. • Within a major release train, software reload is supported within the same release. Example:17.3.2 to 17.3.2, 17.5.1 to 17.5.1	• Software reload is not supported on engineering special releases and .s (or similar) images.

Note FPGA upgrade are not supported. You can upgrade FPGA through CLI during maintenance windows that require full reload.

No configuration changes should be performed while Extended Fast Software Upgrade is being performed.

Release Support Matrix

The following tables displays the release support matrix for fast software upgrade.

Table 1: Fast Software Upgrade Release Support Matrix: EM to EM

From/To	17.3.2 (EM)	17.4.1 (SM)	17.5.1 (SM)	17.6.1 (EM)	17.7.1 (SM)	17.8.1 (SM)	17.9.1 (EM)
17.3.2 (EM)	✓	**x**	**x**	✓	**x**	**x**	✓

17.4.1 (SM)	—	—	**x**	**x**	**x**	**x**	**x**
17.5.1 (SM)	—	—	—	**x**	**x**	**x**	**x**
17.6.1 (EM)	—	—	—	✓	**x**	**x**	✓
17.7.1 (SM)	—	—	—	—	—	**x**	**x**
17.8.1 (SM)	—	—	—	—	—	—	**x**
17.9.1 (EM)	—	—	—	—	—	—	✓

Table 2: Fast Software Upgrade Release Support Matrix: Releases Within 17.3.x

From/To	17.3.2	17.3.3	17.3.4	17.3.5
17.3.2	✓	✓	✓	✓
17.3.3	—	—	✓	✓
17.3.4	—	—	—	✓

Table 3: Fast Software Upgrade Release Support Matrix: Releases Within the Same EM

From/To	17.6.1	17.6.2	17.6.3	17.6.4
17.6.1	✓	✓	✓	✓
17.6.2	—	—	✓	✓
17.6.3	—	—	—	✓

Prerequisites for Extended Fast Software Upgrade

For prerequisities for extended fast software upgrade, see Prerequisities for Extended Fast Software Upgrade.

Restrictions for Extended Fast Software Upgrade

The following restrictions are applicable to both standalone and stacked device:

- This feature is supported only if the device is running in install mode.
- This feature is not supported on a device that is configured with Spanning Tree Protocol (STP) only. The device must additionally be configured with either Rapid Spanning Tree Protocol (RSTP) or Multiple Spanning Tree Protocol (MSTP).
- For a root device, Extended Fast Software Upgrade is not supported if any of the device ports in forwarding state are connected to a STP peer (A device with STP configured and directly connected to root device)
- For a device, with STP configured and not defined as a root device, Extended Fast Software Upgrade is supported only if the number of device ports in the forwarding state connected to a STP peer is less or equal to 1.

The following restrictions are applicable for a stacked device:

- This feature is not supported if the device stack is configured in the partial-ring state.
- This feature is not supported on a device that is configured with Bidirectional Forwarding Detection (BFD).
- This feature is not supported on a device that is configured with MACsec Key Agreement (MKA).
- This feature is not supported on a device that is configured with Cisco TrustSec.
- Configured UniDirectional Link Detection (UDLD) message intervals are ignored during traffic downtime. The intervals are restored to the configured values after Extended Fast Software Upgrade is completed.

The following restriction is applicable for a standalone device:

For all protocols other than the following, the traffic downtime will be longer than 30 seconds:

- Layer 2 Switching
- Per VLAN Spanning Tree (PVST)
- STP with RSTP or MSTP
- Static Port-channels (Mode on)
- UDLD
- Virtual routing and forwarding (VRF)
- Open Shortest Path First (OSPF) or OSPFv2 or OSPFv3
- BGP (IPv4 and IPv6 address families)
- IS-IS
- Flexible NetFlow
- QoS
- Link Aggregation Control Protocol (LACP)
- IEEE 802.1X Port-Based Authentication
- MAC authentication bypass
- Web authentication
- Internet Group Management Protocol (IGMP) snooping
- Multicast Listener Discovery (MLD) snooping

Additional Configurations

The following table lists the additional configurations required to perform extended fast software upgrade.

Table 4:

Switch Configuration	Protocol	Additional Configuration	Command
Standalone device	IPv6	Set the time limit for a remote IPv6 node to be considered reachable after a reachability confirmation event has occurred.	`Device(config)# ipv6 nd reachable-time 3600000`
	IPv6 with MLD	Enable IPv6 MLD snooping	`Device(config)# ipv6 mld snooping`

	OSPFv3	• Enable SNMP ifIndex persistence globally
		• Set a fixed router ID for an OSPFv3 instance.
		• Enable SNMP ifIndex persistence
			`Device(config)# snmp ifmib ifindex persist`
			`Device(config)# router ospfv3 1`
			`Device(config-router)# router-id 192.0.2.5`
			`Device(config-router)# interface-id snmp-if-index`

	BGP	Enable NSF awareness on a device	`Device(config-router)# bgp graceful-restart`
Stacked device	BGP	Enables NSF awareness on all devices in the stack.	`Device(config-router)# bgp graceful-restart all`

	IS-IS	Enables NSF operation for IS-IS.	`Device(config-router)# nsf ietf`
			OR
			`Device(config-router)# nsf cisco`

How to Perform Extended Fast Software Upgrade

To perform extended fast software upgrade on a standalone switch, see How to Perform Extended Fast Software Upgrade on a Standalone Switch.

To perform extended fast software upgrade on a standalone switch, see How to Perform Extended Fast Software Upgrade on a Stacked Switch.

Additional References for Extended Fast Software Upgrade

Related Topic	Document Title
Software Configuration Guides	https://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst9300/software/release/17-3/configuration_guide/sys_mgmt/b_173_sys_mgmt_9300_cg/m9-173-sm-extended-fast-soft-upgrade_cg.html
Release Notes	https://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst9300/software/release/17-3/release_notes/ol-17-3-9300.html

Related Topic	Document Title
Command References	https://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst9300/software/release/17-3/command_reference/b_173_9300_cr/system_management_commands.html
Data Sheets	https://www.cisco.com/c/en/us/products/collateral/switches/catalyst-9300-series-switches/nb-06-cat9300-ser-data-sheet-cte-en.html

Feature History for Extended Fast Software Upgrade

This table provides release and related information for features explained in this module.

These features are available on all releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature	Feature Information
Cisco IOS XE Amsterdam 17.3.2a	Extended Fast Software Upgrade	Extended Fast Software Upgrade reduces the traffic downtime during software reload or upgrade operations.

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Cisco Systems, Inc.
San Jose, CA 95134-1706
USA

Asia Pacific Headquarters
CiscoSystems(USA)Pte.Ltd.
Singapore

Europe Headquarters
CiscoSystemsInternationalBV
Amsterdam,TheNetherlands

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