# Performing Factory Reset


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## Prerequisites for Performing a Factory Reset

- Ensure that all the software images, including the current image, configurations, and personal data are backed up before you begin the factory reset process.
- Ensure that there is uninterrupted power supply when the factory reset process is in progress.
- Ensure that In-Service Software Upgrade (ISSU) or In-Service Software Downgrade (ISSD) are not in progress before you begin the factory reset process.

## Restrictions for Performing a Factory Reset

- Software patches, if installed on the device, will not be restored after the factory reset process.
- If the **factory-reset** command is issued through a VTY session, the session is not restored after completion of the factory reset process.

## Information About Performing a Factory Reset

Factory reset erases all the customer-specific data stored in a device and restores the device to its original configuration at the time of shipping. Data that is erased includes configurations, log files, boot variables, core files, and credentials such as Federal Information Processing Standard-related (FIPS-related) keys. The erasure is consistent with the clear method, as described in NIST SP 800-88 Rev. 1.

The factory reset process is used in the following scenarios:

- Return Material Authorization (RMA) for a device: If you have to return a device to Cisco for RMA, remove all the customer-specific data before obtaining an RMA certificate for the device.
- Recovering a compromised device: If the key material or credentials that are stored on a device are compromised, reset the device to the factory configuration, and then reconfigure the device.

During a factory reset, the device reloads and enters ROMMON mode. After the factory reset, the device removes all its environment variables, including the **MAC_ADDRESS** and the **SERIAL_NUMBER** variables, which are required to locate and load the software. Perform a reset in ROMmon mode to automatically set the environment variables. The BAUD rate environment variable returns to its default value after a factory reset. Make sure that the BAUD rate and the console speed are the same at all times. Otherwise, the console becomes unresponsive.

After the system reset in ROMmon mode is complete, add the Cisco IOS image either through an USB or TFTP.

The following table provides details about the data that is erased and retained during the factory reset process:

***Table 1: Data Erased and Retained During Factory Reset***

| Data Erased | Data Retained |
|---|---|
| All Cisco IOS images, including the current boot image | Data from remote field-replaceable units (FRUs) |
| Crash information and logs | Value of the configuration register. |
| User data, startup and running configuration, and contents of removable storage devices, such as Serial Advanced Technology Attachment (SATA), Solid State Drive (SSD), or USB | — |
| Credentials such as FIPS-related keys | Credentials such as Secure Unique Device Identifier (SUDI) certificates, and public key infrastructure (PKI) keys. |
| Onboard Failure Logging (OBFL) logs | Licenses |
| ROMmon variables added by a user. | — |

# How to Perform a Factory Reset

To perform a factory reset, complete this procedure:

### Procedure

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br>Enter your password, if prompted. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 2** | • For a standalone device:<br>**factory-reset** {**all** [**secure 3-pass**] \| **config** \| **boot-vars**}<br>• For stacked devices:<br>**factory-reset** {**all** [**secure 3-pass**] \| **config** \| **boot-vars** \| **switch** {*switch-number* \| **all** {**all** [**secure 3-pass**] \| **config** \| **boot-vars**}}<br>**Example:**<br>`Device# factory-reset all`<br>OR<br>`Device# factory-reset switch 1 all config` | Resets the device to its configuration at the time of its shipping.<br>No system configuration is required to use the **factory reset** command.<br>The following options are available:<br>• **all**: Erases all the content from the NVRAM, all the Cisco IOS images, including the current boot image, boot variables, startup and running configuration data, and user data. We recommend that you use this option.<br>• **secure 3-pass**: Erases all the content from the device with 3-pass overwrite.<br>  • Pass 1: Overwrites all addressable locations with binary zeroes.<br>  • Pass 2: Overwrites all addressable locations with binary ones.<br>  • Pass 3: Overwrites all addressable locations with a random bit pattern.<br>**Note** This option takes approximately thrice the time taken to perform any other option.<br>• **config**: Resets the startup configurations.<br>• **boot-vars**: Resets the user-added boot variables.<br>• **switch** {*switch-number* \| **all**}:<br>  • *switch-number*: Specifies the switch number. The range is from 1 to 16.<br>  • **all**: Selects all the switches in the stack.<br>After the factory reset process is successfully completed, the device reboots and enters ROMmon mode. |

# Configuration Examples for Performing a Factory Reset

The following example shows how to perform a factory reset on a standalone switch:

```
Device> enable
Device# factory-reset all

The factory reset operation is irreversible for all operations. Are you sure? [confirm]
The following will be deleted as a part of factory reset:
1: Crash info and logs
2: User data, startup and running configuration
3: All IOS images, including the current boot image
4: OBFL logs
5: User added rommon variables
6: Data on Field Replaceable Units(USB/SSD/SATA)
The system will reload to perform factory reset.
It will take some time to complete and bring it to rommon.
You will need to load IOS image using USB/TFTP from rommon after
this operation is completed.
DO NOT UNPLUG THE POWER OR INTERRUPT THE OPERATION
Are you sure you want to continue? [confirm]
```

The following examples show how to perform a factory reset on stacked devices:

```
Device> enable
Device# factory-reset switch all all
The factory reset operation is irreversible for all operations. Are you sure? [confirm]
 The following will be deleted as a part of factory reset:
 1: Crash info and logs
 2: User data, startup and running configuration
 3: All IOS images, including the current boot image
 4: OBFL logs
 5: User added rommon variables
 6: Data on Field Replaceable Units(USB/SSD/SATA)
 The system will reload to perform factory reset.
 It will take some time to complete and bring it to rommon.
 You will need to load IOS image using USB/TFTP from rommon after
 this operation is completed.
 DO NOT UNPLUG THE POWER OR INTERRUPT THE OPERATION
 Are you sure you want to continue? [confirm]
Chassis 1 reloading, reason - Factory Reset

 Protection key not found
9300L#Oct 25 09:53:05.740: %PMAN-5-EXITACTION: F0/0: pvp: Process manager is exiting: reload
 fp action requested
Oct 25 09:53:07.277: %PMAN-5-EXITACTION:vp: Process manager is exiting: rp processes exit
with reload switch code


Enabling factory reset for this reload cycle
 Switch booted with
tftp://10.5.40.45/cat9k_iosxe.BLD_POLARIS_DEV_LATEST_20191007_224933_V17_2_0_21_2.SSA.bin
 Switch booted via
//10.5.40.45/cat9k_iosxe.BLD_POLARIS_DEV_LATEST_20191007_224933_V17_2_0_21_2.SSA.bin
% FACTORYRESET - Started Cleaning Up...

% FACTORYRESET - Unmounting sd1
% FACTORYRESET - Cleaning Up sd1 [0]
% FACTORYRESET - erase In progress.. please wait for completion...
```

```
% FACTORYRESET - write zero...
% FACTORYRESET - finish erase

% FACTORYRESET - Making File System sd1 [0]
Discarding device blocks: done
Creating filesystem with 409600 4k blocks and 102544 inodes
Filesystem UUID: fcf01664-7c6f-41ce-99f0-6df1d941701e
Superblock backups stored on blocks:
 32768, 98304, 163840, 229376, 294912

Allocating group tables: done
Writing inode tables: done
Writing superblocks and filesystem accounting information: done

% FACTORYRESET - Mounting Back sd1 [0]
% FACTORYRESET - Handling Mounted sd1
% FACTORYRESET - Factory Reset Done for sd1

% FACTORYRESET - Unmounting sd3
% FACTORYRESET - Cleaning Up sd3 [0]
% FACTORYRESET - erase In progress.. please wait for completion...
% FACTORYRESET - write zero...


Chassis 2 reloading, reason - Factory Reset
Dec 12 01:02:12.500: %PMAN-5-EXITACTION: F0/0: pvp: Process manager is exiting: reload fp
action requested
De
Enabling factory reset for this reload cycle
 Switch booted with
tftp://10.5.40.45/cat9k_iosxe.BLD_POLARIS_DEV_LATEST_20191007_224933_V17_2_0_21_2.SSA.bin
 Switch booted via
//10.5.40.45/cat9k_iosxe.BLD_POLARIS_DEV_LATEST_20191007_224933_V17_2_0_21_2.SSA.bin
% FACTORYRESET - Started Cleaning Up...
% FACTORYRESET - Unmounting sd1
% FACTORYRESET - Cleaning Up sd1 [0]
% FACTORYRESET - erase In progress.. please wait for completion...
% FACTORYRESET - write zero...


After this the switch will come to boot prompt. Then the customer has to boot the device
from TFTP.
```

# Additional References for Performing a Factory Reset

### Related Documents

| Related Topic | Document Title |
|---|---|
| For complete syntax and usage information for the commands used in this chapter. | Command Reference |

# Feature History for Performing a Factory Reset

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 Fuji 16.8.1a | Factory Reset | Factory reset erases all the customer-specific data stored in a device and restores the device to its original configuration at the time of shipping |
| Cisco IOS XE Gibraltar 16.12.1 | Factory Reset for Removable Storage Devices | Performing a factory reset erases the contents of removable storage devices, such as SATA, SSD, or USB. |
| Cisco IOS XE Amsterdam 17.2.1 | Factory Reset with 3-pass Overwrite | A factory reset can be performed to erase all the content from the device securely with 3-pass overwrite. The **secure 3-pass** keyword was introduced. |
| | Enhanced Factory Reset Option for Stack and Cisco StackWise Virtual | Support for factory reset on stacked devices and for Cisco StackWise Virtual enabled devices is introduced. |

Use Cisco Feature Navigator to find information about platform and software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn.