

# Understanding the Difference Between Operational and Locked Flash on the CSS 11000 and CSS 11500

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## Introduction

This document explains the difference between operational and locked Flash on the Content Services Switch (CSS) 11000 and 11500.

## Before You Begin

### Conventions

For more information on document conventions, see the Cisco Technical Tips Conventions.

### Prerequisites

There are no specific prerequisites for this document.

### Components Used

This document is not restricted to specific software and hardware versions.

The information presented in this document was created from devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If you are working in a live network, ensure that you understand the potential impact of any command before using it.

## Operational vs. Locked Flash

Flash memory is a type of sector-based electrically erasable nonvolatile memory that can be erased and reprogrammed in units of memory. Flash gets its name because the microchip is organized so that a section of memory cells are erased in a single action or flash. CSS switches use a Flash image to store the initial program code that the CPU executes when the switch is powered up. This initial program loads the selected version of WebNS as specified in the boot configuration records.

The CSS switch contains two Flash images on each unit. One image is referred to as the operational Flash image, and the other is referred to as the locked Flash image. The locked Flash image provides a recovery

path if the operational Flash is corrupted during automatic update. Both Flash images are located in Flash ROM, however, they are stored in different segments on the ROM. In theory, both images should not become corrupt. This Flash ROM is non-volatile, which means that these images continue to be stored in this physical locale when the system is powered down. Normally, when a CSS switch reboots, it loads the operational Flash image from the Flash ROM, which consists of the ROM Monitor (ROMmon), Diag Monitor, and OFFDM. The OFFDM then loads the WebNS image from disk, PCMCIA memory or network.

A new version of code is loaded (a new .adi image), and the version number indicates that it contains a newer operational Flash image than what is resident in the Flash of the system. The unpacking process first writes the operational Flash image on the disk or PCMCIA memory under the directory /ap0x0x00x/images/ (CSS 11000) or /sg0x0x00x/images/ (CSS 11500). This is the Flash image that is burned into the Flash.

If the CSS switch is not able to boot from the operational Flash image, for example, it becomes corrupt, it will use the older locked Flash code that was placed in Flash during the manufacturing of the unit. The locked Flash image will provide the initial program so that the WebNS image can be loaded. An older version of locked Flash will work correctly with the newer run-time code.

**Note:** An important thing to note is that there is no automatic update of the locked Flash image. The switch will continue to boot from the locked Flash image until the operational Flash image is restored by either manual intervention (via OFFDM), or by loading a new .adi file.

The locked Flash image should *never* be upgraded or removed. This could cause the unit to become incapacitated.

By issuing the CLI command **version**, you can determine the version of operational and locked Flash images.

```
CSS# version
Version: sg0720310s (7.20 Build 310)
Flash (Locked): 7.10 Build 3
Flash (Operational): 7.30 Build 10
Type: PRIMARY
Licensed Cmd Set(s): Standard Feature Set
Enhanced Feature Set
```

The locked Flash image can also be viewed by issuing the CLI commands **show chassis** and **show chassis flash**.

## Related Information

- [Content Networking Devices Technical Support](#)
- [Content Networking Software Technical Support](#)
- [CSS 11000 Series Content Services Switches Product Support Page](#)
- [CSS 11500 Series Content Services Switches Technical Documentation](#)
- [Cisco WebNS CSS 11000 Software Downloads](#)
- [Cisco WebNS CSS 11500 Software Downloads](#)
- [Technical Support – Cisco Systems](#)