

## Cisco 7500 Boot Sequence

Ignore the options for manual booting (config reg = 0) and for booting from boot flash (config reg = 1 -- equivalent of booting from ROM on the 7000).

### BOOTING COMPONENTS

There are 3 players in the booting sequence:

- 1.The ROM Monitor -- burned in ROM on the board. Only knows how to get the processor running and how to look for the "boot loader".
- 2.The Boot Loader -- a router image (rsp-boot-m) that is used to find and boot the "system image". The boot loader does not have all the routing code, and only knows how to read the config, access the file system, and behave as a network host for net booting.
- 3.The System Image -- this is the main router image (rsp-k-mz). The goal is to find this image and get it running.

The final components in the booting process are:

- 1.The config register (specifically the boot bits in this register),
- 2.The ROM Monitor environment variables (specifically the BOOT variable, the BOOTLDR variable, and the CONFIG\_FILE variable,
- 3.The configuration file.

The show boot command will display the values for these components.

Example:

```
router#show boot
BOOT variable =
CONFIG_FILE variable =
Current CONFIG_FILE variable =
BOOTLDR variable does not exist
```

Configuration register is 0x2

```
router#
```

### BASIC BOOTING SEQUENCE

The basic booting sequence for the 7500 is the same as for any cisco router: the ROM Monitor loads the Boot Loader image, the boot loader reads the config file and boots the System Image according to the directions in the config file.

### DETAILED BOOTING SEQUENCE

The more detailed booting sequence includes the following:

Note: Loading the Boot Loader: The ROM Monitor uses the following algorithm for booting

```
if (config reg boot bits == 0) {
Drop to ROM Monitor command line for manual booting
} else {
if (config reg boot bits == 1) {
Boot the first image in bootflash:
} else {
Look in bootflash for a Boot Loader image
if (image found in bootflash:) {
Load that image and let the Boot Loader boot the router
} else { /* no image in bootflash: */
Examine the BOOT environment variable to find the location
of a System Image to boot (looks for images in slot0:)
if (found an image in the BOOT variable in slot0:) {
Boot that image in slot0:
} else {
Boot the first file in slot0:
if (first file in slot0: did not boot successfully)
Boot the first file in bootflash:
}
}
}
}
}
```

There are parts of this algorithm that have been simplified to make it easier to read, but this is the basic algorithm.

Once the Boot Loader is running it looks for "boot system" commands to find where to boot the System Image from.

The BOOTLDR ROM Monitor environment variable specifies where to look for the Boot Loader image. It contains a single file name of the Boot Loader image. The "boot bootldr" command can be used to set the BOOTLDR variable.

The CONFIG\_FILE ROM Monitor variable specifies where to look to find the configuration file. It contains a single file name of the Configuration File. The "boot config" command can be used to set the value of the CONFIG\_FILE variable.

The BOOT ROM Monitor variable specifies where to look to find the System Image file. It contains a list of file names to try in the order they are to be tried. The "boot system" command can be used to add file names to the BOOT variable. The "no boot system" command can be used to clear the value of the BOOT variable to a null string.

MANUAL BOOTING

In the case that the router image or the Boot Loader image gets damaged or otherwise becomes unusable, the system will attempt to boot directly from the slot0: device. The user can also type a specific boot command at the ROM Monitor prompt.

Example:

```
rommon 1 > b slot0:rsp-k-mz.103-6
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
reading the file into memory...
Self decompressing the image : #####
#####
#####
#####
#####
#####
##### [OK]
```