ISis ImageStream®

Configuring an Integrated CSU/DSU WAN Interface

Version: 2580

Table of Contents

Router Installation and Configuration Manual/Configuring an Integrated CSU/DSU WAN Interface

This chapter describes how to configure the ImageStream router serial WAN interfaces with integrated CSU/DSUs and includes the following topics:

◊ WAN Port Uses
◊ Understanding the Network Interface Configuration File
◊ Configuring an Integrated CSU/DSU WAN Interface
◊ Default Integrated CSU/DSU WAN Interface Configuration
◊ Customizing the Configuration
◊ Setting Integrated CSU/DSU Parameters
◊ Configuring Additional Serial Devices

Before configuring the WAN interface, you must make the appropriate cabling connection for your needs. Refer to the hardware installation guide for your ImageStream product for information on making the WAN connection. See the Command Reference for more detailed command descriptions and instructions.

WAN Port Uses

WAN ports uses is explained in Chapter 7, Router Installation and Configuration Manual/Configuring a Synchronous Serial WAN Interface and in Chapter 31, Router Installation and Configuration Manual/Basic Networking.

Understanding the Network Interface Configuration File

The **wan.conf** file is explained in detail in Chapter 5, Router Installation and Configuration Manual/Configuring a LAN Interface, and in Chapter 31, Router Installation and Configuration Manual/Basic Networking.

Configuring an Integrated CSU/DSU WAN Interface

Once you have determined the type of synchronous connection to use between your remote locations, the synchronous port on each end of the connection must be configured. If your WAN interface does not have an integrated CSU/DSU, please see Chapter 7, Router Installation and Configuration Manual/Configuring a Synchronous Serial WAN Interface.

```
Configuration menu
1. AAA (Password) Configuration
2. Global configuration
3. Network interface configuration
4. Firewall and QOS configuration
```

```
5. Service configuration
6. Dynamic routing configuration
7. Save configuration to flash
0. ISis-Router main menu
```

From the "Configuration menu", select the "Network interface configuration" option by pressing 3 and **Enter**. This will open the ImageStream router's primary configuration file, **wan.conf** in the default editor. The **wan.conf** file is also accessible from the command line in the **/usr/local/sand** directory.

Default Integrated CSU/DSU WAN Card Configuration

The default values of cards equipped with an integrated CSU/DSU interface are as follows:

Integrated T1 and E1 CSU/DSU's default to the following values:

◊ ESF framing (CCS for E1 circuits)
◊ B8ZS encoding (HDB3 for E1 circuits)
◊ No line buildout
◊ All timeslots configured, all at 64K speeds
◊ Equalizer gain limit (EGL) off
◊ Normal data encoding
◊ Structured mode (E1 only)
◊ CRC4 checksums disabled (E1 only)

Integrated DS3 and E3 CSU/DSUs default to the following values:

◊ C-bit framing
◊ No line buildout
◊ All timeslots configured
◊ Equalizer gain limit (EGL) off

All cards use external (also known as "line" or "network") clocking. No port description is configured for any port.
PPP encapsulation is enabled.
Bridging is not configured.

NOTE: Remember that default settings are not necessarily shown in the configuration file.

Customizing the Configuration

To customize the WAN port configurations, complete the following sections. The ordering of the commands is done by convention, but a specific order is not required. Likewise, all configurations are indented to make configurations easy to read, but indentation is not required. In general, ImageStream follows this ordering convention:

1. Comments
2. Port description
3. Bandwidth scaling statement

    4. CSU/DSU settings
    5. Other optional settings
    6. IP address/netmask
    7. Secondary IP addresses/netmasks

Setting the Port Description

You can assign description to all WAN ports. Although this feature is optional, it may be particularly useful to assign names to facilitate administration. Setting a description does not change the operation or name of the port.

To assign a description to a port, enter this command in the **wan.conf** file in the Serial interface configuration section:

description *string*

Using the router's default configuration below, we have modified the description for Serial0:

```
!
interface Serial0
shutdown
description Connection to provider encapsulation hdlc
ip address 192.168.10.1 255.255.255.252
!
```

Setting the IP Address and Netmask

During the initial installation process, you will set the IP address and netmask for the Serial interface. To change the IP address and netmask of the Serial interface from the default, modify the ip address command. The syntax of this command is:

ip address *ipaddress netmask*

Set the IP address to the address to be used by the serial interface of the router on your network. If you have divided your network into subnets, enter the subnet mask that identifies how your network addresses are divided between the network portion and the host portion.

Using the default configuration below, we have set the Serial0 IP address to 20.0.0.2 with a netmask of 255.255.255.252. Often, with numbered point-to-point Serial links, the netmask will be a /30 (a subnet with 2 valid addresses). You will need to substitute your address and netmask for your network.

```
!
interface Serial0
shutdown
description Connection to provider encapsulation hdlc
ip address 20.0.0.2 255.255.255.252
!
```

Setting Serial Transport Encapsulation

The serial transport encapsulation must be set for an integrated CSU/DSU serial port. Only one encapsulation may be specified, and this setting must match the one used on the remote end of the serial interface. If your provider has specified an encapsulation type, use this value. Normal encapsulations for a serial link are: hdlc, ppp, frame-relay ietf, or atm. The syntax of this command is:

encapsulation *type*

In the default configuration below, we have specified HDLC encapsulation. This encapsulation type is the default on most Cisco routers. If you are not connecting to a Cisco router, you will likely use PPP encapsulation. ATM and frame relay encapsulation types require special configurations and will be discussed in later chapters. You will need to set the encapsulation type for your network.

```
!
interface Serial0
shutdown
description Connection to provider encapsulation hdlc
ip address 20.0.0.2 255.255.255.252
!
```

Enabling or Disabling a Serial Interface

To disable an interface, use the **shutdown** interface configuration command. Unlike other command line interfaces, the **wan.conf** file does not require a "no" version of a command to reverse the operation. Entering "no" followed by a command will be ignored by SAND.

By default, Serial0 is disabled in the default configuration below because the shutdown command has been entered.

```
!
interface Serial0
shutdown
description Connection to provider encapsulation hdlc
ip address 20.0.0.2 255.255.255.252
!
```

To enable Serial0 in the configuration, remove the shutdown command. Do not use "no shutdown", as this will be ignored by SAND. It is not necessary to enter "no" and a command to negate the command. Simply remove the command from the configuration file.

Adding Comments to a Serial Configuration

Comments may be added to the Serial configuration, or anywhere in the wan.conf file by inserting a line that begins with the # symbol. The contents of the line will be ignored by SAND. Comments may be used to place contact information, ticket numbers, circuit IDs or any other information into the **wan.conf** file. There are no limits on the number or length of comments that may be inserted.

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
encapsulation hdlc
```

```
ip address 20.0.0.2 255.255.255.252
!
```

Scaling the connection speed calculation

For some media, such as Ethernet and Token Ring, the bandwidth is fixed; for other media, such as serial lines, you can change the actual bandwidth by adjusting the hardware. For both classes of media, you can use the bandwidth configuration command to communicate the current bandwidth to the router's statistical output program and other programs. The bandwidth command sets an informational parameter only to communicate the current bandwidth to other programs.

The bandwidth command does not adjust the actual bandwidth of an interface. Ports with integrated CSU/DSU's automatically calculate the bandwidth value based on the number of timeslots configured. In our example above, the router will automatically calculate the bandwidth of 1536000 (full T1 less overhead). The syntax of the bandwidth command is:

bandwidth *bits per second*

In the default example from below, we have added a bandwidth equal to a full T1 line (less overhead) to the Serial0 interface. This value is calculated automatically, so this command is optional:

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
ip address 20.0.0.2 255.255.255.252
!
```

Setting Integrated T1 CSU/DSU Parameters

The **service-module** command is used to configure the serial card's integrated T1 CSU/DSU. In most cases, the defaults provided on the integrated CSU/DSU will match the network configuration. Check with your line provider to determine if your line settings differ from the default CSU/DSU configuration. The configurations in the interface configuration must match the settings for your line or your serial interface will not function correctly.

Configuring the T1 Line Clocking Source

Unlike asynchronous devices, a synchronous data interface must a clock source to use for network timing. One and only one clock source should be configured on a line. In most cases, your line provider will provide a clock source for the T1 line. The T1 CSU/DSU can also be configured to provide a clock source. The syntax of this command is:

service-module t1 clock source *{ line | internal }*

The line or internal keyword specifies the type of clocking to use on this interface. Line (also known as "network" or "external") timing is the default value. Using the internal keyword will enable the CSU/DSU's internal clock and will instruct the CSU/DSU to place this clock source on the line. Configuring more than one clock source, or having no clock source, can cause a line to have

synchronization problems resulting in framing errors and data loss. Check with your line provider before enabling internal clocking to ensure that this setting is needed.

We have specified the default value in the default configuration as seen below.

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
service-module t1 clock source line
ip address 20.0.0.2 255.255.255.252
!
```

Configuring T1 Time Slots and Channel Speeds

To configure the number of time slots allocated to the Serial interface, include the time slots statement in the interface configuration. The syntax of this command is:

service-module t1 timeslots *{ range | all } [speed   { 56 | 64 }]*

where the range is a value of 1 to 24 for T1. The **speed** keyword configures the byte encoding of the T1 line. By default, T1 lines use a byte encoding of 8 bits per byte (64 kbps channels). You can configure an alternative byte encoding of 7 bits per byte (56 kbps channels).

You can designate any combination of time slots for usage. The default is to use all time slots.

To use time slots 1 through 10, designate time-slot-number as follows:

service-module t1 timeslots 1-10

To use time slots 1 through 5, time slot 10, and time slot 24, designate the timeslot range as follows:

service-module t1 timeslots 1-5,10,24;

To use the first four odd-numbered time slots, designate the timeslot range as follows:

service-module t1 timeslots 1,3,5,7

NOTE: Spaces are not allowed between timeslot numbers.

In the default configuration, we have inserted the default value "all":

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
service-module t1 clock source line
service-module t1 timeslots all speed 64
ip address 20.0.0.2 255.255.255.252
!
```

Configuring T1 Data Inversion

By default, data inversion is disabled. To enable data inversion at the HDLC level, include the service-module t1 data coding { normal | inverted } statement in the interface configuration. When you enable data inversion, all data bits in the data stream are transmitted as inverted; that is, zeroes are transmitted as ones and ones as zeroes. Data inversion is normally used only in AMI mode to guarantee ones density in the transmitted stream.

Configuring T1 Line Buildout

A T1 interface has 4 possible settings for T1 line buildout. The line buildout setting is used to set the signal attenuation factor due to the impedance of copper cabling. The line buildout setting is used on when the connection between the integrated CSU/DSU and the line provider demarcation point is greater than 225 feet. By default, the T1 interfaces use the shortest setting (none). The command syntax is:

```
service-module  t1 lbo value
```

where the value is either -22.5 db, -15 db, -7.5 db, or none. If you are unsure of which setting to use, leave the builtout at the shortest setting. In the default example from above, we have omitted the service-module t1 lbo command since the connection to the demarc is less than 225 feet. Optionally, the command service-module t1 lbo none could be added, although it would have the same effect as omitting the command.

Configuring the T1 Equalizer Gain Limiter

The T1 interface has an equalizer gain limiter. This setting is used to turn on the receiver gain limiter to overcome impedance of copper cabling. The gain limiter should be turned on when the connection between the integrated CSU/DSU and the line provider demarcation point is greater than 225 feet. By default, the T1 interfaces do not enable the gain limiter. To enable the equalizer gain limiter, add the command **servicemodule t1 egl** to the interface configuration. This command is normally used in conjunction with the line buildout command.

Configuring T1 Framing

By default, T1 interfaces use an extended super frame (ESF) framing format. To explicitly configure ESF framing, include the framing statement in the interface configuration for the serial device:

```
service-module t1 framing esf
```

You can configure SF (super frame, also known as "D4") format as an alternative. To have the interface use the SF framing format, include the framing statement in the interface configuration, specifying the sf option. In the default configuration below, we have specified the default ESF framing:

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
```

```
service-module t1 clock source line
service-module t1 timeslots all speed 64 service-module t1 framing esf
ip address 20.0.0.2 255.255.255.252
!
```

Configuring T1 Line Encoding

By default, T1 interfaces use a B8ZS line encoding. To explicitly configure B8ZS line encoding, include the linecode statement in the interface configuration for the serial device:

service-module t1 linecode *b8zs*

You can configure AMI line encoding as an alternative. To have the interface use the AMI framing format, include the framing statement in the interface configuration, specifying the ami option. In the default configuration below, we have specified the default B8ZS line encoding:

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
service-module t1 clock source line
service-module t1 timeslots all speed 64 service-module t1 framing esf
service-module t1 linecode b8zs
ip address 20.0.0.2 255.255.255.252
!
```

Setting Integrated E1 CSU/DSU Parameters

The **service-module** command is used to configure the serial card's integrated E1 CSU/DSU. In most cases, the defaults provided on the integrated CSU/DSU will match the network configuration. Check with your line provider to determine if your line settings differ from the default CSU/DSU configuration. The configurations in the interface configuration must match the settings for your line or your serial interface will not function correctly.

Configuring the E1 Line Clocking Source

Unlike asynchronous devices, a synchronous data interface must a clock source to use for network timing. One and only one clock source should be configured on a line. In most cases, your line provider will provide a clock source for the E1 line. The E1 CSU/DSU can also be configured to 4provide a clock source. The syntax of this command is:

service-module e1 clock source *{ line | internal }*

The line or internal keyword specifies the type of clocking to use on this interface. Line (also known as "network" or "external") timing is the default value. Using the internal keyword will enable the CSU/DSU's internal clock and will instruct the CSU/DSU to place this clock source on the line. Configuring more than one clock source, or having no clock source, can cause a line to have synchronization problems resulting in framing errors and data loss. Check with your line provider before enabling internal clocking to ensure that this setting is needed. We have specified the default value in the default configuration below:

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
service-module e1 clock source line
ip address 20.0.0.2 255.255.255.252
!
```

Configuring E1 Time Slots and Channel Speeds

To configure the number of time slots allocated to the Serial interface, include the time slots statement in the interface configuration. The syntax of this command is:

service-module e1 timeslots *[{ range | all } [speed   { 56 | 64 }]*

where the range is a value of 2 to 32 for structured E1. The speed keyword configures the byte encoding of the E1 line. By default, E1 lines use a byte encoding of 8 bits per byte (64 kbps channels). You can configure an alternative byte encoding of 7 bits per byte (56 kbps channels).

You can designate any combination of time slots for usage. Structured E1 circuits use the first time slot in the channel group for framing and signaling. Channels 2-32 are available for data. The router will not use time slot 1 for data in structured mode, even if you configure it to do so. The default time slot configuration is to use all data time slots.

To use time slots 1 through 11, designate time-slot-number as follows (remember that slot 1 will be used for signaling and slots 2-11 will be used for data):

service-module e1 timeslots 1-11

To use time slots 2 through 5, time slot 10, and time slot 24, designate the timeslot range as follows:

service-module e1 timeslots 2-5,10,24;

To use the first four odd-numbered time slots, designate the timeslot range as follows: service-module e1 timeslots 3,5,7,9. Spaces are not allowed between timeslot numbers.

In the default configuration, we have inserted the default value "all":

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
service-module e1 clock source line
service-module e1 timeslots all speed 64
ip address 20.0.0.2 255.255.255.252
!
```

E1 interfaces can be operated in an unstructured mode where all 32 timeslots are available for use. To enable this option, add the service-module e1 unstructured command to your configuration. Not all cards support this option. Check the Command Reference to see if your E1 card supports unstructured

operation.

Configuring E1 Data Inversion

By default, data inversion is disabled. To enable data inversion at the HDLC level, include the service-module e1 data coding { normal | inverted } statement in the interface configuration. When you enable data inversion, all data bits in the data stream are transmitted as inverted; that is, zeroes are transmitted as ones and ones as zeroes. Data inversion is normally used only in AMI mode to guarantee ones density in the transmitted stream.

Configuring E1 Line Buildout

An E1 interface has 4 possible settings for E1 line buildout. The line buildout setting is used to set the signal attenuation factor due to the impedance of copper cabling. The line buildout setting is used on when the connection between the integrated CSU/DSU and the line provider demarcation point is greater than 225 feet. By default, the E1 interfaces use the shortest setting (none). The command syntax is:

```
service-module e1 lbo value
```

where the value is either -22.5 db, -15 db, -7.5 db, or none. If you are unsure of which setting to use, leave the builtout at the shortest setting. In the default example from above, we have omitted the service-module e1 lbo command since the connection to the demarc is less than 225 feet. Optionally, the command service-module e1 lbo none could be added, although it would have the same effect as omitting the command.

Configuring the E1 Equalizer Gain Limiter

The E1 interface has an equalizer gain limiter. This setting is used to turn on the receiver gain limiter to overcome impedance of copper cabling. The gain limiter should be turned on when the connection between the integrated CSU/DSU and the line provider demarcation point is greater than 225 feet. **By default**, the E1 interfaces do not enable the gain limiter. To enable the equalizer gain limiter, add the command **servicemodule e1 egl** to the interface configuration. This command is normally used in conjunction with the line buildout command.

Configuring E1 Framing

By default, E1 interfaces use an Common Channel Signaling (CCS) framing format. CCS carries framing information in timeslot 0, but does not tie signaling to a particular timeslot. To explicitly configure CCS framing, include the framing statement in the interface configuration for the serial device:

```
service-module e1 framing ccs
```

You can configure CAS (Channel Associated Framing) format as an alternative. In CAS framing, signaling information is contained in channel 16 and framing is carried in timeslot 0. To have the interface use the CAS framing format, include the framing statement in the interface configuration, specifying the cas option. In the default configuration below, we have specified the default CCS framing:

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
service-module e1 clock source line
service-module e1 timeslots all speed 64 service-module e1 framing ccs
ip address 20.0.0.2 255.255.255.252
!
```

Additionally, E1 interfaces can use a CRC4 check to improve data integrity. To turn on CRC4 checking, include the service-module e1 crc4 framing statement in the interface configuration for the serial device. Not all cards support this option. Check the Command Reference to see if your E1 card supports CRC4 checking.

Configuring E1 Line Encoding

By default, E1 interfaces use HDB3 line encoding. To explicitly configure HDB3 line encoding, include the linecode statement in the interface configuration for the serial device:

service-module e1 linecode *hdb3*

You can configure AMI line encoding as an alternative. To have the interface use the AMI framing format, include the framing statement in the interface configuration, specifying the ami option. In the default configuration below, we have specified the default hdb3 line encoding:

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
service-module e1 clock source line
service-module e1 timeslots all speed 64 service-module e1 framing ccs
service-module e1 linecode hdb3
ip address 20.0.0.2 255.255.255.252
!
```

Setting Integrated DS3/E3 CSU/DSU Parameters

The *service-module* command is used to configure the serial card's integrated DS3/E3 CSU/DSU. In most cases, the defaults provided on the integrated CSU/DSU will match the network configuration. Check with your line provider to determine if your line settings differ from the default CSU/DSU configuration. The configurations in the interface configuration must match the settings for your line or your serial interface will not function correctly.

Configuring the DS3/E3 Line Clocking Source

Unlike asynchronous devices, a synchronous data interface must have a clock source to use for network timing. One and only one clock source should be configured on a line. In most cases, your line provider will provide a clock source for the DS3/E3 line. The DS3/E3 CSU/DSU can also be configured to provide a clock source. The syntax of this command is:

service-module *{ ds3 | e3 }* **clock source** *{ line | internal }*

The line or internal keyword specifies the type of clocking to use on this interface. Line (also known as "network" or "external") timing is the default value. Using the internal keyword will enable the CSU/DSU's internal clock and will instruct the CSU/DSU to place this clock source on the line. Configuring more than one clock source, or having no clock source, can cause a line to have synchronization problems resulting in framing errors and data loss. Check with your line provider before enabling internal clocking to ensure that this setting is needed. An example configuration showing "line" clocking follows:

```
!
interface Serial2
description Connection to provider encapsulation ppp
service-module ds3 clock source line
ip address 20.0.1.2 255.255.255.252
!
```

Configuring DS3/E3 Line Buildout

The DS3/E3 interface has a setting for line buildout. The line buildout setting is used to set the signal attenuation factor due to the impedance of copper cabling. The line buildout setting is used on when the connection between the integrated CSU/DSU and the line provider demarcation point is greater than 225 feet. By default, the DS3/E3 interfaces use the shortest setting (none). To turn on line buildout, use the command:

service-module *{ ds3 | e3 }* **lbo**

Configuring the DS3/E3 Equalizer Gain Limiter

The DS3/E3 interface has an equalizer gain limiter. This setting is used to turn on the receiver gain limiter to overcome impedance of copper cabling. The gain limiter should be turned on when the connection between the integrated CSU/DSU and the line provider demarcation point is greater than 225 feet. By default, the DS3/E3 interfaces do not enable the gain limiter. To enable the equalizer gain limiter, add the **commandservice-module { ds3 | e3 } egl** to the interface configuration. This command is normally used in conjunction with the line buildout command.

Configuring Other Serial Interface Parameters

This section will use the example configuration from the T1 CSU/DSU configuration section above.

Adding Secondary Serial Addresses

Although rarely necessary, depending on your network configuration, you may need to configure more than one address on a Serial device. This task is accomplished by adding the secondary keyword to the ip address line used previously. The secondary keyword is used for all addresses on a Serial device other than the primary address. Only one primary address can be configured on a Serial device. Configuring more than one primary address or leaving the secondary keyword off of a secondary address configuration will cause the last primary IP address to be used when the port is configured by SAND. Using the default configuration below, we have added two secondary IP addresses to Serial0. You will need to substitute your address and netmask for your network.

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
service-module t1 clock source line
service-module t1 timeslots all speed 64 service-module t1 framing esf
service-module t1 linecode b8zs
ip address 20.0.0.2 255.255.255.252
ip address 20.0.1.1 255.255.255.0 secondary
!
```

Configuring Additional Serial Devices

If your router is equipped with multiple Serial devices, you can add additional interface configurations to the wan.conf file. Although the order of the devices in the file does not matter, ImageStream by convention keeps the interfaces in order.

Additional Serial devices are configured in the same manner as Serial0 in our example configuration. Add an additional interface command for each additional Serial port, separating each section with a ! symbol. The syntax of the interface command is:

interface *DeviceName*

In the default example below, we have added a second Serial port at Serial1 (note the use of the internal clocking command and alternate framing and encoding settings) and a third Serial port at Serial2.

```
!
interface Serial0
#NOC phone: 800-555-1212 - Our account #58935 description Connection to provider
bandwidth 1536000
encapsulation hdlc
service-module t1 clock source line
service-module t1 timeslots all speed 64 service-module t1 framing esf
service-module t1 linecode b8zs
ip address 20.0.0.2 255.255.255.252
ip address 20.0.1.1 255.255.255.0 secondary
!
interface Serial1
description Connection to London office encapsulation ppp
service-module t1 clocking internal
service-module t1 framing sf
service-module t1 linecode ami
ip address 25.0.0.1 255.255.255.252
!
interface Serial2
#HSSI card
description fractional DS3 to NYC bandwidth 10000000
encapsulation hdlc
ip address 30.0.0.1 255.255.255.252
!
```

Note: You must save the settings to the router's non-volatile flash memory! If the router is rebooted before saving, your changes will be lost! See Chapter 26, "Backup/Restore Menu: Managing Configurations" for more information.