Overview

This section contains the following topics:

Introduction

The ESR6300 is a compact form factor embedded router module with a board size of 3.0" x 3.75". This module may fit in an enclosure that is originally designed for PC/104 modules with some additional adaptation. The more compact design simplifies integration and offers system integrators the ability to use the Cisco ESR6300 in a wide variety of embedded applications. The ESR card is available in two options. The first is a Cisco-designed cooling plate customized to the ESR (ESR-6300-CON-K9. The second is without the cooling plate for system integrators who want to design their own custom thermal solution (ESR-6300-NCP-K9).

The ESR6300 runs IOS-XE, which is a Linux-based OS that comes with many enhancements and more features compared to the classic IOS version.

Note The documentation set for this product strives to use bias-free language. For purposes of this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation, or language that is used by a referenced third-party product.

Note IOx development is not supported on the ESR6300. While this is platform independent code, it is unsupported and untested on this device.

Complete details on the ESR6300 are found in the product data sheet that is located here:

https://www.cisco.com/c/dam/en/us/products/routers/cisco-embedded-series-router-c78-742901.pdf

Accessing the CLI Using a Router Console

The ESR6300 router provides access to a console port through USB and RS232 support.

If your laptop or PC warns you that you do not have the proper drivers to communicate with the router, you can obtain them from your computers manufacturer, or go here: https://www.silabs.com/developers/usb-to-uart-bridge-vcp-drivers

On a device fresh from the factory, you are greeted with a System Configuration Dialog where you respond to basic configuration questions. If the router was ordered for the use of Cisco PnP connect services, in the case of centralized provisioning, the router skips the initial dialog. The following is an example:

```
         --- System Configuration Dialog ---

Would you like to enter the initial configuration dialog? [yes/no]: yes

At any point you may enter a question mark '?' for help.
Use ctrl-c to abort configuration dialog at any prompt.
Default settings are in square brackets '[]'.


Basic management setup configures only enough connectivity
for management of the system, extended setup will ask you
to configure each interface on the system

Would you like to enter basic management setup? [yes/no]: yes
Configuring global parameters:

  Enter host name [Router]: <your-host-name>

  The enable secret is a password used to protect access to
  privileged EXEC and configuration modes. This password, after
  entered, becomes encrypted in the configuration.
  Enter enable secret: <your-password>

  The enable password is used when you do not specify an
  enable secret password, with some older software versions, and
  some boot images.
  Enter enable password: <your-password>

  The virtual terminal password is used to protect
  access to the router over a network interface.
  Enter virtual terminal password: <your-password>
Setup account for accessing HTTP server? [yes]: <return>
    Username  [admin]: <your-username>
    Password  [cisco]: <your-password>
    Password is UNENCRYPTED.
  Configure SNMP Network Management? [no]: <return>

Current interface summary

Any interface listed with OK? value "NO" does not have a valid configuration

Interface              IP-Address        OK? Method Status                Protocol
GigabitEthernet0/0/0   172.27.168.161    YES NVRAM up                     up
GigabitEthernet0/0/1   15.0.0.1          YES NVRAM administratively down  down
GigabitEthernet0/1/0   unassigned        YES unset administratively down  down
GigabitEthernet0/1/1   unassigned        YES unset administratively down  down
GigabitEthernet0/1/2   unassigned        YES unset administratively down  down
GigabitEthernet0/1/3   unassigned        YES unset administratively down  down
Async0/2/0             unassigned        YES unset up                     down
```

```
VirtualPortGroup0     192.168.0.1       YES NVRAM up                    up
Vlan1                 unassigned        YES unset administratively down  down
vmi1                  unassigned        YES unset down                  down
Names and IP addresses in this next section are shown as examples.
Enter interface name used to connect to the
management network from the above interface summary: vlan1

Configuring interface Vlan1:
  Configure IP on this interface? [no]: yes
    IP address for this interface: 192.168.1.1
    Subnet mask for this interface [255.255.255.0] : <return>
    Class C network is 192.168.1.0, 24 subnet bits; mask is /24

Would you like to configure DHCP? [yes/no]: yes
 Enter DHCP pool name: wDHCPool
 Enter DHCP network: 192.168.1.0
 Enter DHCP netmask: 255.255.255.0
 Enter Default router: 192.168.1.1

The following configuration command script was created:

hostname <your-hostname>
enable secret 9 $9$Z6fl74fvoEdMgU$XZYs8l4phbqpXsb48l9bzCng3u4Bc2kh1STsoLoHNes
enable password <your-enable-password>
line vty 0 4
password <your-password>
username <your-username> privilege 15 password <your-password>
no snmp-server
!
!
interface GigabitEthernet0/0/0
shutdown
no ip address
!interface GigabitEthernet0/0/1
!
interface GigabitEthernet0/1/0
!
interface GigabitEthernet0/1/1
!
interface GigabitEthernet0/1/2


interface GigabitEthernet0/1/3
!
interface Vlan1
no shutdown
ip address 192.168.1.1 255.255.255.0
no mop enabled
ip dhcp pool wDHCPool
network 192.168.1.0 255.255.255.0
default-router 192.168.1.1
!
end


[0] Go to the IOS command prompt without saving this config.
[1] Return back to the setup without saving this config.
[2] Save this configuration to nvram and exit.

Enter your selection [2]: 2
Building configuration...

[OK]
Use the enabled mode 'configure' command to modify this configuration.
```

```
Press RETURN to get started! <return>


*Jul 27 21:35:24.369: %CRYPTO_ENGINE-5-KEY_ADDITION: A key named TP-self-signed-3211716068
 has been generated or imported by crypto-engine
*Jul 27 21:35:24.372: %SSH-5-ENABLED: SSH 1.99 has been enabled
*Jul 27 21:35:24.448: %PKI-4-NOCONFIGAUTOSAVE: Configuration was modified.  Issue "write
memory" to save new IOS PKI configuration
*Jul 27 21:35:24.532: %CRYPTO_ENGINE-5-KEY_ADDITION: A key named
TP-self-signed-3211716068.server has been generated or imported by crypto-engine
hostname>
```

The device now has a basic configuration that you can build upon.

Using the Console Interface

Step 1 Enter the following command:

```
Router > enable
```

Step 2 (Go to Step 3 if the enable password has not been configured.) At the password prompt, enter your system password:

```
Password: enablepass
```

When your password is accepted, the privileged EXEC mode prompt is displayed.

```
Router#
```

You now have access to the CLI in privileged EXEC mode and you can enter the necessary commands to complete your desired tasks.

Step 3 To exit the console session, enter the **quit** command:

```
Router# quit
```

Accessing the CLI from a Remote Console

The remote console of the ESR6300 can be accessed through Telnet or the more secure SSH. Details on telnet access follow in this chapter. For details on SSH access see the SSH chapter located here: Configuring Secure Shell

The following topics describe the procedure to access the CLI from a remote console:

Preparing to Connect to the Router Console Using Telnet

See the Cisco IOS-XE Device hardening guide at https://www.cisco.com/c/en/us/support/docs/ip/access-lists/13608-21.html for details.

Configuring the diagnostic and wait banners is optional, but recommended. The banners are especially useful as indicators to users about the status of their Telnet or SSH attempts.

To access the router remotely using Telnet from a TCP/IP network, configure the router to support virtual terminal lines using the **line vty** global configuration command. Configure the virtual terminal lines to require users to log in and specify a password.

See the Cisco IOS Terminal Services Command Reference document for more information about the line **vty global** configuration command.

To prevent disabling login on a line, specify a password with the **password** command when you configure the **login** command.

If you are using authentication, authorization, and accounting (AAA), configure the **login authentication** command. To prevent disabling login on a line for AAA authentication when you configure a list with the login authentication command, you must also configure that list using the **aaa authentication login** global configuration command.

For more information about AAA services, see the Cisco IOS XE Security Configuration Guide: Secure Connectivity and the Cisco IOS Security Command Reference documents. For more information about the **login line-configuration** command, see the Cisco IOS Terminal Services Command Reference document.

In addition, before you make a Telnet connection to the router, you must have a valid hostname for the router or have an IP address configured on the router. For more information about the requirements for connecting to the router using Telnet, information about customizing your Telnet services, and using Telnet key sequences, see the Cisco IOS Configuration Fundamentals Configuration Guide.

Using Telnet to Access a Console Interface

Step 1 From your terminal or PC, enter one of the following commands:

- **connect host** [*port*] [*keyword*]
- **telnet host** [*port*] [*keyword*]

Here, *host* is the router hostname or IP address, *port* is a decimal port number (23 is the default), and *keyword* is a supported keyword. For more information about these commands, see the Cisco IOS Terminal Services Command Reference document.

Note If you are using an access server, specify a valid port number, such as **telnet 172.20.52.40 2004**, in addition to the hostname or IP address.

The following example shows how to use the **telnet** command to connect to a router named **router**:

```
unix_host% telnet router
Trying 172.20.52.40...
Connected to 172.20.52.40.
Escape character is '^]'.
unix_host% connect
```

Step 2 Enter your login password:

```
User Access Verification
Password: mypassword
```

Note If no password has been configured, press **Return**.

Step 3 From user EXEC mode, enter the **enable** command:

```
Router> enable
```

Step 4 At the password prompt, enter your system password:

```
Password: enablepass
```

Step 5 When the **enable** password is accepted, the privileged EXEC mode prompt is displayed:

```
Router#
```

Step 6 You now have access to the CLI in privileged EXEC mode and you can enter the necessary commands to complete your desired tasks.

Step 7 To exit the Telnet session, use the **exit** or **logout** command.

```
Router# logout
```

CLI Session Management

An inactivity timeout is configurable and can be enforced. Session locking provides protection from two users overwriting changes that the other has made. To prevent an internal process from using all the available capacity, some spare capacity is reserved for CLI session access. For example, this allows a user to remotely access a router.

Changing the CLI Session Timeout

Step 1 **configure terminal**

Enters global configuration mode

Step 2 **line console 0**

Step 3 **session-timeout** *minutes*

The value of *minutes* sets the amount of time that the CLI waits before timing out. Setting the CLI session timeout increases the security of a CLI session. Specify a value of 0 for *minutes* to disable session timeout.

Step 4 **show line console 0**

Verifies the value to which the session timeout has been set, which is shown as the value for `" Idle Session "`.

Locking a CLI Session

Before you begin

To configure a temporary password on a CLI session, use the **lock** command in EXEC mode. Before you can use the **lock** command, you need to configure the line using the **lockable** command. In this example the line is configured as **lockable**, and then the **lock** command is used and a temporary password is assigned.

Step 1 **Router# configure terminal**

Enters global configuration mode.

Step 2 Enter the line upon which you want to be able to use the **lock** command.

```
Router(config)# line console 0
```

Step 3
```
Router(config)# lockable
```

Enables the line to be locked.

Step 4
```
Router(config)# exit
```

Step 5
```
Router# lock
```

The system prompts you for a password, which you must enter twice.

```
Password: <password>
Again: <password>
Locked
```