

NETCONF Client GUI

The NETCONF client is a simple GUI client application that can be used to understand the implementation of the NETCONF protocol in Cisco E-DI.

This appendix includes the following information:

- Client Application Files
- Starting a NETCONF Session
- Making a NETCONF Request to the Cisco E-DI Server
- Ending the NETCONF Session

Client Application Files

The client is distributed as a set of three jar files, one startup script and a directory of example requests.

Copy the client files from Cisco E-DI Documentation CD-ROM to D:\eft\client. The structure should look similar to the structure in figure that follows.



Figure B-1 Typical Client File Structure

Starting a NETCONF Session

You will need the following information before you can create a NETCONF session:

- **1.** The location of the Cisco E-DI server. For example, the localhost if it is running locally, or the IP address.
- 2. The username and password to login to Cisco E-DI.
- 3. The IP address of the device to be managed through the NETCONF protocol.

Start the client GUI, enter the following command:

D:\eft\client>bin\ncclient .\examples

The client GUI opens. See the following figure.

👙 EDI XML-PI test t	ool				
EDI Server: Session Id	edi-jms-8	Login:	admin	Password:	****
NC Session with Device:		Device Login:		Device Password:	🔁 Sample Requests
Connect to E-DI	Cleanup Request Cleanup	Response			Cat2950 Cat3550 Cat3550 Cat6500 Cat6500 Cat6500CatOs Cisco1700 Cisco2600 Cisco2600
Response From The	Server				G CISCO7200

Figure B-2 GUI Example



The GUI has not connected to Cisco E-DI server yet.

Enter the following information:

- Cisco E-DI server address (EDI Server field)
- Username (Login field)
- Password (Password field)
- Device IP address (NC Session with Device field)
- Device login—Required when session based device authentication is enabled.
- Device password—Required when session based device authentication is enabled.



Cisco E-DI can have session based device authentication enabled or disabled. The device credentials (device login and password) are required when session based device authentication is enabled. Otherwise, these credentials are optional.



When the session is established, the fields cannot be edited. To change the information, you will have to close the current client session, and open a new session.

Click Connect to E-DI.

When a session is created, the Session ID is added to the device IP field. The Connect to E-DI button now says **Send Hello**, and the button outline is colored cyan. See the figure that follows.

👙 EDI XML-PI test t	pol			
Connected to EDI server	edi-jms-8	Login:	Password:	
Session Id	1064812]		
NC Session with Device:		Device Login:	Device Password:	
<pre><?xml version="1.(<hello xmlns='urn: <capabilities> <capability>urn:ic </capability></pre>]"?> :ietf:params:xml:ns:netconf:base:1.0'> etf:params:xml:ns:netconf:base:1.0 <td>oability></td> <td></td> <td>Sample Requests ⊕ Cat2950 ⊕ Cat3550 ⊕ Cat4000 ⊕ Cat6500 ⊕ Cat6500CatOs ⊕ Cisc01700 ⊕ Cisc02600 ⊕ Cisc07200</td>	oability>		Sample Requests ⊕ Cat2950 ⊕ Cat3550 ⊕ Cat4000 ⊕ Cat6500 ⊕ Cat6500CatOs ⊕ Cisc01700 ⊕ Cisc02600 ⊕ Cisc07200
Send He xml version="1.(<br chello xmlns='urn: <capabilitys urn:ietf:params:xm </capabilitys urn:ietf:params:xm urn:ietf:params:xm urn:ietf:params:xm urn:ietf:params:xm urn:ietf:params:xm <td></td>				
 <capability></capability>			~	

Figure B-3 Active NETCONF Session Window



The session is active when the session ID is displayed.

Making a NETCONF Request to the Cisco E-DI Server

When a session with Cisco E-DI is created, you see a window similar to Figure B-3. When a client connects to Cisco E-DI, it sends a hello message from the NETCONF agent which contains the session id. In Figure B-3, the hello message is displayed in the response text area (lower left pane). The client extracts the session id, this is displayed in the Session id field.

The button is now **Send Hello**. As specified in the NETCONF protocol, both the agent (Cisco E-DI) and the manager (the GUI client) are required to send hello messages.

The default hello message from the client to Cisco E-DI is displayed in the request text area (upper left pane). You can edit this message, for example, to specify a different set of capabilities.

At this point, you can enter the device information (the device id, device login and password), and the tool will provide the **associate-devices** message which can be used after **send hello** is sent.



The tool now has a connection with the Cisco E-DI server, but Cisco E-DI does not know which device you want to manage through the XML PI.

Enter the device information, and click Send Hello.

👙 EDI XML-PI test tool							
Connected to EDI server	edi-jms-8	Login:		Password:			
Session Id	1186088]					
NC Session with Device:	172.25.86.106	Device Login:	cisco	Device Password:	****		
<hello xmlns='urn; <capabilities> <capability>urn;id </capability>urn;id </capabilities> 	Sample Requests						
Send Hello armiter.paramora 							
<pre>crapability> </pre>							
<session-id>118608 </session-id>	(session-id>1186088						

Figure B-4 Making a NETCONF Request

The tool prepares the default associate devices message, and displays it in the request text area. See Figure B-5. Associate devices is a Cisco E-DI specific operation. It is required to inform Cisco E-DI about the device the client wants to maange through the XML PI.

Click Associate With Device.

👙 EDI XML-PI test t	pol				
Connected to EDI server	edi-jms-8	Login:		Password:	
Session Id	1186088]			
NC Session with Device:	172.25.86.106	Device Login:	cisco	Device Password:	****
<associate-device: <network> <device> <ipddress>172.25. </ipddress></device> <credentials> <login>cisco<password>ciscoAssociate W</password></login></credentials></network></associate-device: 	s xmlns='http://www.cisco.com/edi_20/schem .86.106 in> password> fth Device Cleanup Request Cleanup Respons	e	extension'>		Sample Requests ⊕ Cat2950 ⊕ Cat3550 ⊕ Cat6500 ⊕ Cat6500CatO: ⊕ Cisco1700 ⊕ Cisco2600 ⊕ Cisco7200

Figure B-5 Associate With Devices

When Associate devices is successful, Cisco E-DI now knows which device is being managed in this NETCONF session, and is ready to start NETCONF operations. See Figure B-6.

You can now send protocol messages such as get-config, and edit-config. In the following example, the user navigates to the device specific get-config protocol message.

Figure B-6 Starting a NETCONF Operation

👙 EDI XML-PI test t	ool				
Connected to EDI server	edi-jms-8	Login:		Password:	
Session Id	1186088]			
NC Session with Device:	172.25.86.106	Device Login:		Device Password:	
<pre><xc:rpc message-i<br=""><associate-device <network> <device> <ipaddress>172.25 </ipaddress></device> <credentials> <logino:isco< log<br=""><password>cisco<!--/<br--></password></logino:isco<></credentials> </network> </associate-device </xc:rpc> Submit Request <?xml version="1. <rpc-reply messa<br=""><xc:ok></xc:ok> </rpc-reply></pre>	0"?> d='l' xmlns:xc='urn:ietf: s xmlns='http://www.cisco .86.106 in> password> es> Cleanup Request Cleanup 0"?> ge-id="l" xmlns:xc="urn:	params:xml .com/edi_2 Response ietf:param:	:ns:netconf:base:1.0'> D/schema/netconf_extensio s:xml:ns:netconf:base:1.0	m'>	Sample Requests

Know the Device Type

Each device type and OS combination has its own set of data model elements (the XSD). In operations where you have to express device commands in XML format, you will need to refer to the device specific namespace. The operations **edit-config** and **get-config** or **get** with **filter** will require this information.

An operation where the user is not expressing a specific command set in XML format does not need this namespace information. For example, **lock** is one operation which refers to a data store, and not configuration data.

If you do not know the device type, you can obtain the information from Cisco E-DI as follows:

Use an operation that does not require the namespace to be specified. For example, you can use a **get** operation without the **filter** element. This means that the **get** operation without a **filter** element looks the same no matter what device you are talking to. Select any **get** from any device specific example in the hierarchy in the right pane.

In Figure B-7, a **get** from the Cat6500 set of examples is selected, and the response shows that the device 172.25.86.106 is a Cisco2600.

Now that you know the device type, you can use the Cisco2600 specific example set. In this example, navigate through the hierarchy to locate the Cisco 2600 to see the running configuration of the device 172.25.86.106. See Figure B-8.

👙 EDI XML-PI test t	ool			
Connected to EDI server	edi-jms-8	Login:	Password:	
Session Id	1186088			
NC Session with Device:	172.25.86.106	Device Login:	Device Password	t
<pre><rml 1.(="" <="" <data="" <rpc-reply="" message="" message-id="' </rpc> </rpc> </comparison </comparison</td><td>Sample Requests g Cat2550 ⊕ Cat3550 ⊕ Cat3500 ⊕ Cat4000 ⊕ Cat6500 ⊕ Cat6500 ⊕ Cat6500 ⊕ Cat6500 ⊕ Cat6500 ⊕ Cat6500 ⊕ Cat6200 ⊕ Cat6500</td></tr><tr><td>Submit Request</td><td></td></tr><tr><td><pre><?xml version=" rpc="" version="1."></rml></pre>	9"?> e-id="123" xmlns:xsi="http:// ig-data xmlns:cpi="http://www iguration status="dirty" xmln 12.2 CompatibleConfig>111.111 <td>www.w3.org, .cisco.com, s="http://t nwardCompa</td> <td>/2001/XMLSchema-instance" xmlns="urn:iet /cpi_10/schema"> www.cisco.com/edi_20/Cisco2600/12.2(24a) tibleConfig></td> <td>🏵 🦳 Cisco7200</td>	www.w3.org, .cisco.com, s="http://t nwardCompa	/2001/XMLSchema-instance" xmlns="urn:iet /cpi_10/schema"> www.cisco.com/edi_20/Cisco2600/12.2(24a) tibleConfig>	🏵 🦳 Cisco7200

Figure B-7 Finding the Device Type

Figure B-8 Displaying the Running Configuration



Ending the NETCONF Session

When you want to close the session, you can use the close-session.xml file from the Sample requests in the right pane. You will see a window similar to Figure B-9.

Click Submit Request.



You can also click the Close button to close the window, and end the session.



Figure B-9 Closing a Session