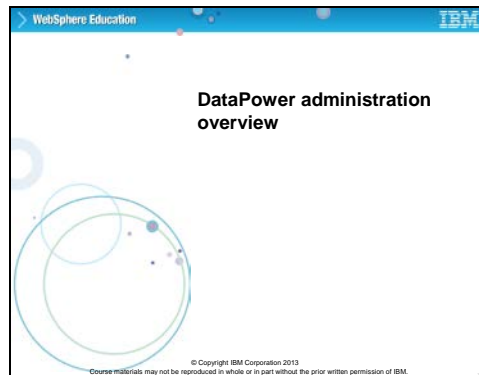


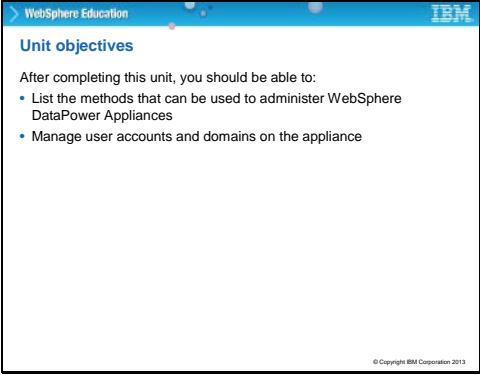
Slide 1



Unit 1

Unit 1, DataPower administration overview.

Slide 2



The slide is titled "WebSphere Education" in the top left corner and features the IBM logo in the top right corner. The main heading is "Unit objectives" in blue. Below this, it states "After completing this unit, you should be able to:" followed by a bulleted list of two objectives. The bottom right corner contains a small copyright notice.

WebSphere Education

Unit objectives

After completing this unit, you should be able to:


- List the methods that can be used to administer WebSphere DataPower Appliances
- Manage user accounts and domains on the appliance

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Unit overview

In this unit, you learn about the administration of the DataPower appliances.

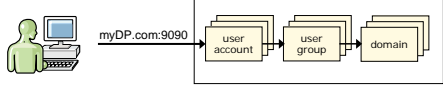
Slide 3

WebSphere Education 

Developing on the appliance

To develop services on the appliance, you need

- IP address and port of the web management interface (WebGUI)
 - The WebGUI is typically the interface that is used for development
- User account and password
- User group: definition of permissions
- Domain: "sandbox" in which you develop services

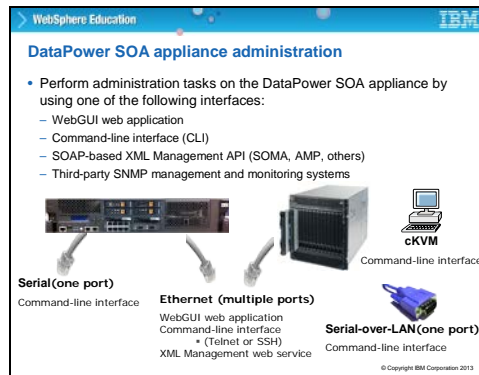


The diagram illustrates the development environment setup. A user icon is shown on the left, connected by an arrow labeled "myDP.com:9090" to a box containing three stacked folders: "user account", "user group", and "domain". Arrows indicate a flow from "user account" to "user group", and from "user group" to "domain".

"Administration" defines all of these resources

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This unit is a basic introduction to administration on the DataPower appliance. For a developer, it is helpful to know these basics, as they might request assistance from administrators. To begin working with the appliance, a developer accesses the WebGUI on an IP address and a port. Before they can do anything, they log in to a user account. Most user accounts are assigned to a user group. A particular user group defines a set of access permissions, to both functions and to resources. All work is done in a domain, which is usually one of the resources that are defined in the user group.



DataPower SOA appliance administration

Probably the simplest way to do development work on the appliance is through the web-based interface, or WebGUI. When you work in pre-production environments, or production environments, you are more likely use the command-line interface, and if you are working remotely you might use the XML management API, which is SOAP-based. Actually, the command-line interface is the only one available to you as delivered, through the serial port. You use the command-line interface to enable the four Ethernet ports. You can also work with the command-line interface through the Ethernet ports, but the ports that are listed give you the additional capabilities of working with the WebGUI and the XML management API.

The ports are all on the front of the appliance. On the back of the appliance is the on-off switch, the power supply, and two fan trays, so that if one fan dies the second keeps cooling the appliance while you replace the dead fan. The mentioned configuration is the limit of your options to mess around with the hardware of the appliance! As noted in the previous presentation, you cannot open the case and poke around inside. Remember also that there are no USB ports, no parallel ports, and no CD drive.


Slide 5

WebSphere Education

IBM

WebGUI web administration application

- The WebGUI web application allows administrators to configure and troubleshoot the DataPower SOA appliance
 - The WebGUI application must be activated through the command-line interface before its first use
 - Role-based management restricts access to predefined administrators
 - Same web interface that is used for service development
- Navigate to the network address and port that is assigned to the WebGUI application
 - The default port for the WebGUI application is 9090
 - Requires HTTPS for both administrative tasks and development work



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WebGUI web administration application

You access the WebGUI interface by opening a browser and going to the URL. The protocol is secure HTTP! One of the first mistakes you made is forgetting that the DataPower appliance is on a secure protocol. You give the URL of the appliance, and indicate the port as 9090 by default. Remember also that you are not able to access this WebGUI out of the Shipping box; it is locked down. You go in first through the serial port and activate the Ethernet ports.

As for browsers and browser levels, the WebGUI supports Internet Explorer 6 and 7 (but not Internet Explorer 8), Mozilla Firefox (officially at level 2, but many people use level 3 with no problem). Symptoms of browser level support problems are drop-down boxes that are not displayed, or items in a box not being displayed.

Slide 6



Administration by using the web browser

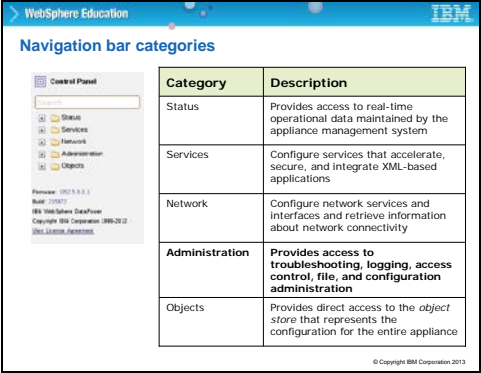
When the WebGUI opens, you first see the control panel. The WebGUI gives shortcuts to many of the things you are using: the services (indicated as number 2 on the slide), different monitoring options, file management, including importing and exporting configuration files, and management of keys and certificates. There is a link back to the control panel in the upper left corner (number 1 on the slide). If you are in another view and you get back to this display of shortcuts, you can click the link.

Just under the control panel link there are five categories in what is called the navigation bar. Clicking one of the links makes it open up and display many options for configuring DataPower or the services you create.

Underneath these categories, there is a little information about the firmware level the box is running at. On this slide, you can see that it is at level 3.8.0.0, and also that this control panel is being displayed for an XI50 appliance.

At the top of the GUI, in the blue bar, you can see the name of the person who logged in (here it says student01). Also displayed is an indication of which appliance is logged on to (in this case, an appliance that is identified as DP #10). On the right, you can see which domain the user is currently logged in to (a domain that is called 'student01-domain' in the present case). Domains are covered a little further on.

Slide 7



The screenshot displays the 'WebSphere Education' interface. On the left is a 'Control Panel' sidebar with a search bar and a list of categories: Status, Services, Network, Administration, and Objects. The main area is titled 'Navigation bar categories' and contains a table with two columns: 'Category' and 'Description'.

Category	Description
Status	Provides access to real-time operational data maintained by the appliance management system
Services	Configure services that accelerate, secure, and integrate XML-based applications
Network	Configure network services and interfaces and retrieve information about network connectivity
Administration	Provides access to troubleshooting, logging, access control, file, and configuration administration
Objects	Provides direct access to the <i>object</i> store that represents the configuration for the entire appliance

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Navigation bar categories

Take a closer look at the categories on the navigation bar.

The first is Status. Status provides access to information about the different objects, such as services, that are held on the appliance.

The next category is Services. You can drop this category down and have access to all the different service options. The five principal ones also have icons on the control panel.

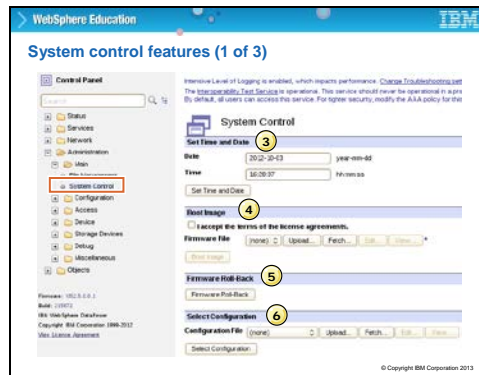
Network gives access to things such as user agent, load balancer group.

Administration is where you can get access to files, or system control (where you would go to change your password, for example). You have some of the same options in the 'Files and Administration' section of the control panel view.

And finally objects, where you have access to each object that is used to create services on the appliance. DataPower is based on the concept of objects. The objects are not objects in a programming sense. Think of them rather as containers of configuration information that can be assembled to configure services.

The next few slides examine the highlighted category, Administration.

Slide 8



System control features (1 of 3)

Administration has five subcategories: main, configuration, device, debug, and miscellaneous. Here you can see the first of these subcategories, 'Main', which includes file management and system control. This slide looks at system control. You can get to the same point by clicking the icon on the control panel view.

Here then you can set the time and date for the appliance. The setting is important for things such as certificate validity. You can set the appliance to point to a Network Time Protocol server, or NTP server. Boot image allows you to upgrade to a new level of firmware. If the new level introduces problems in the configuration, you can roll it back (number 5 on the slide). You can roll back one level, to whatever was installed before the new firmware upload. Number 6, select configuration, allows you to select different configurations, and to upload a configuration to the appliance. By the way, to the left, in the navigation bar, under configuration, you see that you can import and export configurations. This topic is covered in more detail further on.

The options that you can see here are only available in the default domain. If you are logged in to a different domain, the only thing you are able to do is to change your password.

Slide 9

WebSphere Education

System control features (2 of 3)

1 Secure Backup

Crypto certificate: (none) [Select] *

Destination: [Text] *

Include BIOS: ☐ on ☒ off *

Include RAID: ☐ on ☒ off *

[Secure Backup]

2 Secure Restore

Crypto certificate: (none) [Select] *

Source: [Text] *

Only validate the backup: ☐ on ☒ off *

Machine type of the backup appliance: [Text] *

[Secure Restore]

3 Shutdown

Mode: [Reboot System] [Select] *

Reboot System: [Reboot System] [Button] *

Delay: [1] [Text] Seconds *

[Shutdown]

4 Change User Password

Old Password: [Text] *

New Password: [Text] * Confirm Password: [Text] *

[Change User Password]

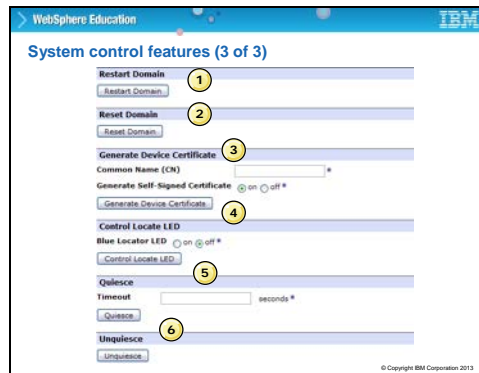
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System control features (2 of 3)

You can use secure backup and restore to complete a full backup of a DataPower device configuration, and then restore the image to a compatible device. The benefits include disaster recovery, and also copying a configuration from one device to other devices in the same environment. For security, the backup files are encrypted.

There are three types of shutdown you can complete. Reload firmware keeps the appliance up and running but reloads the operating system. Reboot system switches off the system and then brings it back up again. Halt system switches it off. This action does not physically switch off the appliance; it is still powered on. It is the operating system that is off.

Changing the password can be done in any domain, not just the default.



System control features (3 of 3)

Restarting and resetting the domain is different from rebooting or halting the system. These two options (numbers 1 and 2 on the slide) react only on the domain into which you are logged. Other users are not affected. A domain is like a sandbox for the configuration for a particular user. It is an application domain where you configure your services. You can have as many domains as you need; it just depends on how you want to structure your services. Restart domain deletes any unsaved changes. Reset domain deletes any configured objects.

You can generate a self-signed certificate for this device by giving a name, or 'common name'. There is a control for a blue LED that is on the front of the DataPower box. Imagine that you have a rack of a dozen DataPower boxes, and you recable Ethernet ports on a few of them. First, you would come to this system control and turn on the blue LED of the devices that require maintenance. Then, you can go to the rack of DataPower boxes and immediately locate the ones that you deal with.

Quiesce and unquiesce are complementary actions. Quiesce stops the appliance from accepting new requests by a service. It allows the service to complete processing on any request that is already accepted. It can be applied to a domain or to an appliance.

Slide 11



File management

You can access the file management area either from the navigation bar administration category, or from the icon on the control panel view. The top-level directories are pre-defined, but you can add subdirectories to some of them (the local directory, for example). The second column, 'Actions', is where you can create or delete directories, or upload files. The available actions depend on what object you chose. You can upload a file to the cert directory, or edit your configuration file. For the logs, you can view them (you click directly on the name of the log).

As you learned, there are several top level pre-defined directories. The directories fall into three categories: configuration object directories, security object directories, and logging directories. The next few slides examine them in more detail.

WebSphere Education		
File directories for configuration		
Store	Scope	Usage
chkpoints:	Per application domain; not shared	Stores different versions of the configuration files for the current application domain
config:	Per application domain; not shared	Stores configuration files for the current application domain
export:	Per application domain; not shared	Holds any exported configuration that is created with the Export Configuration operation
local:	Per application domain; shareable	Stores files that are used by local services, including XML style sheets, XML schemas, and WSDL documents
store:	System-wide; shared	Stores sample and default style sheets that are used by DataPower services
temporary:	Per application domain; not shared	Temporary disk space that is used by document processing rules and actions

File directories for configuration

There are five configuration directories. Config: holds the domain configuration for the domain you are logged on to. There is one for each domain, and they cannot be shared between domains.

Export: holds the exported configuration that you created by using the export operation. You saw this briefly a few slides back. A closer look at this option is provided later in this presentation.

Local: holds any files that the current domain is using for services. Other domains can share these files (that is to say, copy them over into the other domain) by making this current domain visible. The setting for the configuration is called 'Visible domains', and can be found under Administration-configuration in the default domain. More information about visible domains is provided in a few more slides.

The store: directory holds template style sheets that are shared by all domains. You should therefore copy whatever you want to use into your own domain before editing. Finally, there is the temporary: directory, which is (as the name implies) used for temporary storage. When the appliance is shut down, everything in this directory is automatically deleted.

WebSphere Education		
File directories for security		
Store	Scope	Usage
cert:	Per application domain; not shared	Location for storing private keys and digital certificates <ul style="list-style-type: none"> • System automatically encrypts all files in this store • Once added, files cannot be copied or modified • You can delete digital certificates and private keys
sharedcert:	System-wide: shared between application domains	Stores digital certificates that are shared with partners <ul style="list-style-type: none"> • System automatically encrypts all files in this store
pubcert:	System-wide: shared between application domains	Provides security certificates for root certificate authorities, such as ones used by web browsers <ul style="list-style-type: none"> • System automatically encrypts all files in this store • Files cannot be modified, but they can be copied

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File directories for security

Security has three directories. The first on this slide is the `cert:` directory. Each domain has its own directory of certificates and keys and all are encrypted. Notice that you cannot copy or modify a file that is added to this directory. The only modification that you can do is to delete it!

The `sharedcert:` directory is visible to all domains. The directory is where there are intermediary CA certificates, or certificates of partners you work with all the time. Likewise, all domains share `pubcert`. The `pubcert` is where the root certificate authority certificates are stored.

Slide 14

WebSphere Education		
File directories for logging		
Store	Scope	Usage
logtemp:	Per application domain; not shared	Default location of log files, such as the system-wide default log <ul style="list-style-type: none">The file store size is fixed at 13 MB
logstore:	Per application domain; not shared	Long-term storage space for log files

File directories for logging

Logging has two directories. The difference is one of durability. The one has temporary life; the other is long term. Logs are created for each domain and are not shared.

WebSphere Education
IBM

Administrative access control

- Application domains** provide a virtualized, enclosed environment for services
 - Only the **default** domain allows administrators to perform system level tasks, such as configuring an Ethernet interface
- User groups** apply a specific access policy to a set of user accounts
 - Privileged** access allows users to perform system-level tasks
 - User** access provides read-only guest access
 - Group-defined** relies on a user-defined, fine-grained access policy for each resource
- User accounts** provide users with access to the WebGUI

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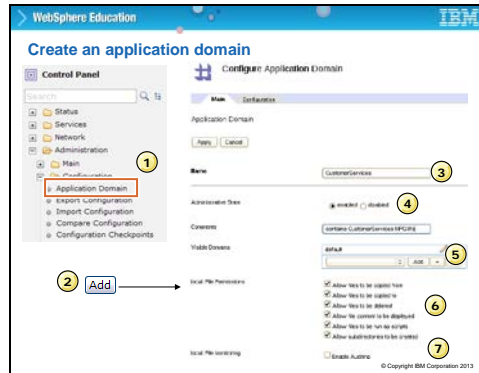
Administrative access control

A domain is a separate environment for a service or services. It encapsulates these services and the objects that the services require, and are defined by a configuration file. By default there is a domain that is called 'Default', and you can create as many other domains as necessary.

As you see in the slides that discuss directories, some objects might be shared between domains, but the services themselves are only visible and usable in the domain where they were created.

Domains are accessed by users who have a user account. Users can be grouped to apply a policy that limits the authority of those users. The 'privileged' group is restricted to administrators. The group that is simply called 'User' has read-only access. The third type, "group-defined", allows for a more fine-grained definition of access policies. There can be any number of group-defined user groups.

An appliance might have several domains. A domain might have several user groups that are defined, and the user groups might have several accounts that are associated.



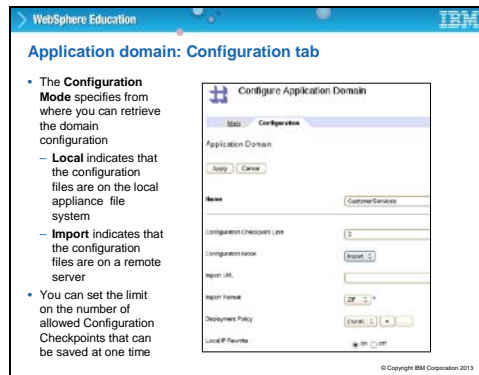
Create an application domain

To create an application domain, you are in the default domain. Clicking 'Application Domain' brings up a list of all existing domains (domains are covered on the next three slides) and an 'Add' button to create a domain. The slide shows the main tab of the configure application domain dialog. Here you can see something that were briefly mentioned a few slides back – domain visibility. The default domain is automatically visible to this new domain. You drop down the list of existing domains, select one; then click the 'Add' button to add it to the list of visible domains.

You can also choose the file permissions that you want. For example, do you want to allow other domains to copy files from this domain?

In summary, if you want to be able to see the files on another domain you add them as visible domains, and those domains allow files to be copied from them.

Slide 17



Application domain: Configuration tab

You are still in the dialog for configuring an application domain, but now you can see the configuration tab. You can see that the maximum number of configuration checkpoints is set to 3 (more on checkpoints on the next slide) and the configuration mode is set to local, which is the default. Local says that the configuration file is on the appliance. The second option is remote, when the file is not on the appliance.

WebSphere Education

IBM

Configuration Checkpoints

- A Configuration Checkpoint contains configuration data for an application domain from a specific point in time
 - Saves the current state of the application domain without persisting it
 - An alternative to Save Config
 - Can be used for continuing work between sessions
- Saving Configuration Checkpoints
 - **Administration > Configuration > Configuration Checkpoints**
 - Enter the name and click **Save Checkpoint**

Configuration Checkpoints

Name	Time	Actions
Checkpoint1	2012-10-09 22:12:36 GMT	Rollback Remove Compare

Create a new Configuration Checkpoint

Checkpoint Name:

Save Checkpoint

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Configuration Checkpoints

A configuration checkpoint is like an undo capability. You saw on the previous slide that is set to 3. The setting means that as you reconfigure your domain, instead of persisting the changes that you can apply a checkpoint, and you can store three such checkpoint markers. Now, if you decide that your latest configuration is not what you want. You can easily revert to a previous state without having to remember all the changes you made and then undo them one by one.

Name	Status	Op-State	Logs	Admin State	Comments
default	saved	up		enabled	Default System Domain
student01-domain	saved	up		enabled	Test domain for student account 01.
student02-domain	saved	up		enabled	Test domain for student account 02.
student03-domain	saved	up		enabled	Test domain for student account 03.
student04-domain	saved	up		enabled	Test domain for student account 04.
student05-domain	saved	up		enabled	Test domain for student account 05.
student06-domain	saved	up		enabled	Test domain for student account 06.
student07-domain	saved	up		enabled	Test domain for student account 07.
student08-domain	saved	up		enabled	Test domain for student account 08.
student09-domain	saved	up		enabled	Test domain for student account 09.
student10-domain	saved	up		enabled	Test domain for student account 10.

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View application domain status

When you first click the Application Domain link in the configuration subcategory of the navigation bar, you get a list of all domains. The list of domains is together with their status and their operational state (which will be up or down). You can read the system log for a domain, and check the admin state. For example, if you click a domain name and change its admin state to disabled. When you return to this page you see the domain status as 'modified', the op-state as 'down', and the admin state as 'disabled'. Looking at the log, you see that the operational state is logged as down.

WebSphere Education

Create a user account and a user group

1 Create a user account msdu

Should the user be restricted to a domain?

Selecting 'Yes' will restrict the user to a domain. Selecting 'No' will allow the user to login to all domains.

☒ Yes ☐ No

2 Create a user account

To which domain should the user be restricted?

Select the domain:

User Domain:

3 Create a user account

What kind of user account do you want to create?

Select one of the following:

Domain Account Type:

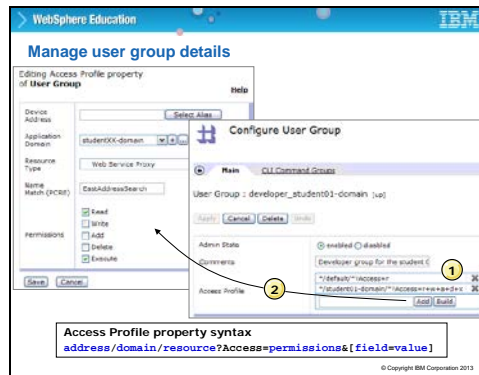
- ☒ Developer (configuring services in a domain)
- ☐ Backup user (domain backup)
- ☐ Guest (read-only in domain)
- ☐ User-Defined Group

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Create a user account and a user group

Creating a user account can be done from the navigation bar. The first decision is whether to restrict the user to a specific domain or whether to give them access to all domains. Typically you might want to restrict the user. For example, a developer needs access, so you provide a restricted access to a developer domain. In the example, number 2 shows that the user is restricted to 'student01-domain'. Finally, you specify what type of developer they are. Is read-only access ok? Does this developer be able to configure services?

Slide 21

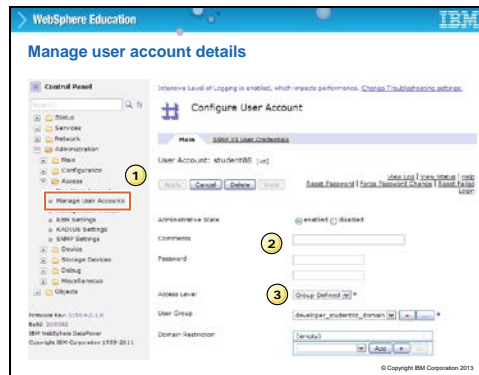


Manage user group details

Here is the configuration of a user group. Look at the right side of the diagram first (number 1). You can see that there is a user group called `developer_student01-domain`. You build access profiles: one or more. Here there are two defined. If you are unsure how to implement, you can click Build and use the wizard. The Build opens up the dialog you can see to the left of the slide. You can restrict access to a specific device, or a particular domain, or more fine-grained, a resource type or a name match. You then check off the permissions that should be granted to this profile: read, write, add, delete, or execute.

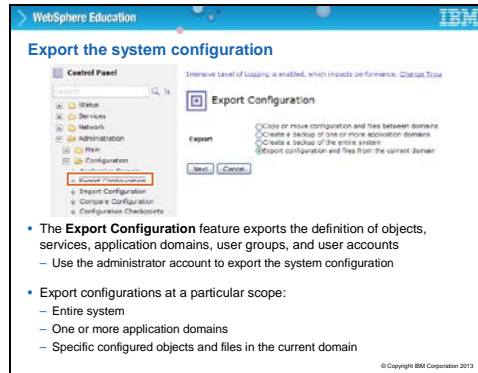
When you click Save, the definition shows up in the field next to Add, which you can see to the right. If you now click Add, this access profile is added to the list for this group. How should you interpret the access profiles that are listed there? The first says that, for the default domain, for all objects (the character is the asterisk), access is restricted to read. The second says that for `student01-domain`, for all objects, access permissions are `r, w, a, d, and x`, or read, write, add, delete, and execute.

Slide 22



Manage user account details

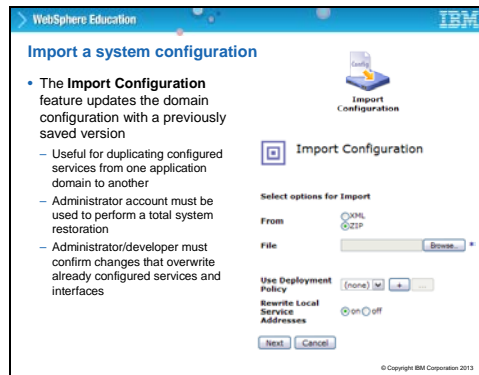
Now you can associate a user account with a user group through the Configure User Account dialog.



Export the system configuration

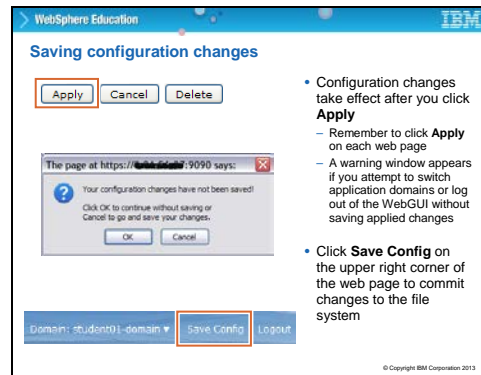
You can export a configuration by choosing the navigation tab subcategory and clicking the radio button according to what scope you want to export. The configuration can be restricted to the configuration and files of the domain you are currently logged in to, or it might be an export of the whole system. 'Export' does not include everything in the domain. For example, certificates and keys are not exported.

When you click **Next** (the button you can see in the screen capture to the right), you get to a dialog where you can define what export you want (XML or .zip are the options). Select the objects to include in the export.



Import a system configuration

Since export is possible, it follows the import is possible! Remember from the previous slide that the file type options for the export were XML and .zip. Therefore, the file types for the import are also XML and .zip. When you click **Next**, you can select which files you want to import, and as a convenience you are given a list of files that are identical to existing files.

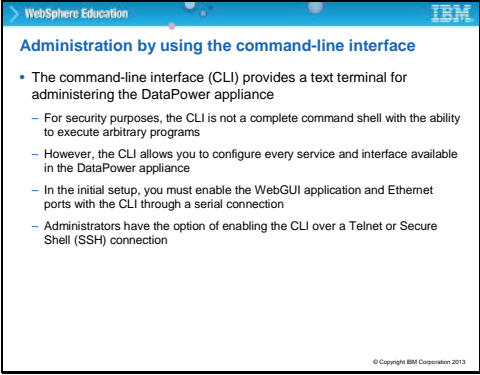


Saving configuration changes

Saving configuration changes is a two-step process. The immediate and essential thing is to click **Apply**. Clicking apply temporarily adds any changes that you made to the configuration. If you try to leave a page without applying, a warning dialog pops up.

To add your changes to the configuration, you must click **Save Config**. You can test your changes without doing the process (the running configuration includes any changes that you made). However, if you switch domains or log out while there are unsaved changes, you might lose them.

If you try to switch domains while there are unsaved changes, you get a warning dialog.



The slide is titled "Administration by using the command-line interface" and is part of an IBM WebSphere Education presentation. It contains a bulleted list of information about the CLI. The IBM logo is in the top right corner, and a copyright notice is at the bottom right.

WebSphere Education IBM

Administration by using the command-line interface

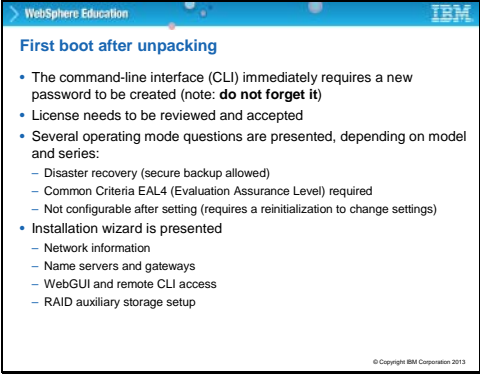
- The command-line interface (CLI) provides a text terminal for administering the DataPower appliance
 - For security purposes, the CLI is not a complete command shell with the ability to execute arbitrary programs
 - However, the CLI allows you to configure every service and interface available in the DataPower appliance
 - In the initial setup, you must enable the WebGUI application and Ethernet ports with the CLI through a serial connection
 - Administrators have the option of enabling the CLI over a Telnet or Secure Shell (SSH) connection


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Administration by using the command-line interface

When you first get the appliance, everything is dead except for the serial port. Initially, you connect the serial port to your computer (probably through a USB-to-serial connector). After that, you might still want or use the serial connection to do administration through the command-line interface. You can enable the CLI over Telnet or over SSH, but here is a word of advice: enable it over SSH, not Telnet!

Slide 27



WebSphere Education 

First boot after unpacking

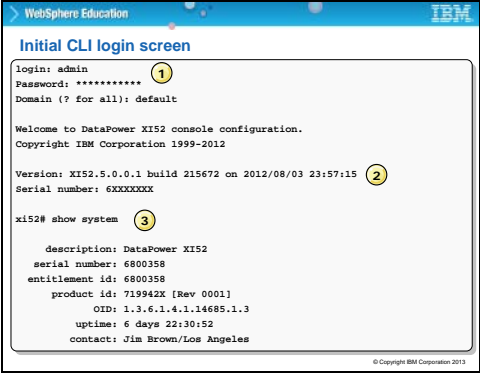
- The command-line interface (CLI) immediately requires a new password to be created (note: **do not forget it**)
- License needs to be reviewed and accepted
- Several operating mode questions are presented, depending on model and series:
 - Disaster recovery (secure backup allowed)
 - Common Criteria EAL4 (Evaluation Assurance Level) required
 - Not configurable after setting (requires a reinitialization to change settings)
- Installation wizard is presented
 - Network information
 - Name servers and gateways
 - WebGUI and remote CLI access
 - RAID auxiliary storage setup

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First boot after unpacking

The first to do with your new DataPower appliance is to create a password. Note it carefully somewhere! If you forget it, you must return the appliance to IBM to be reset.

There is an installation wizard to help you with the initial configuration of the appliance, but you can also set up this initial configuration through a command-line interface.

A screenshot of a terminal window titled 'WebSphere Education' with an IBM logo in the top right. The window displays the 'Initial CLI login screen' for a DataPower XI52 console. The screen shows a login prompt with 'login: admin', 'Password: *****' (marked with a yellow circle 1), and 'Domain (? for all): default'. Below this is a welcome message: 'Welcome to DataPower XI52 console configuration. Copyright IBM Corporation 1999-2012'. Then, system information is displayed: 'Version: XI52.5.0.0.1 build 215672 on 2012/08/03 23:57:15' (marked with a yellow circle 2) and 'Serial number: 6XXXXXX'. The prompt changes to 'xi52#' (marked with a yellow circle 3). The user enters the command 'show system', which outputs the following details: 'description: DataPower XI52', 'serial number: 6800358', 'entitlement id: 6800358', 'product id: 719942K [Rev 0001]', 'OID: 1.3.6.1.4.1.14685.1.3', 'uptime: 6 days 22:30:52', and 'contact: Jim Brown/Los Angeles'. A small copyright notice '© Copyright IBM Corporation 2013' is visible at the bottom right of the terminal window.

```
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Initial CLI login screen

login: admin
Password: ***** 1
Domain (? for all): default

Welcome to DataPower XI52 console configuration.
Copyright IBM Corporation 1999-2012

Version: XI52.5.0.0.1 build 215672 on 2012/08/03 23:57:15 2
Serial number: 6XXXXXX

xi52# show system 3

description: DataPower XI52
serial number: 6800358
entitlement id: 6800358
product id: 719942K [Rev 0001]
OID: 1.3.6.1.4.1.14685.1.3
uptime: 6 days 22:30:52
contact: Jim Brown/Los Angeles

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```

Initial CLI login screen

The first screen gives you some basic information about what you are connecting to. In this screen capture, you can see that it is an XI50, with a certain version and build level, and with a specific serial number.

The prompt is now XI50 with a hash sign. The first thing that you might want to do is get a little more information about the system. To obtain more information, you type the command 'show system'. The content shows you how long since the appliance started running, what its name is, where it is, how many services it has, and so on.

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Quick initial configuration procedure

- Enable the WebGUI application over the management interface in the global configuration mode

```

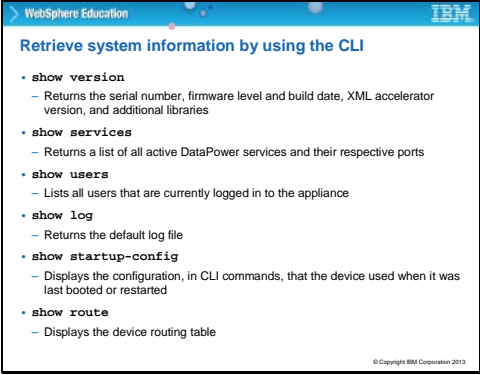
xi52# configure terminal
Global configuration mode
xi52(config)# interface mgt0
Interface configuration mode (mgt0)
xi52(config-if[mgt0])# ip address 10.0.0.0/8
xi52(config-if[mgt0])# exit
xi52(config)# web-mgmt 10.0.0.0 9090
Web management: successfully started
xi52(config)# ssh 10.0.0.0 22
%      Pending

SSH service listener enabled
xi52(config)# exit
xi52#
  
```

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Quick initial configuration procedure

The first necessity is going to be to enable the Ethernet interfaces. At the command prompt you type 'configure terminal', which puts you into the configuration mode. Now you want to work on the interface 'mgt 0', which is the Ethernet terminal 4. The appliance responds by telling you that you are in interface configuration mode for 'mgt 0', and the prompt changes to reflect such. It actually says 'xi52(config-if[eth4])', indicating that indeed you are connected to the Ethernet terminal 4. You define an IP address for the port (this action is one that you see often through the next presentations). Typing `exit` does a save. Next, you configure the web management interface. The port is 9090. You want to open a CLI session over SSH, so you enable the session by defining the port on a specific interface. After a moment, the response tells you that the SSH service listener is enabled. Again, by typing 'exit' you save the changes.



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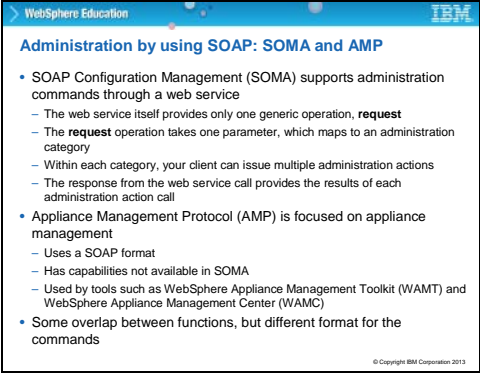
Retrieve system information by using the CLI

- **show version**
 - Returns the serial number, firmware level and build date, XML accelerator version, and additional libraries
- **show services**
 - Returns a list of all active DataPower services and their respective ports
- **show users**
 - Lists all users that are currently logged in to the appliance
- **show log**
 - Returns the default log file
- **show startup-config**
 - Displays the configuration, in CLI commands, that the device used when it was last booted or restarted
- **show route**
 - Displays the device routing table

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Retrieve system information by using the CLI

Here are some of the more common commands that are used over CLI. You can get some general information about the appliance, or a list of active services together with the port numbers on which they are defined. You can see who is logged in, and read the default log file. You can call up a display of the configuration that was used at start, or see the routing table of the appliance.



The slide is titled "Administration by using SOAP: SOMA and AMP" and is part of a "WebSphere Education" presentation. It contains a bulleted list of information about SOAP Configuration Management (SOMA) and Appliance Management Protocol (AMP). The list includes details about the generic 'request' operation in SOMA, the parameters it takes, and the response it provides. It also describes AMP's focus on appliance management, its use of SOAP format, and its capabilities compared to SOMA. A final bullet point notes the overlap between the two protocols. The IBM logo is in the top right corner, and a copyright notice for IBM Corporation 2013 is at the bottom right.

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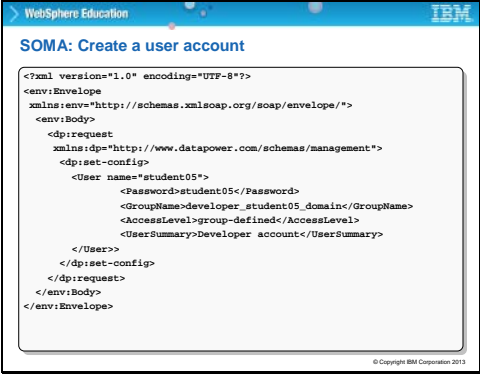
Administration by using SOAP: SOMA and AMP

- SOAP Configuration Management (SOMA) supports administration commands through a web service
 - The web service itself provides only one generic operation, **request**
 - The **request** operation takes one parameter, which maps to an administration category
 - Within each category, your client can issue multiple administration actions
 - The response from the web service call provides the results of each administration action call
- Appliance Management Protocol (AMP) is focused on appliance management
 - Uses a SOAP format
 - Has capabilities not available in SOMA
 - Used by tools such as WebSphere Appliance Management Toolkit (WAMT) and WebSphere Appliance Management Center (WAMC)
- Some overlap between functions, but different format for the commands

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Administration by using web service

Here is another way to interact with the appliance: through a web service. The DataPower web service interface has one operation, **request**, with a single parameter that defines what action to take.



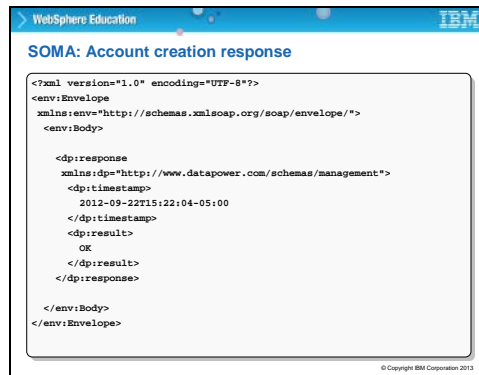
The slide is titled "SOMA: Create a user account" and displays a SOAP XML message. The message is structured as follows:

```
<?xml version="1.0" encoding="UTF-8"?>
<env:Envelope
  xmlns:env="http://schemas.xmlsoap.org/soap/envelope/">
  <env:Body>
    <dp:request
      xmlns:dp="http://www.datapower.com/schemas/management">
      <dp:set-config>
        <User name="student05">
          <Password>student05</Password>
          <GroupName>developer_student05_domain</GroupName>
          <AccessLevel>group-defined</AccessLevel>
          <UserSummary>Developer account</UserSummary>
        </User>
      </dp:set-config>
    </dp:request>
  </env:Body>
</env:Envelope>
```

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XML Management: Create an application domain

Here is an example of what you might do. This SOAP message includes the request command that you saw in the previous slide. The parameter 'set-config' indicates that the request is to modify the configuration. The details within the set-config tag indicate that the request is to create a domain. Domain visibility is set to default; in other words, only the default domain is visible to this new domain.



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SOMA: Account creation response

```
<?xml version="1.0" encoding="UTF-8"?>
<env:Envelope
  xmlns:env="http://schemas.xmlsoap.org/soap/envelope/"
  >
  <env:Body>

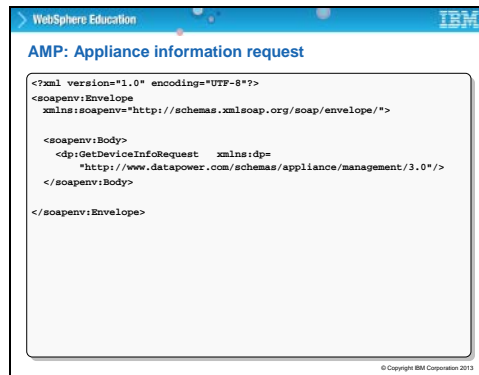
    <dp:response
      xmlns:dp="http://www.datapower.com/schemas/management">
      <dp:timestamp>
        2012-09-22T15:22:04-05:00
      </dp:timestamp>
      <dp:result>
        OK
      </dp:result>
    </dp:response>

  </env:Body>
</env:Envelope>
```

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XML Management: Domain creation response


The response is the response to the request sent on the previous slide. There is always a timestamp, and if everything goes well, the single result message is 'ok'.



Notes:

Administration by using the Appliance Management Protocol (AMP).

Here is another way to interact with the appliance – using AMP. The DataPower AMP interface has one operation, request, with a single parameter that defines what action to take. However, The AMP WSDL defines multiple operations, unlike the Web Service

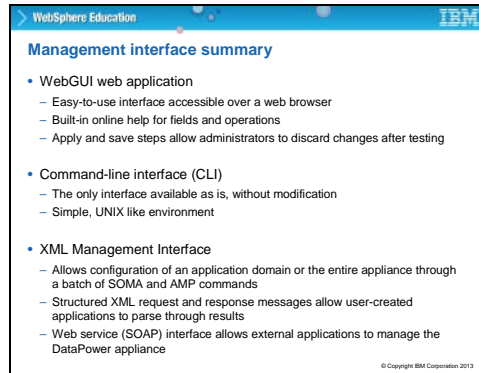
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AMP: Appliance information response

```
<?xml version="1.0" encoding="UTF-8"?>
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/">
  <env:Body>
    <amp:GetDeviceInfoResponse xmlns:amp=
      "http://www.datapower.com/schemas/appliance/management/3.0">
      <amp:DeviceName>DP #15</amp:DeviceName>
      <amp:DeviceSerialNo>XXXXXX</amp:DeviceSerialNo>
      <amp:DeviceID>719942X</amp:DeviceID>
      <amp:DeviceType>XI52</amp:DeviceType>
      <amp:FirmwareVersion>XI52.5.0.0.1</amp:FirmwareVersion>
      <amp:FailureDetected>false</amp:FailureDetected>
      <amp:CurrentAMPVersion>3.0</amp:CurrentAMPVersion>
      <amp:ManagementInterface type="web-mgmt">
        9090</amp:ManagementInterface>
      <amp:DeviceFeature>MQ</amp:DeviceFeature>
      <amp:DeviceFeature>TAM</amp:DeviceFeature>
      .
      .
      .
    </amp:GetDeviceInfoResponse>
  </env:Body></env:Envelope>
```

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The complete list of device features is returned by the command but is not listed because of space restrictions.



The slide is titled "WebSphere Education" in the top left corner and features the IBM logo in the top right corner. The main heading is "Management interface summary". Below this, there are three bullet points, each with sub-points:

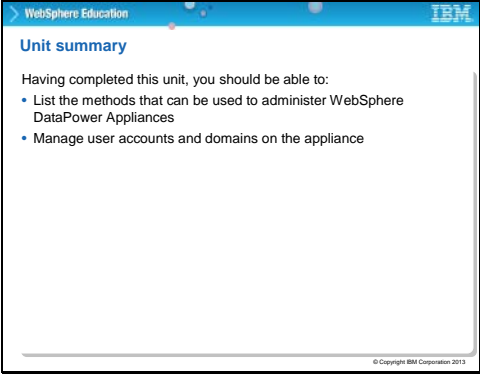
- WebGUI web application
 - Easy-to-use interface accessible over a web browser
 - Built-in online help for fields and operations
 - Apply and save steps allow administrators to discard changes after testing
- Command-line interface (CLI)
 - The only interface available as is, without modification
 - Simple, UNIX like environment
- XML Management Interface
 - Allows configuration of an application domain or the entire appliance through a batch of SOMA and AMP commands
 - Structured XML request and response messages allow user-created applications to parse through results
 - Web service (SOAP) interface allows external applications to manage the DataPower appliance

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Management interface summary

To sum up, there are three primary ways to manage the appliance. There is the WebGUI, which gives easy visual access over a web browser. The WebGUI is the one you use in the exercises that are associated with this course. There is the command-line interface, which is the only one available upon initial appliance configuration, and is the preferred interface for general management of the appliance. And finally there is the web service interface, which allows XML management through SOAP messages.

Slide 37



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Unit summary

Having completed this unit, you should be able to:

- List the methods that can be used to administer WebSphere DataPower Appliances
- Manage user accounts and domains on the appliance

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Checkpoint questions

1. True or False: One way to restrict access to an application domain is to define user groups to restrict user account access to a particular domain.
2. Which user account and application domain do you need to use in order to perform an upgrade?
 - A. Any domain
 - B. default
 - C. Linux root
 - D. admin
3. Match the advantages in performing administration tasks through the diverse DataPower interfaces:

Description	Definition
1. The WebGUI web application	A. Creation of scripts, less bandwidth
2. The command-line interface (CLI)	B. Easier to use
3. The XML Management Interface	C. Programmatic

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Checkpoint answers

1. **True**. One way to restrict access to an application domain is to define user groups to restrict user account access to a particular domain.
2. **D**. Which user account and application domain do you need to use in order to perform an upgrade?
 - A. Any domain
 - ✓ B. **default**
 - C. Linux root
 - ✓ D. **admin**
3. Match the advantages in performing administration tasks through the diverse DataPower interfaces:

Description	Definition
1. The WebGUI web application	A. Creation of scripts, less bandwidth
2. The command-line interface (CLI)	B. Easier to use
3. The XML Management Interface	C. Programmatic

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Slide 40

The slide features a blue header bar with the text 'WebSphere Education' on the left and the IBM logo on the right. The main content area has a light blue background with a diagram of three overlapping circles on the left. The word 'Exercise' is centered at the top in bold black text. The text 'Exercise setup' is positioned to the right of the diagram. At the bottom, there is a small copyright notice: '© Copyright IBM Corporation 2013. Course materials may not be reproduced in whole or in part without the prior written permission of IBM.'

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Exercise

Exercise setup

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Slide 41

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Exercise objectives

After completing this exercise, you should be able to:

- Import the files that are used in the exercises
- Verify cURL installation
- Populate the table that contains all of the port numbers

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