



IBM Software Group

# IBM® WebSphere® Application Server V7

## *DataPower® administrative integration*



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This presentation describes the integration of DataPower management functions into WebSphere Application Server version 7.0. This new feature allows the management of DataPower appliances to be performed using the administrative tools of WebSphere Application Server version 7.0.

## Agenda

- Definitions and background
- Management problems
- WebSphere Application Server V7.0 support for DataPower appliances
- Administrative console changes to support DataPower appliances
- Changes to wsadmin to support DataPower appliances



This presentation starts with a review of some definitions and discusses the background of DataPower appliances. It will look at some of the problems that have existed when these appliances were brought into a WebSphere Application Server environment. Next is a discussion of how the appliances are supported in WebSphere Application Server V7 and a look at changes made to the WebSphere Application Server administrative console and the scripting program, wsadmin, to integrate support for DataPower appliances.

## Section

# *Definitions and background*



This section reviews some definitions and provides a high level description of IBM DataPower appliances.

## DataPower SOA appliances

- A DataPower SOA appliance is an easy to use device that simplifies SOA implementations while also accelerating and securing the message traffic of the SOA
- Features:
  - ▶ Simplified deployment and ongoing management reduce the need for in-house SOA skills and accelerate time to SOA benefits
  - ▶ Hardened specialized hardware for security and reliability
  - ▶ Specialized software and hardware acceleration for encryption and XML processing
  - ▶ Many functions are integrated into a single device: Service level management, routing, policy and transformation



Many new technologies depend on the Extensible Markup Language, commonly called XML. XML provides the power and flexibility needed to support these technologies but tends to require significant development skills. Additionally, the processing of XML documents can be onerous. It soon became apparent that reducing the skill levels required by developers to handle XML data and the ability to process this data faster would make movement to some of the new services like Web services and SOA easier and, to this end, dedicated devices known as appliances were developed. DataPower developed the world's first SOA appliance in the early 2000's.

A DataPower SOA appliance is a physical device with specific functions to simplify and accelerate the processing of certain messages. These functions simplify and accelerate development by reducing the need for some in-house SOA and XML skills.

Because of the key role these appliances play in processing XML, they are specifically built with an emphasis on security and reliability. The specialized hardware and software in the appliances can greatly improve performance in areas like encryption and XML processing. The developer can use the functions in the appliances without needing all the in-depth knowledge of XML that would otherwise be required.

Since the appliances are specialized, they integrate many functions in a single box.

## XML appliances

### IBM SOA Appliance Product Line

*Specialized network devices simplify, help secure & accelerate SOA*

#### XML Accelerator XA35



- Accelerates XML processing and transformation
- Increases throughput and reduces latency
- Lowers development costs

#### XML Security Gateway XS40



- Help secure SOA with XML threat protection and access control
- Combines Web services security, routing and management functions
- Drop-in, centralized policy enforcement
- Easily integrates with existing infrastructure and processes

#### Integration Appliance XI50



- Transforms messages (Binary to XML, Binary to Binary, XML to Binary)
- Bridges multiple protocols (e.g. MQ, HTTP, JMS)
- Routes messages based on content and policy
- Integrates message-level security and policy functions



Each of IBM's DataPower devices has a general theme. The XA35 model focuses on XML processing such as XSLT transforming. The XS40 model focuses on security including protecting your Web services from XML based attacks; it also handles some of the routing that is needed in a message based environment.

The XI50 is basically an appliance based Enterprise Service Bus, commonly called ESB. It supports transformation of messages, bridges multiple protocols, handles routing and integrate message level security.

The emphasis across the product is ease of use and the ability to get these boxes up and running in an absolute minimum of time.

Each higher level appliance contains all the functions contained in lower level appliances. For example, in addition to the new security functions that it supports, the XS40 contains all the function of the XA35 model. Similarly, the XI50 appliance supports all the function of the XS40 model in addition to the specialized function of the XI50.

## Section

# *Administrative problems*



This section describes some of the administrative problems associated with DataPower appliances that were addressed in version 7.0 of WebSphere Application Server.

## Management is at the individual appliance level

- Many customers logically cluster multiple DataPower appliances for high availability (HA) and scaling (capacity) purposes
- In these cases, all appliances making up a clustered group:
  - ▶ Share the same configuration
  - ▶ Expected to act and respond in the same way
- The current management of DataPower appliances focuses on managing each appliance as a single entity



Before the introduction of management support for DataPower appliances in WebSphere Application Server version 7, management of DataPower appliances focused on managing each appliance as a single entity. Many topologies logically cluster multiple appliances for purposes of scaling and high availability. In these clusters, all appliances tend to share the same configuration and are expected to behave similarly.

Treating each appliance as a single entity required you to manage each one separately.

## Section

# ***WebSphere Application Server V7 support for DataPower appliances***



This section describes changes made to WebSphere Application Server V7 to support DataPower appliances.

## V7 features

- DataPower appliances can now be managed using the WebSphere Application Server management tools (administrative console, wsadmin)
- Ability to create a managed set of DataPower appliances
  - ▶ All appliances in the managed set have common firmware settings, managed domains, and sharable appliance settings (example, NTP settings)
- Common experience between management of WebSphere Application Server resources and management of DataPower appliances



In WebSphere Application Server V7, DataPower appliances can now be managed using the standard WebSphere Application Server administrative tools like the administrative console and wsadmin. This results in a common user experience between the management of WebSphere Application Server resources and DataPower appliances.

Additionally, you have the ability to group multiple appliances into a managed set. The managed set can then be treated as a single entity. All appliances in the managed set have common firmware settings, managed domains, and sharable appliance settings.

## Section

# ***Administrative console changes to support DataPower appliances***



This section shows how to access the DataPower management functions from the WebSphere Application Server V7 administrative console.

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## Administrative console view

The screenshot shows the IBM Administrative console interface. The left sidebar contains a navigation tree with categories like Servers, DataPower, and Applications. The main content area is titled 'Appliances' and includes a table of managed resources. The table has the following data:

Select	Name	Host name	Managed set	Master	Operation Status	Synchronization Status
<input type="checkbox"/>	dp1	dp1.nivt.raleigh.ibm.com	unmanaged		⊕	⊕
<input type="checkbox"/>	dp4	dp4.nivt.raleigh.ibm.com	ms1	⊗	➔	↔

Total 2

DataPower administrative integration © 2008 IBM Corporation

The DataPower appliance manager runs on the deployment manager. To access the DataPower administrative functions, expand Servers, then DataPower in the left column of the page.

The Appliances panel lists the appliances that are being managed in this environment.

## Administrative console view

The screenshot displays the IBM Administrative console interface. The main content area is titled 'Firmware' and contains the following information:

**Firmware**  
Use this page to add, view, or remove a firmware version in the repository. A firmware version must exist in the repository before it can be uploaded to an appliance.

**Preferences**

Select	Version	Appliance type	Model type	License features	Release date
<input checked="" type="checkbox"/>	3.6.1.1	XS40	9002 OR 9001	DataGlue, JAVP-AD1, PKCS7-SMIME, HSM	Dec 6, 2007 2:21:09 PM
<input type="checkbox"/>	3.6.1.2	XS40	9002 OR 9001	DataGlue, JAVP-AD1, PKCS7-SMIME, HSM	Jan 9, 2008 8:09:46 AM

Total 2

From this panel, you can add, view, or remove a firmware version from the DataPower appliance manager. A firmware version must exist in the DataPower appliance manager before it can be distributed to the appliances in a managed set.

## Administrative console view

The screenshot displays the IBM Administrative console interface. The main content area is titled "Managed sets" and contains the following text:

Use this page to add, view, or remove a managed set. A managed set is a collection of DataPower appliances that share the same appliance settings, firmware version, and user-defined domains.

Preferences

New Delete Launch

Select	Name	Operational status	Synchronization status
<input type="checkbox"/>	ms1	➔	↔
Total 1			

The sidebar on the right contains the following sections:

- Field help**: For field help information, select a field label or list marker when the help cursor is displayed.
- Page help**: [View information about this page](#)
- Command Assistance**: [View administrative scripting command for last action](#)

The footer of the console view includes the text "DataPower administrative integration" and "© 2008 IBM Corporation".

Use this page to add, view, or remove a managed set. A managed set is a collection of DataPower appliances that share the same appliance settings, firmware version and managed domains.

## Administrative console view

The screenshot displays the IBM DataPower administrative console interface. The main content area is titled "Managed sets" and shows configuration options for a managed set named "me1". The interface includes a left-hand navigation menu with categories like Servers, Applications, Services, Resources, Security, Environment, System administration, Users and Groups, Monitoring and Tuning, Troubleshooting, Service integration, and UDDI. The "Managed sets" section contains a "Runtime" area with buttons for "Edit Membership", "Synchronize", and "Launch". Below this are sections for "General Properties" (Name: me1, Firmware version: 4.1.1, Operational status: up, Synchronization status: Synced), "Firmware" (Change firmware), "Settings" (Version history), "Appliance" (Appliance), and "Managed domains" (Managed domains, Unmanaged domains on the master appliance). A "Help" sidebar on the right provides field, page, and command assistance. The footer of the console indicates "DataPower administrative integration" and "© 2008 IBM Corporation".

Use this page to specify values for the managed set, such as the appliances that are part of the set and shareable appliance settings.



## DataPower integration – wsadmin

- wsadmin has been enhanced to support management of DataPower appliances
- new “dp\*” commands have been added to the AdminTask object – some examples are:
  - ▶ dpExport
  - ▶ dpGetManager
  - ▶ dpGetManagerStatus
  - ▶ dpImport
  - ▶ dpSetManager
  - ▶ dpStopManager

For those users that need programmatic access to manage DataPower appliances, the wsadmin program of WebSphere Application Server version 7.0 has been enhanced to provide this support. The mechanism for doing this is the addition of several new commands to the AdminTask object used by wsadmin. These new commands are recognizable by the first part of the command name which is “dp”. Some examples of the commands are: dpExport, dpGetManager, and dpGetManagerStatus .

The Information Center of the WebSphere Application Server version 7.0 contains very complete and useful information related to wsadmin and programmatically managing DataPower appliances.

## Section

# *Summary*

This section will summarize the presentation.

## Summary

- WebSphere Application Server V7 supports administration of DataPower appliances
  - ▶ Manage using the WebSphere Application Server administrative tools
  - ▶ Configure appliance settings and manage firmware
  - ▶ Managed sets enable management of clustered appliances



WebSphere Application Server V7 introduces support for managing DataPower appliances using WebSphere Application Server's management tools, including the administrative console and wsadmin. You can configure appliance settings, and update the appliance's firmware using these tools. You can also create "managed sets" which let you use a single configuration for a group of DataPower appliances.

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