



IBM Software Group

WebSphere DataPower Appliances SQL/ ODBC Introduction Presentation – Part 1

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WebSphere® Support Technical Exchange



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Introduction

- The DataPower appliance touches a wide range of technology components such as:
 - MQ
 - ODBC
 - TIBCO
 - TAM
 - JMS
 - NFS
 - FTP
 - HTTP(S)

Introduction [continued]

- This presentation will focus on DataPower's SQL/ODBC component.
- This presentation is the first part of looking at the SQL/ODBC component, and is a beginner level introduction.
- The subsequent presentations will focus on use case scenarios seen in the field and troubleshooting.

Licenses

- DataPower comes with the following licenses/features:
 - MQ
 - TAM
 - DataGlue
 - JAXP-API
 - PKCS7-SMIME
 - SQL-ODBC
 - Tibco-EMS

Licenses [continued]

- WebSphere-JMS
- Compact-Flash
- iSCSI
- LocateLED
- AppOpt
- Tibco-RV

- You can tell the licenses that you have by doing a 'show license' from the CLI.

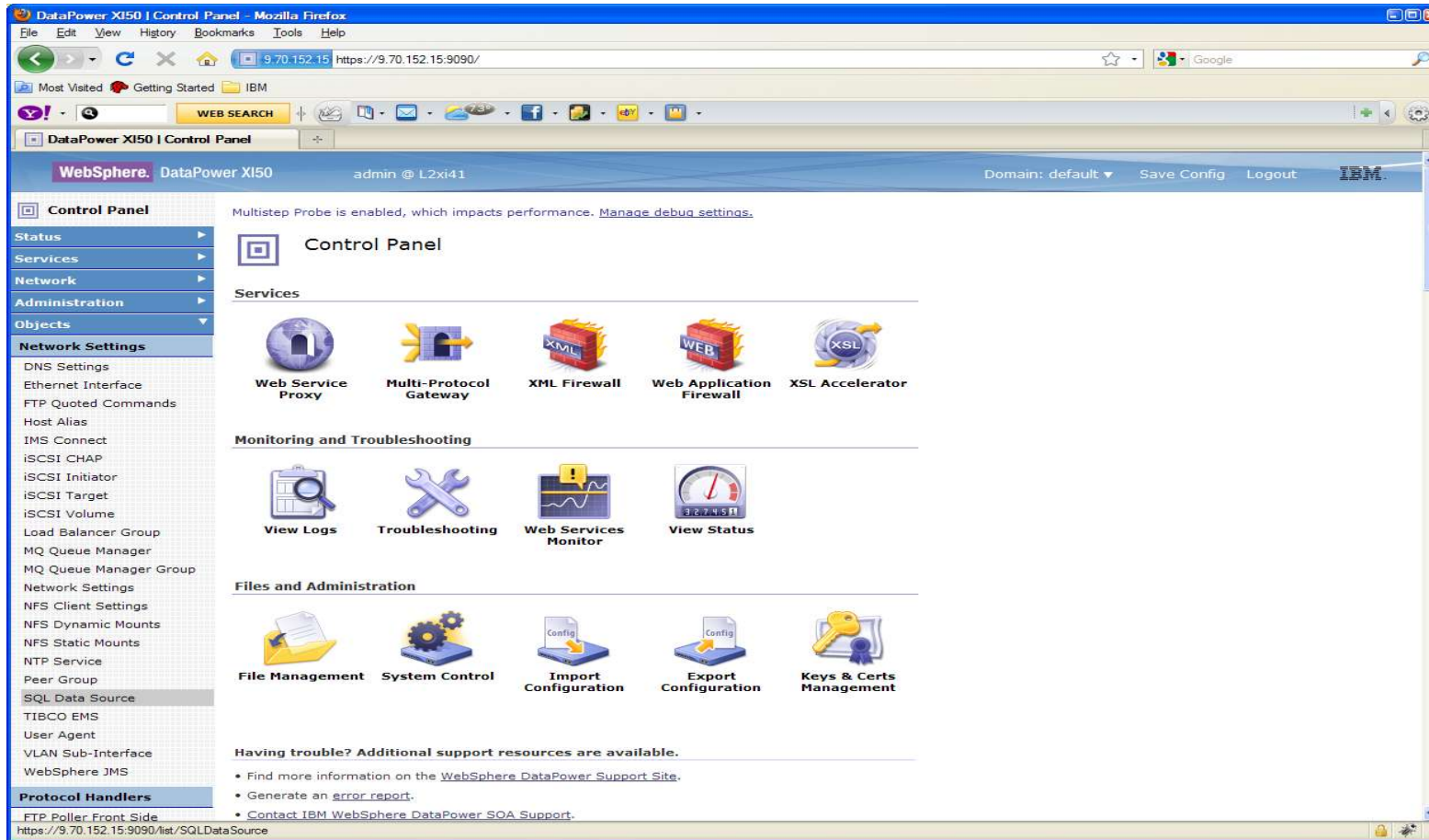
- In the WebGUI, click Status and under the System header, click Device Features to see what you are licensed to use, and Library Information to see what licensed features are currently installed

- If you have an SQL/ODBC license available, then choose firmware files that have 'odbc.' in the file name

- For example: xi3805.mq.odbc.scrypt.

- Licenses are applied at manufacture time.

The SQL Data Source Object



The screenshot displays the WebSphere DataPower XI50 Control Panel interface in a Mozilla Firefox browser window. The browser's address bar shows the URL `https://9.70.152.15:9090/`. The page title is "DataPower XI50 | Control Panel". The user is logged in as "admin @ L2xi41".

The left-hand navigation menu is expanded to show "Objects". Under "Objects", the "SQL Data Source" option is highlighted. Other visible options in the menu include "Network Settings", "DNS Settings", "Ethernet Interface", "FTP Quoted Commands", "Host Alias", "IMS Connect", "iSCSI CHAP", "iSCSI Initiator", "iSCSI Target", "iSCSI Volume", "Load Balancer Group", "MQ Queue Manager", "MQ Queue Manager Group", "Network Settings", "NFS Client Settings", "NFS Dynamic Mounts", "NFS Static Mounts", "NTP Service", "Peer Group", "SQL Data Source", "TIBCO EMS", "User Agent", "VLAN Sub-Interface", "WebSphere JMS", and "Protocol Handlers".

The main content area of the control panel is titled "Control Panel" and contains several sections:

- Services:** Includes icons for Web Service Proxy, Multi-Protocol Gateway, XML Firewall, Web Application Firewall, and XSL Accelerator.
- Monitoring and Troubleshooting:** Includes icons for View Logs, Troubleshooting, Web Services Monitor, and View Status.
- Files and Administration:** Includes icons for File Management, System Control, Import Configuration, Export Configuration, and Keys & Certs Management.

At the bottom of the main content area, there is a section titled "Having trouble? Additional support resources are available." with the following links:

- Find more information on the [WebSphere DataPower Support Site](#).
- Generate an [error report](#).
- Contact [IBM WebSphere DataPower SOA Support](#).

The browser's status bar at the bottom shows the URL `https://9.70.152.15:9090/list/SQLDataSource`.

The SQL Data Source Object

- Licensed feature
 - ▶ Requires the SQL-ODBC license
- Not available on all appliances.
 - ▶ Available on the XI50, XB60 (included by default), and XM70
- Provides the configuration to establish a direct connection to a database instance on a remote data server.
- Allows for optional valid ODBC configuration parameters to be defined.

SQL Data Source Usage

- Connect to a remote database server.
 - ▶ Supported database servers as of the 3.8.0 firmware
 - DB2: all supported versions up to 9.5
 - Microsoft® SQL Server: all supported versions up to 2008
 - Oracle: all supported versions up to 11g
 - Sybase: all supported versions up to 15
- Dynamically perform database operations such as
 - ▶ SELECT and INSERT
 - ▶ Stored Procedures
- Used by:
 - ▶ SQL action in a processing policy
 - ▶ custom stylesheet
 - `dp:sql-execute()` extension function
`<dp:sql-execute source="DSrcName" statement="SELECT * FROM Test_Table"/>`

SQL Data Source Usage

The screenshot shows the WebSphere administration console for a DataPower XI50 device. The browser window title is "DataPower XI50 | Configure: SQL Data Source - Mozilla Firefox". The address bar shows the URL "https://9.70.152.15:9090/list/SQLDataSource". The page header includes "WebSphere. DataPower XI50", the user "admin @ L2xi41", and the domain "meganiVodafoneDavidC".

The main content area is titled "Configure SQL Data Source" and features a "Refresh List" button. Below this is a table listing the configured data sources:

| Name | Status | Op-State | Logs | Admin State | Database Type | Data Source Host | Data Source Port |
|------|--------|----------|------|-------------|---------------|------------------|------------------|
| | saved | up | | enabled | Sybase | 9.42.102.143 | 50009 |

An "Add" button is located below the table. The left navigation menu includes sections for "Control Panel", "Network Settings", and "Protocol Handlers".

SQL Data Source Usage

The screenshot shows the configuration page for an SQL Data Source in the DataPower XI50 management console. The browser window title is "DataPower XI50 | Configure: SQL Data Source - Mozilla Firefox". The address bar shows the URL "https://9.70.152.15:9090/configure/SQLDataSource". The left sidebar contains a navigation menu with categories: Status, Services, Network, Administration, Objects, Network Settings, and Protocol Handlers. The "Network Settings" section is expanded, showing various configuration options for different protocols. The main content area is titled "Configure SQL Data Source" and contains the "Data Source Configuration Parameters" section. This section includes a "Name" field, an "Admin State" (radio buttons for "enabled" and "disabled"), a "Comments" text area, a "Database Type" dropdown menu (set to "DB2"), "Connection User Name" and "Connection Password" fields, "Data Source ID", "Data Source Host", and "Data Source Port" fields, "Limit Returned Data" (radio buttons for "on" and "off"), "Maximum Connections" (set to "10"), and "Allow Read-Only Access" (radio buttons for "on" and "off"). There are "Apply" and "Cancel" buttons at the top left of the configuration area, and a "Help" link at the top right. The status bar at the bottom of the browser window shows "Done".

SQL Data Source Usage

The screenshot shows the configuration page for an SQL Data Source in the DataPower XI50 management console. The browser window title is "DataPower XI50 | Configure: SQL Data Source - Mozilla Firefox". The address bar shows the URL "https://9.70.152.15:9090/configure/SQLDataSource". The page title is "Configure SQL Data Source".

The left sidebar contains a navigation menu with the following categories:

- Status
- Services
- Network
- Administration
- Objects
- Network Settings
 - FTP Quoted Commands
 - IMS Connect
 - iSCSI CHAP
 - iSCSI Target
 - iSCSI Volume
 - Load Balancer Group
 - MQ Queue Manager
 - MQ Queue Manager Group
 - NFS Dynamic Mounts
 - NFS Static Mounts
 - Peer Group
 - SQL Data Source
 - TIBCO EMS
 - User Agent
 - WebSphere JMS
- Protocol Handlers
 - FTP Poller Front Side Handler
 - FTP Server Front Side Handler
 - HTTP Front Side Handler
 - HTTPS (SSL) Front Side Handler
 - IMS Connect Handler
 - MQ Front Side Handler
 - NFS Poller Front Side Handler
 - SFTP Server Front Side Handler
 - Stateful Raw XML Handler
 - Stateless Raw XML Handler

The main content area is titled "Configure SQL Data Source" and shows the "Data Source Configuration Parameters" for a "main" data source. The configuration includes:

- Name:** Text input field with an asterisk (*).
- Admin State:** Radio buttons for "enabled" (selected) and "disabled".
- Comments:** Text input field.
- Database Type:** Dropdown menu with "DB2" selected. The dropdown list shows "DB2", "Microsoft SQL Server", "Oracle", and "Sybase".
- Connection User Name:** Text input field with an asterisk (*).
- Connection Password:** Text input field with an asterisk (*).
- Data Source ID:** Text input field with an asterisk (*).
- Data Source Host:** Text input field with an asterisk (*).
- Data Source Port:** Text input field with an asterisk (*).
- Limit Returned Data:** Radio buttons for "on" and "off" (selected).
- Maximum Connections:** Text input field with "10" entered and an asterisk (*).
- Allow Read-Only Access:** Radio buttons for "on" and "off" (selected).

Buttons for "Apply" and "Cancel" are located at the top left of the configuration area. A "Help" link is at the top right. The status bar at the bottom of the browser window shows "Done".

SQL Data Source Usage

The screenshot displays the WebSphere Administration Console interface for configuring an SQL Data Source. The browser window title is "DataPower XI50 | Configure: SQL Data Source - Mozilla Firefox". The address bar shows the URL "https://9.70.152.15:9090/configure/SQLDataSource/". The page header includes "WebSphere. DataPower XI50" and the user "admin @ L2xi41".

The main content area is titled "Configure SQL Data Source" and shows the "Data_Source_Configuration_Parameters" tab. The configuration parameters are as follows:

| Parameter | Value |
|------------------------|---|
| Admin State | <input checked="" type="radio"/> enabled <input type="radio"/> disabled |
| Comments | Account info for production HCS pr |
| Database Type | Sybase |
| Connection User Name | barberk |
| Connection Password | ***** |
| Data Source ID | tempdb |
| Data Source Host | 9.42.102.143 |
| Data Source Port | 50009 |
| Limit Returned Data | <input type="radio"/> on <input checked="" type="radio"/> off |
| Maximum Connections | 30 |
| Allow Read-Only Access | <input type="radio"/> on <input checked="" type="radio"/> off |

Buttons for "Apply", "Cancel", "Delete", and "Undo" are visible. Links for "Export", "View Log", "View Status", and "Help" are also present.

SQL Data Source Usage

DataPower XI50 | Configure: XML Firewall - Mozilla Firefox

File Edit View History Bookmarks Tools Help

9.70.152.15 https://9.70.152.15:9090/service/XMLFirewall/ss-xml-fw

Most Visited Getting Started IBM

WEB SEARCH

DataPower XI50 | Configure: XML Fir...

Configure XML Firewall

General Advanced Stylesheet Params Headers Monitors XML Threat Protection

Apply Cancel Delete Clone Export View Log View Status Show Probe Validate Conformance Help

XML Firewall Service status: [up]

General Configuration

Firewall Name
ss-xml-fw *

XML Manager
default + ... *

Summary
an example XML Firewall Service

Firewall Policy
ss-xml-fw + ... *

Firewall Type
Loopback *

URL Rewrite Policy
(none) + ...

ORIGIN SERVER DATAPOWER XI50 CLIENT

REQUEST OUT RESPONSE IN REQUEST IN RESPONSE OUT

Back End

With a loopback proxy back end type, there is no back end server; the device is responding to the client.

With this type, there is no back end server which needs credentials from the device.

With this type, the response type is always "unprocessed".

Front End

Device Address
0.0.0.0 Select Alias *

Device Port
2049 *

SSL Server Crypto Profile
(none) + ...

Request Type
Non-XML

Protocol Handlers

- FTP Poller Front Side Handler
- FTP Server Front Side Handler
- HTTP Front Side Handler
- HTTPS (SSL) Front Side Handler
- IMS Connect Handler
- MQ Front Side Handler
- NFS Poller Front Side Handler
- SFTP Server Front Side Handler
- Stateful Raw XML Handler
- Stateless Raw XML Handler
- Done

SQL Data Source Usage

DataPower XI50 | Processing Policy: - Mozilla Firefox
 https://9.70.152.15:9090/configure/StylePolicyEditor/ss-xml-fw?skipNav=true&policyNameSelect=ss-xml-fw&service=XMLFirewallService

Configure XML Firewall Style Policy

Policy:
 Policy Name: *
 Apply Policy Cancel Export View Log View Status Close Window

Rule:
 Rule Name: Rule Direction: Client to Server
 New Rule Delete Rule

Create rule: Click New, drag action icons onto line. Edit rule: Click on rule, double-click on action

Filter
Sign
Verify
Validate
Encrypt
Decrypt
Transform
Route
AAA
Results
Advanced

Action: Transform
 ss-xml-fw_request_xform_0
 Action Type: xform
 Input : INPUT
 Transform : local:///sample.xsl
 Output : PIPE
 URL Rewrite Policy :
 Dynamic Stylesheet :
 Output Type : default
 Asynchronous : off

Create Reusable Rule

| Order | Rule Name | Direction | ACTIONS |
|-------|-------------------|------------------|--|
| ↑ ↓ | ss-xml-fw_request | Client to Server | delete rule |

Done

SQL Data Source Usage

```

1 <?xml version="1.0" encoding="UTF-8"?>
2 <xsl:stylesheet xmlns:xsl="http://www.w3.org/1999/XSL/Transform" version="1.0"
3     xmlns:regExp="http://exslt.org/regular-expressions"
4     xmlns:dp="http://www.datapower.com/extensions" extension-element-prefixes="dp"
5     xmlns:dpconfig="http://www.datapower.com/param/config"
6     xmlns:date="http://exslt.org/dates-and-times"
7     exclude-result-prefixes="dp dpconfig">
8
9     <xsl:template match="/">
10      <xsl:variable name = "sql-command">
11        INSERT INTO CAPO_CANCELACION ( CAPO_CO_NRM_RECEPTOR,
12        CAPO_DS_FECHA_SOLICITUD, CAPO_DS_TIPO_SOLICITUD, CAPO_DS_NUM_DIARIO,
13        ESTA_CO_ESTADO, CAPO_DS_REFERENCIA, CACA_CO_CAUSA_CANCELACION,
14        SOPO_DS_REFERENCIA, CAPO_DS_USR_ACEPTACION, CAPO_FX_CREACION,
15        CAPO_DS_USR_CREACION, CAPO_FX_ACEPTACION, CAPO_FX_ULTIMA_MODIF,
16        CAPO_DS_USR_ULTIMA_MODIF, INCI_DS_INCIDENCIA, CAPO_DS_FICHERO_ANEXO,
17        ERNC_CO_ERROR_NC )
18        VALUES ( 70, '11/30/2007 12:51:28.250 PM', 1, 3, 'CURS',
19        '7051071130125100003', 'ABONA', '30300311100518131122223', '¿cómo estás?', '04/21/2010 12:00:00.000 AM', 'usuariobtl',
20        '11/30/2007 12:51:26.393 PM', '05/25/2010 05:13:22.733 PM', ' ', NULL,
21        '/opt/weblogic/share/portabilidad/justificantes/donante/ImpresoSolicitudCtrl.pdf', 'CAND PERMI' )
22
23      </xsl:variable>
24
25      <xsl:variable name = "ss-select">
26        <dp:sql-execute source="..." statement="$sql-command"/>
27      </xsl:variable>
28
29      <Output>
30        <xsl:value-of select="$ss-select" />
31      </Output>
32
33    </xsl:template>
34  </xsl:stylesheet>
35
36

```

Ln 1, Col. 1, C0 U8-UNIX XML Mod: 8/27/2010 4:16:38PM File Size: 3484 INS

SQL Data Source Usage

DataPower XI50 | Processing Policy: - Mozilla Firefox

9.70.152.15 | https://9.70.152.15:9090/configure/StylePolicyEditor/ss-xml-fw?skipNav=true&policyNameSelect=ss-xml-fw&service=XMLFirewallService

Configure XML Firewall Style Policy

Policy:
 Policy Name: *
 [Export](#) | [View Log](#) | [View Status](#) | [Close Window](#)

Rule:
 Rule Name: Rule Direction:

Create rule: Click New, drag action icons onto line. Edit rule: Click on rule, double-click on action

Filter Sign Verify Validate Encrypt Decrypt Transform Route AAA Results Advanced

CLIENT → [Filter] → [Transform] → [Results] → [AAA] → ORIGIN SERVER

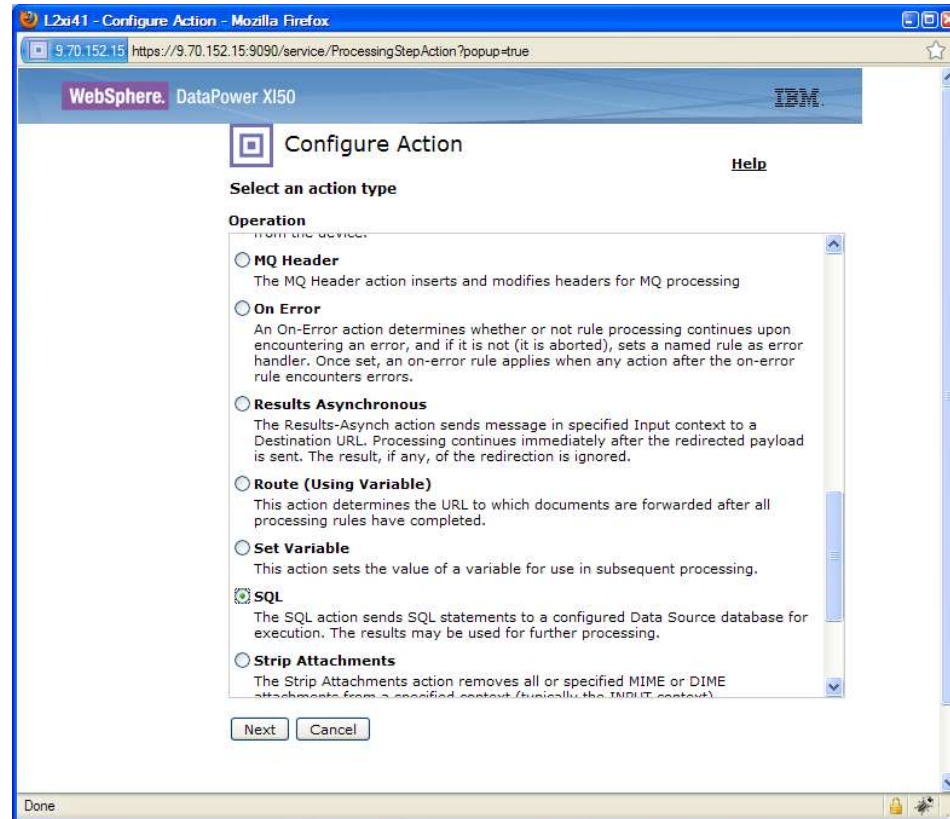
| Order | Rule Name | Direction | Actions |
|-------|-------------------|------------------|--|
| ↑ ↓ | ss-xml-fw_request | Client to Server | [Filter] [Transform] [Results] [AAA] delete rule |

[Scroll to top](#)

Done



SQL Data Source Usage



SQL Data Source Usage

L2x41 - Configure SQL Action - Mozilla Firefox
9.70.152.15 https://9.70.152.15:9090/service/ProcessingStep.Action?popup=true

WebSphere. DataPower XI50 IBM.

Configure SQL Action

Help

Basic Advanced

Input

Input (auto) (auto) *

Options

SQL

SQL Data Source (none) + ...

SQL Input Method (none)

SQL Text

Asynchronous on off

Output

Output OUTPUT

Delete Done Cancel

Done

SQL Data Source Usage

The screenshot displays the 'Configure SQL Action' web interface in Mozilla Firefox. The browser title is 'L2x41 - Configure SQL Action - Mozilla Firefox' and the address bar shows 'https://9.70.152.15:9090/service/ProcessingStep.Action?popup=true'. The page header includes 'WebSphere. DataPower XI50' and 'IBM.'.

The main content area is titled 'Configure SQL Action' and includes a 'Help' link. Below the title are two tabs: 'Basic' (selected) and 'Advanced'.

The 'Basic' tab is divided into three sections:

- Input:** Contains an 'Input' field with '(auto)' and a dropdown menu also set to '(auto)', followed by an asterisk (*).
- Options:** Contains a sub-section titled 'SQL' with the following fields:
 - SQL Data Source:** A dropdown menu set to '(none)', with '+' and '...' buttons.
 - SQL Input Method:** A dropdown menu set to 'Static'.
 - SQL Text:** An empty text input field.
 - Asynchronous:** Radio buttons for 'on' and 'off', with 'off' selected.
- Output:** Contains an 'Output' field with an empty text input and a dropdown menu set to 'OUTPUT', followed by 'Delete', 'Done', and 'Cancel' buttons.

The status bar at the bottom of the browser window shows 'Done'.

SQL Data Source Usage

L2x41 - Configure SQL Action - Mozilla Firefox
9.70.152.15 https://9.70.152.15:9090/service/ProcessingStepAction?popup=true

WebSphere. DataPower XI50 IBM.

Configure SQL Action

[Help](#)

Basic [Advanced](#)

Input

Input: (auto) (auto) *

Options

SQL

SQL Data Source: (none) + ...

SQL Input Method: Variable

Variable Name: var:// Var Builder

Asynchronous: on off

Output

Output: OUTPUT

Delete Done Cancel

Done

SQL Data Source Usage

L2x41 - Configure SQL Action - Mozilla Firefox
9.70.152.15 https://9.70.152.15:9090/service/ProcessingStepAction?popup=true

WebSphere. DataPower XI50 IBM.

Configure SQL Action

[Help](#)

Basic [Advanced](#)

Input

Input | (auto) | (auto) v *

Options

SQL

SQL Data Source | (none) v + ...

SQL Input Method | Stylesheet v

Processing Control File | local:/// v

(none) v | Upload... | Fetch... | Edit... | View... | Var Builder

Asynchronous | on off

Output

Output | | OUTPUT v

Delete Done Cancel

Done

SQL Data Source Usage

The screenshot displays the 'Configure SQL Action' web interface in Mozilla Firefox. The browser address bar shows the URL: `https://9.70.152.15:9090/service/ProcessingStepAction?popup=true`. The page title is 'L2x41 - Configure SQL Action - Mozilla Firefox'. The interface includes a 'Help' link and two tabs: 'Basic' (selected) and 'Advanced'. The 'Input' section contains an 'Input' field with '(auto)' and a dropdown menu set to '(auto)'. The 'Options' section features a 'SQL' icon and a 'SQL Data Source' dropdown menu with a '+' and '...' button. Below it, the 'SQL Input Method' is set to 'Stylesheet'. The 'Processing Control File' section shows a file path 'local:///sample.xsl' with 'Upload...', 'Fetch...', 'Edit...', and 'View...' buttons, and a 'Var Builder' button. The 'Asynchronous' section has radio buttons for 'on' and 'off', with 'off' selected. The 'Output' section includes an 'Output' field with 'OUTPUT' and a dropdown menu, and 'Delete', 'Done', and 'Cancel' buttons. The status bar at the bottom indicates 'Done'.

SQL Data Source Usage

DataPower XI50 | Processing Policy: - Mozilla Firefox

9.70.152.15 https://9.70.152.15:9090/configure/StylePolicyEditor/ss-xml-fw?skipNav=true&policyNameSelect=ss-xml-fw&service=XMLFirewallService

Configure XML Firewall Style Policy

Policy:
 Policy Name: *
 [Export](#) | [View Log](#) | [View Status](#) | [Close Window](#)

Rule:
 Rule Name: Rule Direction:

Create rule: Click New, drag action icons onto line. Edit rule: Click on rule, double-click on action

Configured Rules

| Order | Rule Name | Direction | Actions | |
|-------|-------------------|------------------|---------|-----------------------------|
| ↑ ↓ | ss-xml-fw_request | Client to Server | | delete rule |

[Scroll to top](#)

Done

3.7.1 Firmware Release Information

- Added connection pooling for DB2V9.
- Added an extension function to execute a query statement against a database using parameter markers.
- Release notes for the 3.7.1.x firmware can be found at:
<http://www-01.ibm.com/support/docview.wss?rs=2362&uid=swg24023612>
- The latest firmware is 3.7.1.15.

3.7.2 Firmware Release Information

- Brought connection pooling to the three other databases.
- Release notes for the 3.7.2.x firmware can be found at:
<http://www-01.ibm.com/support/docview.wss?rs=2362&uid=swg24023613>
- The latest firmware is 3.7.2.13.

3.7.3 Firmware Release Information

- Release notes for the 3.7.3.x firmware can be found at:
[http://www-01.ibm.com/support/docview.wss?
rs=2362&uid=swg24023611](http://www-01.ibm.com/support/docview.wss?rs=2362&uid=swg24023611)
- The latest firmware is 3.7.3.12.

3.8.0 Firmware Release Information

- Added support for Oracle RAC.
- Added the "maxOutputParamSize" attribute for the extension element to allow stored procedures with large output params.
- Externalize SQL Injection Patterns in Web Application Firewall service.
- Release notes for the 3.8.0.x firmware can be found at:
[http://www-01.ibm.com/support/docview.wss?
rs=2362&uid=swg27017385](http://www-01.ibm.com/support/docview.wss?rs=2362&uid=swg27017385)
- The latest firmware is 3.8.0.6.

3.8.1 Firmware Release Information

- Tracing can be enabled in the field for 3.8.1 via the "TraceFile" config param.
- Debug logging will have an impact on performance.
- Release notes for the 3.8.1.x firmware can be found at:
<http://www-01.ibm.com/support/docview.wss?rs=2362&uid=swg27018966>
- The latest firmware is 3.8.1.4.

Summary

- The DataPower appliance provides a number of integrations to key IT technology components, one of which is for SQL/ODBC. This seamless interface allows DataPower to operate with various SQL data resources: DB2, MS SQL Server, Oracle, and Sybase.
- This presentation was an introduction to the device's SQL data source, and serves as the initial step to follow-up presentations on SQL data source examples in the field and troubleshooting.

Additional WebSphere Product Resources

- Learn about upcoming WebSphere Support Technical Exchange webcasts, and access previously recorded presentations at:
http://www.ibm.com/software/websphere/support/supp_tech.html
- Discover the latest trends in WebSphere Technology and implementation, participate in technically-focused briefings, webcasts and podcasts at:
<http://www.ibm.com/developerworks/websphere/community/>
- Join the Global WebSphere Community:
<http://www.websphereusergroup.org>
- Access key product show-me demos and tutorials by visiting IBM Education Assistant:
<http://www.ibm.com/software/info/education/assistant>
- View a webcast replay with step-by-step instructions for using the Service Request (SR) tool for submitting problems electronically:
<http://www.ibm.com/software/websphere/support/d2w.html>
- Sign up to receive weekly technical My Notifications emails:
<http://www.ibm.com/software/support/einfo.html>

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