ScienceLogic

Monitoring IBM Db2

IBM: Db2 PowerPack version 105

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1

Introduction

Overview

This manual describes how to monitor IBM Db2 databases in SL1 using the *IBM: Db2*PowerPack.

Use the following menu options to navigate the SL1 user interface:

- To view a pop-out list of menu options, click the menu icon (☰).
- To view a page containing all of the menu options, click the Advanced menu icon (⋯).

The following sections provide an overview of IBM Db2 and the *IBM: Db2*PowerPack:

This chapter covers the following topics:

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What Does the IBM: Db2PowerPack Monitor?

To monitor IBM Db2 databases using SL1, you must install the *IBM: Db2* PowerPack. This PowerPack enables you to discover, model, and collect data about IBM Db2 databases.

The *IBM: Db2* PowerPack includes:

- Example credentials you can use as templates to create credentials to discover and connect to the IBM Db2 databases and instances you want to monitor
- Dynamic Applications to discover, model, and monitor performance metrics and collect configuration data for IBM Db2 databases
- Event Policies and corresponding alerts that are triggered when IBM Db2 databases meet certain status criteria
- A Run Book Action and Run Book Automation policy for aligning Dynamic Applications
- A device dashboard to display summary information about Db2 instances

Installing the IBM: Db2PowerPack

Before completing the steps in this manual, you must import and install the latest version of the *IBM: Db2*PowerPack.

TIP: By default, installing a new version of a PowerPack overwrites all content from a previous version of that PowerPack that has already been installed on the target system. You can use the ***Enable Selective PowerPack Field Protection*** setting in the **Behavior Settings** page (System > Settings > Behavior) to prevent new PowerPacks from overwriting local changes for some commonly customized fields. (For more information, see the ***System Administration*** manual.)

To download and install a PowerPack:

1. Download the PowerPack from the ScienceLogic Support Site at https://support.sciencelogic.com/s/powerpacks.
2. Go to the **PowerPack Manager** page (System > Manage > PowerPacks).
3. In the **PowerPack Manager** page, click the **[Actions]** button, then select *Import PowerPack*. The **Import PowerPack** dialog box appears.
4. Click the **[Browse]** button and navigate to the PowerPack file.
5. When the **PowerPack Installer** modal appears, click the **[Install]** button to install the PowerPack.

NOTE: If you exit the **PowerPack Installer** modal without installing the imported PowerPack, the imported PowerPack will not appear in the **PowerPack Manager** page. However, the imported PowerPack will appear in the **Imported PowerPacks** modal. This page appears when you click the **[Actions]** menu and select *Install PowerPack*.

Chapter

2

Configuring IBM Db2 Monitoring

Overview

Use the following menu options to navigate the SL1 user interface:

- To view a pop-out list of menu options, click the menu icon (☰).
- To view a page containing all of the menu options, click the Advanced menu icon (⋯).

The following sections describe how to configure and discover IBM Db2 databases for monitoring by SL1 using the *IBM: Db2* PowerPack:

This chapter covers the following topics:

Prerequisites for Monitoring IBM Db2

To configure the SL1 system to monitor IBM Db2 databases using the *IBM: Db2* PowerPack, you must first perform the following prerequisites, which are based on your operating system.

NOTE: After you have configured SL1 to monitor IBM Db2 databases and you have discovered an IBM Db2 server and all associated component devices, make sure that the ports for the IBM Db2 instance are open to the SL1 Data Collector.

Prerequisites for Linux/Unix Users

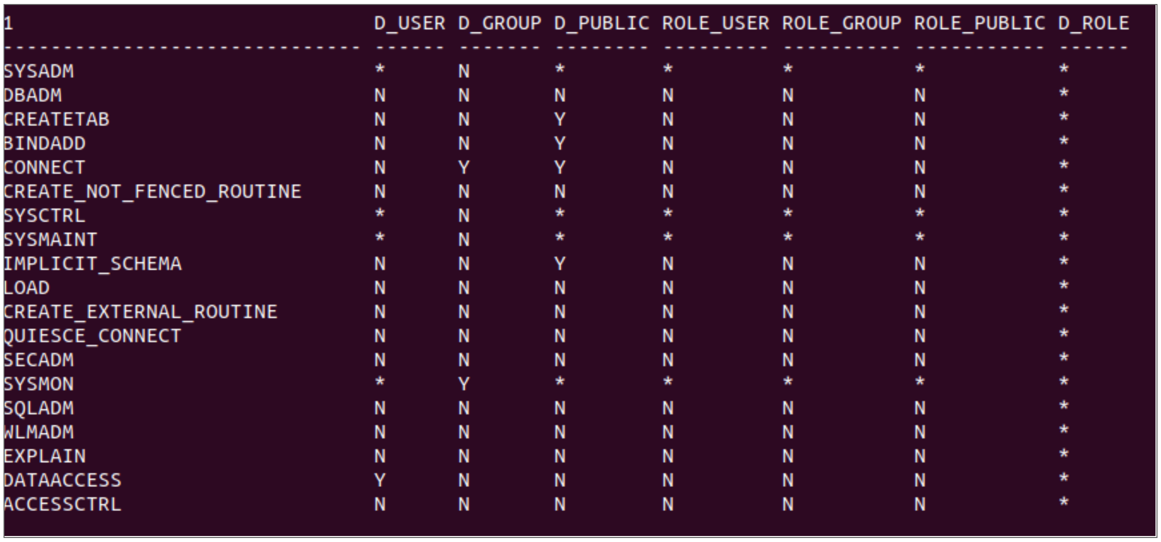
1. Create a shell session and SSH into the Db2 database you want to monitor.
2. Create a new group to monitor by entering the following command:
   ```
   sudo groupadd <group_name>
   ```
3. Create a new user for the group you created by entering the following command:
   ```
   sudo useradd -u <user_id> -g <group_name> -m -d /home/<user_name> <user_name>
   ```
4. Set a password for the user you created by entering the following command:
   ```
   sudo passwd <user_name>
   ```
5. Log in with the instance admin user. For example: `su - db2inst1`
6. Run the following commands:
   ```
   db2 update database manager configuration using SYSMON_GROUP <group_name>
   ```
   ```
   db2stop
   ```
   ```
   db2start
   ```
7. Connect to your database with the following command:
   ```
   db2 connect to <db_name>
   ```
8. Run the following command to grant the DATAACCESS privilege to the user:
   ```
   db2 "grant DATAACCESS ON DATABASE TO USER <user_name>"
   ```

9. Verify permissions with the following commands:

```
db2 connect to <db_name> user <user_name> using <user_password>
```

```
db2 "select SUBSTR(AUTHORITY,1,30), D_USER, D_GROUP, D_PUBLIC, ROLE_
USER, ROLE_GROUP, ROLE_PUBLIC, D_ROLE from table (sysproc.auth_list_
authorities_for_authid(CURRENT_USER, 'U'))"
```

NOTE: Repeat steps 4 - 7 for each Db2 instance.



```
1                              D_USER D_GROUP D_PUBLIC ROLE_USER ROLE_GROUP ROLE_PUBLIC D_ROLE
------------------------------ ------ ------- -------- --------- ---------- ----------- ------
SYSADM                         *      N       *        *         *          *           *
DBADM                          N      N       N        N         N          N           *
CREATETAB                      N      N       Y        N         N          N           *
BINDADD                        N      N       Y        N         N          N           *
CONNECT                        N      Y       Y        N         N          N           *
CREATE_NOT_FENCED_ROUTINE      N      N       N        N         N          N           *
SYSCTRL                        *      N       *        *         *          *           *
SYSMAINT                       *      N       *        *         *          *           *
IMPLICIT_SCHEMA                N      N       Y        N         N          N           *
LOAD                           N      N       N        N         N          N           *
CREATE_EXTERNAL_ROUTINE        N      N       N        N         N          N           *
QUIESCE_CONNECT                N      N       N        N         N          N           *
SECADM                         N      N       N        N         N          N           *
SYSMON                         *      Y       *        *         *          *           *
SQLADM                         N      N       N        N         N          N           *
WLMADM                         N      N       N        N         N          N           *
EXPLAIN                        N      N       N        N         N          N           *
DATAACCESS                     Y      N       N        N         N          N           *
ACCESSCTRL                     N      N       N        N         N          N           *
```

NOTE: The user you create will likely need to use KornShell (for Unix systems) or Bash (for Linux systems).

If you are unsure of the shell directory, you can use the command `which ksh` to determine the KornShell directory, or `which bash` to determine the Bash directory.

After you have determined shell directory, run the following commands, replacing *`<shell_directory>`* with the KornShell or Bash directory:

```
sudo useradd -u <user_id> -g <group_name> -s <shell_directory> -m -d
/home/<user_name> <user_name>
```

You ***should not*** use Shell (`sh`) as the shell for the user. Using Shell for the user shell could result in shell-related errors appearing in the Device Log.

Prerequisites for Windows Users

> **NOTE:** Before performing the steps for the Windows prerequisites, ensure that you have followed the steps in the *Configuring Windows Servers for Monitoring with PowerShell*section of the ***Monitoring Windows Systems with PowerShell*** manual.

Windows users will need to create a local user and group for the Db2 database. If you have already done so, proceed to ***adding the group to the instance database manager***.

To create the user and group:

1. Click **[Start]** and select ***Run***.
2. In the **Run** window, enter `lusrmgr.msc` and click **[OK]**.
3. In the **Local Users and Groups** pane, select the ***Users*** folder.
4. Click the ***Action*** menu and select *New User...*. Enter the new user's information in the **New User** window and click **[Create]**.
5. In the **Local Users and Groups** pane, select the ***Groups*** folder.
6. Click the ***Action*** menu and select *New Group...*. Enter the new group's information in the **New Group** window and click **[Create]**.
7. To add the new user to the group, double-click on the group name.
8. Click the **[Add...]** button under the **Members** window and enter the username. Click **[OK]**.

> **NOTE:** You may need to add the user to the Administrators group in order to use PowerShell remoting if you don't have a PowerShell group/policy in place for non-adminstrative users.

Next, you will need to add the group you created to the instance database manager:

1. Log in to the Db2 database as the instance admin user.
2. Open the Db2 admin shell.
3. Run the following commands:

   ```
   db2 update database manager configuration using SYSMON_GROUP <group_name>
   ```

   ```
   db2stop
   ```

   ```
   db2start
   ```

Next, you will grant the DATAACCESS privilege to the new user:

1. Log in to the Db2 database as the instance admin user.
2. Open the Db2 admin shell.
3. Run the following commands:

   ```
   db2 connect to <database>
   ```

   ```
   db2 "grant DATAACCESS on database to user <user_name>"
   ```

NOTE: You will need to grant this access to each database.

NOTE: Perform the steps to add the group to the instance database manager and to grant the DATAACCESS privilege for each Db2 instance that you will monitor.

Creating Credentials for IBM Db2

To monitor Db2 databases using SL1, you must create two credentials. These credentials enable SL1 to collect data from your Db2 databases. The types of credentials that are required for monitoring depend on the type of database being monitored:

- Linux and Unix users must use an ***SSH/Key credential*** and a ***SOAP/XML credential***
- Windows users must use a ***PowerShell credential*** and a ***SOAP/XML credential***

In addition, if the password has changed for the account with access to the Db2 database, you will need to update the corresponding ***Database credential***.

NOTE: SL1 will use SSH or PowerShell at the beginning, and then the client provided by IBM. SL1 uses the instance database manager user to connect to the Db2 database.

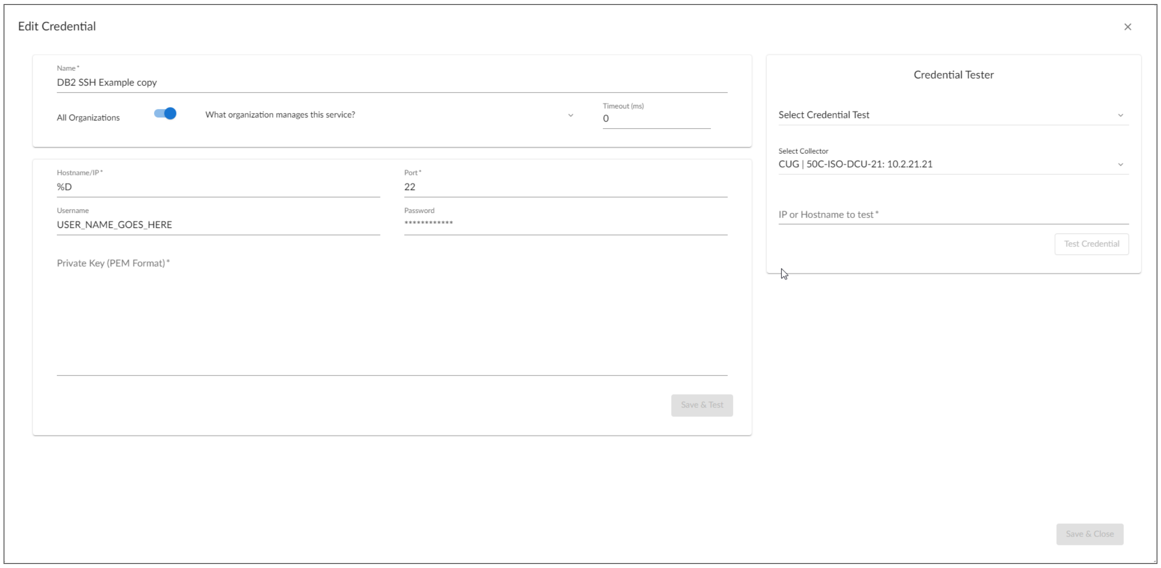
Creating an SSH/Key Credential (Linux and Unix Users)

Linux and Unix users must create an SSH/Key credential.

NOTE: If you are using an SL1 system prior to version 11.1.0, the new user interface does not include the ***Duplicate*** option for sample credential(s). ScienceLogic recommends that you use ***the classic user interface and the Save As button*** to create new credentials from sample credentials. This will prevent you from overwriting the sample credential(s).

To create an SSH/Key credential:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the **DB2 SSH Example** credential, click its **[Actions]** icon (⋯) and select ***Duplicate***. A copy of the credential, called **DB2 SSH Example copy** appears.
3. Click the **[Actions]** icon (⋯) for the **DB2 SSH Example copy** credential and select ***Edit***. The **Edit Credential** page appears. Update the following fields:



Edit Credential

Name*: DB2 SSH Example copy

All Organizations: ●

What organization manages this service?

Timeout (ms): 0

Hostname/IP*: %D

Port*: 22

Username: USER_NAME_GOES_HERE

Password: ************

Private Key (PEM Format)*

Credential Tester

Select Credential Test

Select Collector: CUG | 50C-ISO-DCU-21: 10.2.21.21

IP or Hostname to test*

4. Supply values in the following fields:

   - ***Name***. Type a new name for the credential.
   - ***All Organizations***. Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the ***What organization manages this service?*** drop-down field to align the credential with those specific organizations.
   - ***Timeout(ms).*** Keep the default setting.
   - ***Hostname/IP.*** Type the IP address or hostname of the Db2 database you want to monitor.
   - ***Port.*** Keep the default setting.
   - ***Username***. Type the username for a user with access to the Db2 database.
   - ***Password***. Type the password for the account with access to the Db2 database.
   - ***Private Key (PEM Format)***. Optional. Use if required for SSH authentication.

NOTE: The private key can have a maximum of 64 characters per line. Therefore, you cannot use keys in the OpenSSH format, because that format uses 70 characters per line. When you attempt to save the credential, SL1 will validate that the private key entered is in the correct format. You will be able to save the credential only if the private key is correctly formatted.

NOTE: If you are using a PEM key in the SSH/Key credential, then in your SOAP/XML credential you must fill in the ***HTTP Auth User*** and ***HTTP Auth Password*** fields with credentials for the same user.

5. Click the **[Save & Close]** button.

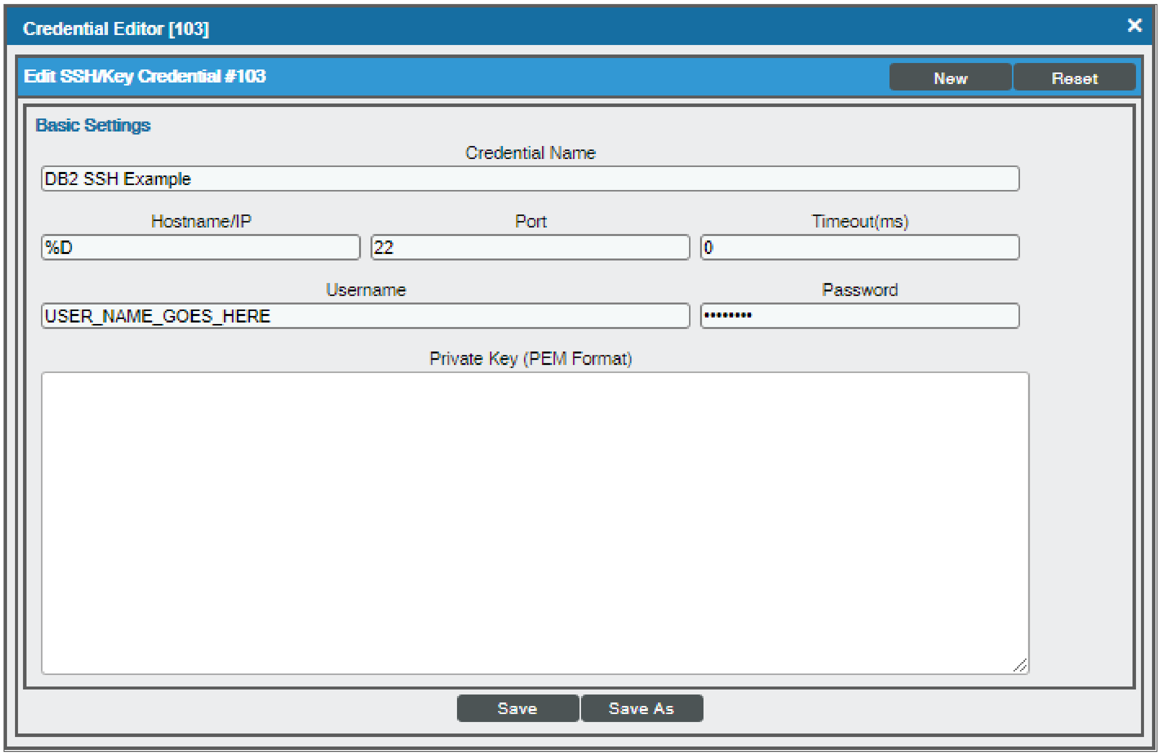
NOTE: The credential ID will appear in the **Credentials** page (Manage > Credentials) after it has been saved. Take note of the ID as you will need it when creating the SOAP/XML credential. If you cannot see the ***ID*** column in the **Credentials** page, click the gear icon (⚙) in the upper-left corner of the page and select *Id* to view the column.

Creating an SSH/Key Credential (Linux and Unix Users) in the SL1 Classic User Interface

Linux and Unix users must create an SSH/Key credential.

To create an SSH/Key credential :

1. Go to the **Credential Management** page (System > Manage > Credentials).
2. Click the wrench icon (🔧) for the "DB2 SSH Example" credential. The **Credential Editor** modal page appears:



Credential Name: DB2 SSH Example

Hostname/IP: %D

Port: 22

Timeout(ms): 0

Username: USER_NAME_GOES_HERE

Password: ••••••••

Private Key (PEM Format)

3. Supply values in the following fields:

   - ***Credential Name***. Type a new name for the credential.
   - ***Hostname/IP***. Type the IP address or hostname of the Db2 database you want to monitor.
   - ***Port***. Keep the default setting.
   - ***Timeout(ms)***. Keep the default setting.
   - ***Username***. Type the username for a user with access to the Db2 database.
   - ***Password***. Type the password for the account with access to the Db2 database.
   - ***Private Key (PEM Format)***. Optional. Use if required for SSH authentication.

NOTE: The private key can have a maximum of 64 characters per line. Therefore, you cannot use keys in the OpenSSH format, because that format uses 70 characters per line. When you attempt to save the credential, SL1 will validate that the private key entered is in the correct format. You will be able to save the credential only if the private key is correctly formatted.

NOTE: If you are using a PEM key in the SSH/Key credential, then in your SOAP/XML credential you must fill in the ***HTTP Auth User*** and ***HTTP Auth Password*** fields with credentials for the same user.

4. Click the **[Save As]** button.
5. When the confirmation message appears, click **[OK]**.

> **NOTE:** The credential ID will appear at the top of the window after it has been saved. Take note of the ID as you will need it when creating the SOAP/XML credential.

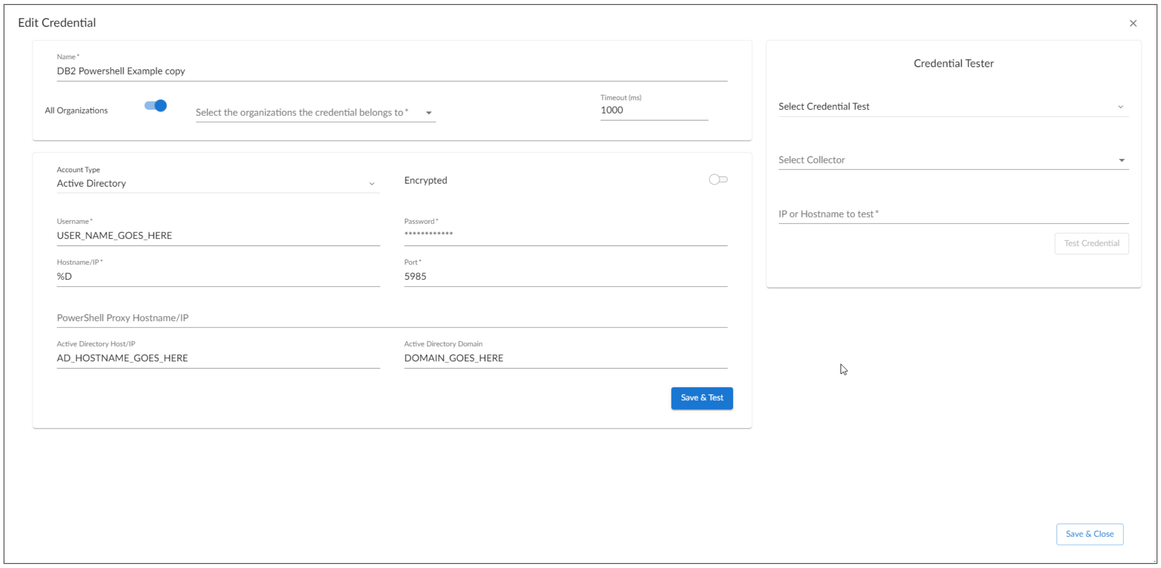
Creating a PowerShell Credential (Windows Users)

Windows users must create a PowerShell credential.

> **NOTE**: If you are using an SL1 system prior to version 11.1.0, the new user interface does not include the ***Duplicate*** option for sample credential(s). ScienceLogic recommends that you use ***the classic user interface and the Save As button*** to create new credentials from sample credentials. This will prevent you from overwriting the sample credential(s).

To create a PowerShell credential:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the **DB2 PowerShell Example** credential, click its **[Actions]** icon (···) and select ***Duplicate***. A copy of the credential, called **DB2 PowerShell Example copy** appears.
3. Click the **[Actions]** icon (···) for the **DB2 PowerShell Example copy** credential and select ***Edit***. The **Edit Credential** page appears. Update the following fields:



Edit Credential

Name*: DB2 Powershell Example copy

All Organizations

Timeout (ms): 1000

Account Type: Active Directory

Username*: USER_NAME_GOES_HERE

Password*: ************

Hostname/IP*: %D

Port*: 5985

Active Directory Host/IP: AD_HOSTNAME_GOES_HERE

Active Directory Domain: DOMAIN_GOES_HERE

4. Supply values in the following fields:

- ***Name***. Type a new name for the credential. Can be any combination of alphanumeric characters.
- ***All Organizations***. Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the ***What organization manages this service?*** drop-down field to align the credential with those specific organizations.
- ***Timeout (ms)***. Type the time, in milliseconds, after which SL1 will stop trying to collect data from the authenticating server. For collection to be successful, SL1 must connect to the authenticating server, execute the PowerShell command, and receive a response within the amount of time specified in this field.
- ***Account Type***. Select the type of authentication for the username and password in this credential. Choices are:
    - *Active Directory*. On the device, Active Directory will authenticate the username and password in this credential.
    - *Local*. Local security on the device will authenticate the username and password in this credential.
- ***Encrypted***. Enable if you want SL1 to communicate with the device using an encrypted connection. If enabled, SL1 will communicate with the Windows server using a local user account with authentication of type "Basic Auth". You must then use HTTPS and can use a Microsoft Certificate or a self-signed certificate.
- ***Username***. Type the username for a user with access to the Db2 database to be monitored.
- ***Password***. Type the password for the user account with access to the Db2 database to be monitored.
- ***Hostname/IP***. Type the IP address of the Db2 database from which you want to retrieve data, or enter the variable **%D**.
- ***Port***. Leave as default value.
- ***PowerShell Proxy Hostname/IP***. Leave this field blank.
- ***Active Directory Host/IP***. Type the AD hostname or IP here if you selected *Active Directory* under ***Account Type***.
- ***Active Directory Domain***. Type the AD domain if you selected *Active Directory* under ***Account Type***.

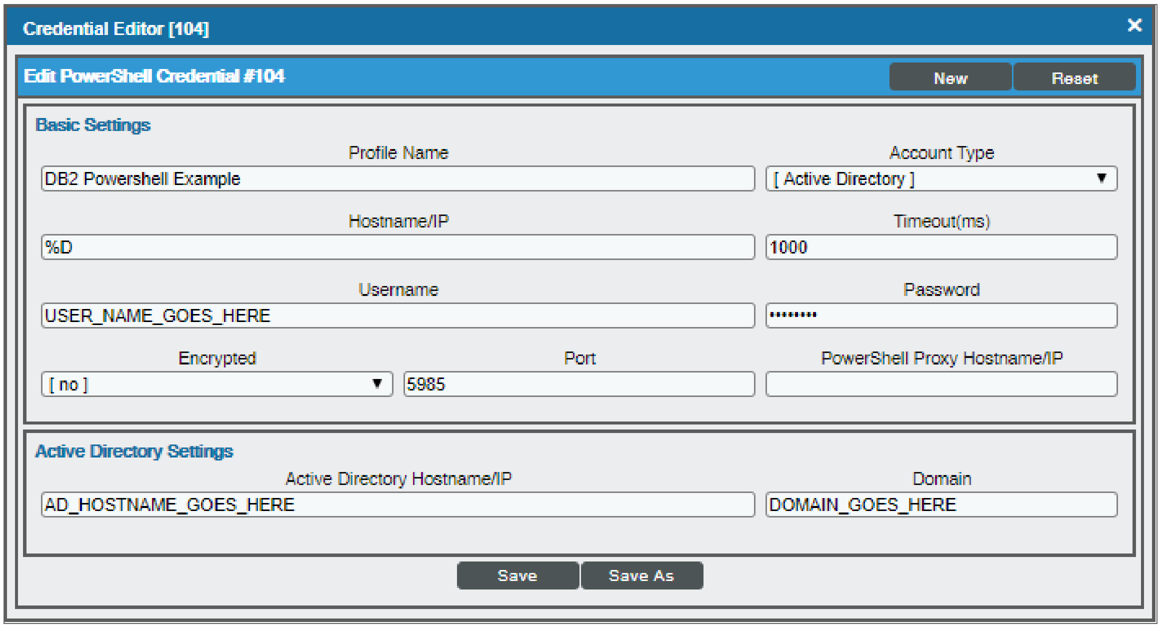
5. Click the **[Save & Close]** button.

Creating a PowerShell Credential (Windows Users) in the SL1 Classic User Interface

Windows users must create a PowerShell credential.

To create a PowerShell credential:

1. Go to the **Credential Management** page (System > Manage > Credentials).
2. Click the wrench icon (🔧) for the "DB2 Powershell Example" credential. The **Credential Editor** modal page appears:



Credential Editor [104]

Edit PowerShell Credential #104

Basic Settings

Profile Name: DB2 Powershell Example

Account Type: [Active Directory] ▼

Hostname/IP: %D

Timeout(ms): 1000

Username: USER_NAME_GOES_HERE

Password: ••••••••

Encrypted: [no] ▼

Port: 5985

PowerShell Proxy Hostname/IP:

Active Directory Settings

Active Directory Hostname/IP: AD_HOSTNAME_GOES_HERE

Domain: DOMAIN_GOES_HERE

3. Supply values in the following fields:

- ***Profile Name***. Type a new name for the credential. Can be any combination of alphanumeric characters.
- ***Account Type***. Select the type of authentication for the username and password in this credential. Choices are:
  - *Active Directory*. On the device, Active Directory will authenticate the username and password in this credential.
  - *Local*. Local security on the device will authenticate the username and password in this credential.
- ***Hostname/IP***. Type the IP address of the Db2 database from which you want to retrieve data, or enter the variable **%D**.
- ***Timeout (ms)***. Type the time, in milliseconds, after which SL1 will stop trying to collect data from the authenticating server. For collection to be successful, SL1 must connect to the authenticating server, execute the PowerShell command, and receive a response within the amount of time specified in this field.
- ***Username***. Type the username for a user with access to the Db2 database to be monitored.
- ***Password***. Type the password for the user account with access to the Db2 database to be monitored.
- ***Encrypted***. Select whether SL1 will communicate with the device using an encrypted connection. Choices are:
  - *yes*. When communicating with the Windows server, SL1 will use a local user account with authentication of type "Basic Auth". You must then use HTTPS and can use a Microsoft Certificate or a self-signed certificate.
  - *no*. When communicating with the Windows server, SL1 will not encrypt the connection.

- ***Port***. Leave as default value.
- ***PowerShell Proxy Hostname/IP***. Leave this field blank.

4. Click the **[Save As]** button.

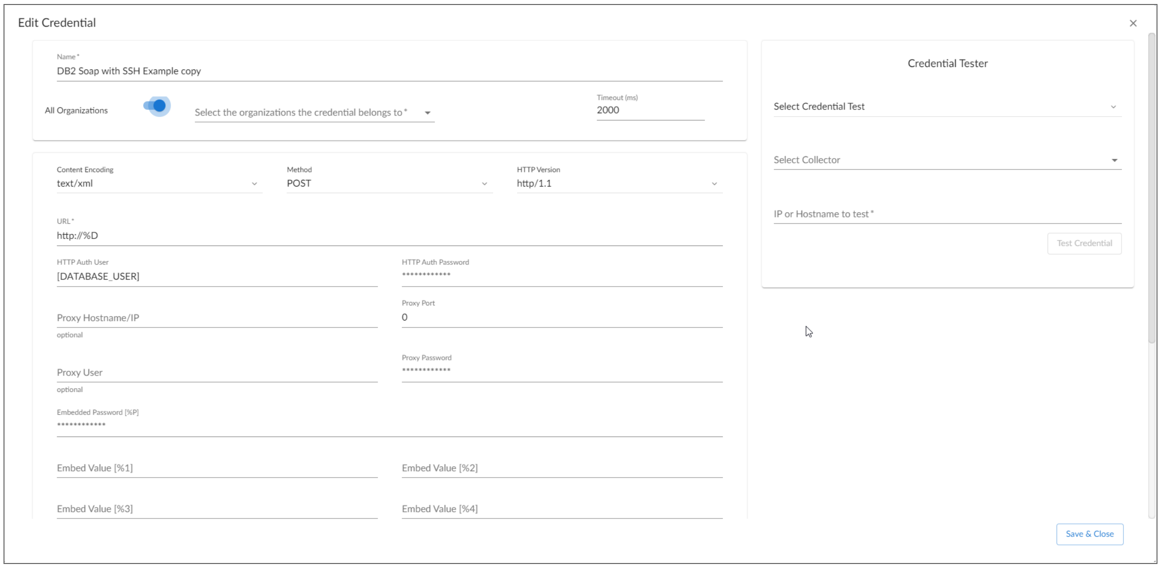
Creating a SOAP/XML Credential (Linux and Unix Users)

After configuring the SSH/Key credential, you must then create a SOAP/XML credential.

> **NOTE**: If you are using an SL1 system prior to version 11.1.0, the new user interface does not include the ***Duplicate*** option for sample credential(s). ScienceLogic recommends that you use ***the classic user interface and the Save As button*** to create new credentials from sample credentials. This will prevent you from overwriting the sample credential(s).

To create the SOAP/XML credential:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the **DB2 Soap with SSH Example** credential, click its **[Actions]** icon (···) and select ***Duplicate***. A copy of the credential, called **DB2 Soap with SSH Example copy** appears.
3. Click the **[Actions]** icon (···) for the **DB2 Soap with SSH Example copy** credential and select ***Edit***. The **Edit Credential** page appears. Update the following fields:



Edit Credential

Name*: DB2 Soap with SSH Example copy

All Organizations: ●

Select the organizations the credential belongs to*

Timeout (ms): 2000

Content Encoding: text/xml

Method: POST

HTTP Version: http/1.1

URL*: http://%D

HTTP Auth User: [DATABASE_USER]

HTTP Auth Password: ************

Proxy Hostname/IP

optional

Proxy Port: 0

Proxy User

optional

Proxy Password: ************

Embedded Password [%P]: ************

Embed Value [%1]

Embed Value [%2]

Embed Value [%3]

Embed Value [%4]

4. Update the values in the following fields:
   - ***Name***. Type a new name for the credential.
   - ***All Organizations***. Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the ***What organization manages this service?*** drop-down field to align the credential with those specific organizations.

- ***URL***. Leave the default value of https://%D.
- ***HTTP Auth User***. If you used a PEM key in the SSH/Key credential, type the username for the same user. Otherwise, if you are inserting the database username and password in the SSH/Key credential, leave this field blank.
- ***HTTP Auth Password***. If you used a PEM key in the SSH/Key credential, type the password for the same user. Otherwise, if you are inserting the database username and password in the SSH/Key credential, leave this field blank.

NOTE: If the ***HTTP Auth User*** and ***HTTP Auth Password*** fields are blank, then the Dynamic Applications in the *IBM: Db2* PowerPack will use the credentials provided in the SSH/Key credential.

- ***HTTP Headers***. Add the following headers by clicking ***+ Add a header***:
  - `base_db2_path:<DB2 Installation Path>`. For example: `base_db2_path:/opt/ibm/db2/V11.5`
  - `instance:<Instance Name>:<Port>` For example: `instance:db2inst1:50000`
  - `instance:<Instance Name2>:<Port2>` For example: `instance:db2inst2:50000`
  - `ssh:<SSH Credential ID>`

NOTE: In versions of the PowerPack prior to version 103, headers required the "<*DB_NAME*>" value. This value is no longer needed and can be deleted after you upgrade the PowerPack.

NOTE: You can create a header for each Db2 instance you have.

NOTE: During the discovery process, these headers will either find an existing Database credential that matches the user, password, port, and default database, or it will create a new Database credential.

NOTE: By default, the SOAP/XML credential deletes any white space before and after the colon (:) in the credential headers. If you want to include paths with white spaces in the credential, surround the path with double quotes after the colon. For example: <base_db2_path:"/opt/folder name/program files">

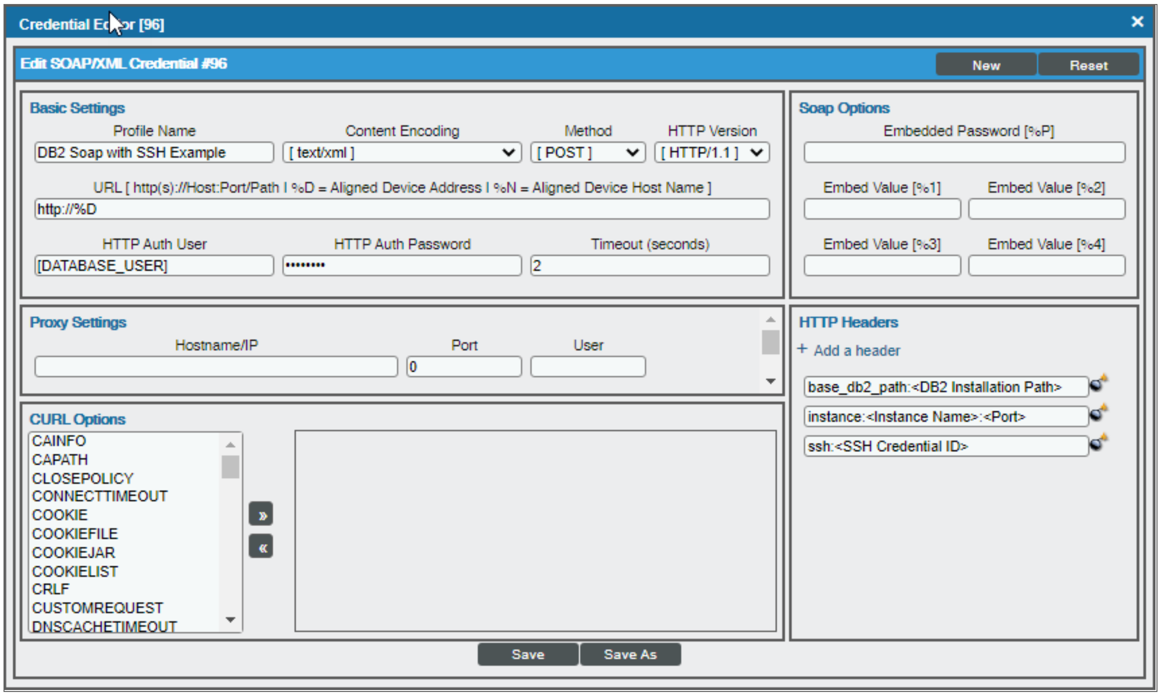
5. Click the **[Save & Close]** button.

Creating a SOAP/XML Credential (Linux and Unix Users) in the SL1 Classic User Interface

After configuring the SSH/Key credential, you must then create a SOAP/XML credential.

To create the SOAP/XML credential:

1. Go to the **Credential Management** page (System > Manage > Credentials).
2. Click the wrench icon (🔧) for the "DB2 Soap with SSH Example" credential for Linux/Unix users. The **Credential Editor** modal page appears:



Credential Editor [96]

Edit SOAP/XML Credential #96

Basic Settings

Profile Name: DB2 Soap with SSH Example

Content Encoding: [text/xml]

Method: [POST]

HTTP Version: [HTTP/1.1]

URL [http(s)://Host:Port/Path | %D = Aligned Device Address | %N = Aligned Device Host Name]: http://%D

HTTP Auth User: [DATABASE_USER]

HTTP Auth Password: ••••••••

Timeout (seconds): 2

Soap Options

Embedded Password [%P]:

Embed Value [%1]:

Embed Value [%2]:

Embed Value [%3]:

Embed Value [%4]:

Proxy Settings

Hostname/IP:

Port: 0

User:

HTTP Headers

base_db2_path:<DB2 Installation Path>

instance:<Instance Name>:<Port>

ssh:<SSH Credential ID>

CURL Options

3. Update the values in the following fields:

Basic Settings

- ***Profile Name***. Type a new name for the credential.
- ***URL***. Leave the default value of https://%D.
- ***HTTP Auth User***. If you used a PEM key in the SSH/Key credential, type the username for the same user. Otherwise, if you are inserting the database username and password in the SSH/Key credential, leave this field blank.
- ***HTTP Auth Password***. If you used a PEM key in the SSH/Key credential, type the password for the same user. Otherwise, if you are inserting the database username and password in the SSH/Key credential, leave this field blank.

NOTE: If the ***HTTP Auth User*** and ***HTTP Auth Password*** fields are blank, then the Dynamic Applications in the *IBM: Db2* PowerPack will use the credentials provided in the SSH/Key credential.

HTTP Headers

- *HTTP Headers*. Add the following headers by clicking **+ *Add a header***:
  - `base_db2_path:<`*`DB2 Installation Path`*`>`. For example: `base_db2_path:/opt/ibm/db2/V11.5`
  - `instance:<`*`Instance Name`*`>:<`*`Port`*`>` For example: `instance:db2inst1:50000`
  - `instance:<`*`Instance Name2`*`>:<`*`Port2`*`>` For example: `instance:db2inst2:50000`
  - `ssh:<`*`SSH Credential ID`*`>`

NOTE: In versions of the PowerPack prior to version 103, headers required the "<*DB_NAME*>" value. This value is no longer needed and can be deleted after you upgrade the PowerPack.

NOTE: You can create a header for each Db2 instance you have.

NOTE: During the discovery process, these headers will either find an existing Database credential that matches the user, password, port, and default database, or it will create a new Database credential.

NOTE: By default, the SOAP/XML credential deletes any white space before and after the colon (:) in the credential headers. If you want to include paths with white spaces in the credential, surround the path with double quotes after the colon. For example: <base_db2_path:"/opt/folder name/program files">

4. Click the **[Save As]** button.

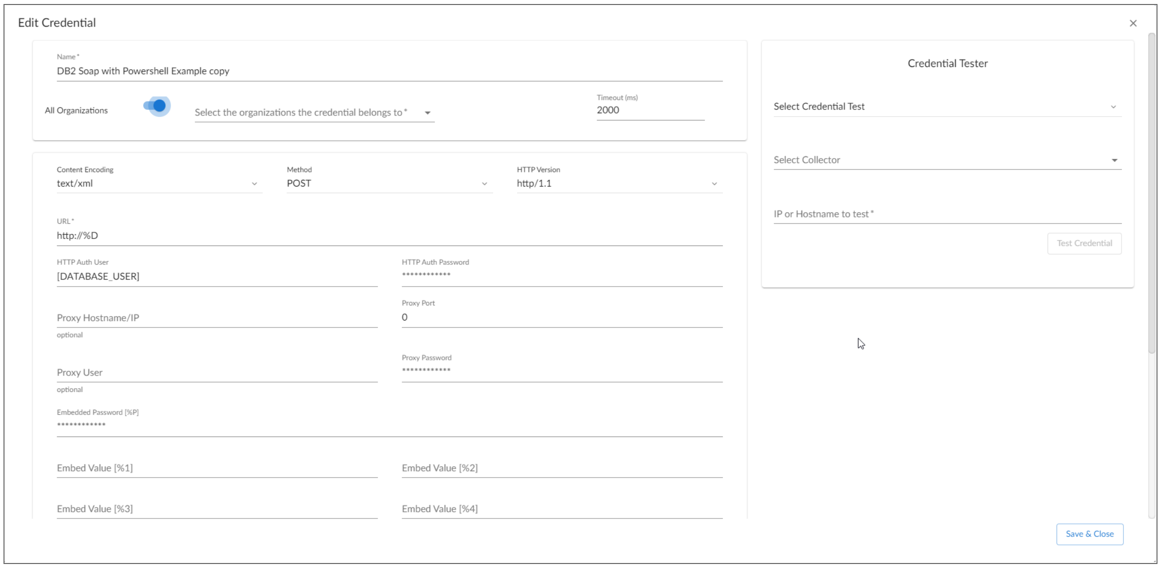
Creating a SOAP/XML Credential (Windows Users)

After configuring the PowerShell credential, you must then create a SOAP/XML credential.

NOTE: If you are using an SL1 system prior to version 11.1.0, the new user interface does not include the ***Duplicate*** option for sample credential(s). ScienceLogic recommends that you use ***the classic user interface and the Save As button*** to create new credentials from sample credentials. This will prevent you from overwriting the sample credential(s).

To create the SOAP/XML credential:

1. Go to the **Credentials** page (Manage > Credentials).
2. Locate the **DB2 Soap with PowerShell Example** credential, click its **[Actions]** icon (···) and select ***Duplicate***. A copy of the credential, called **DB2 Soap with PowerShell Example copy** appears.
3. Click the **[Actions]** icon (···) for the **DB2 Soap with PowerShell Example copy** credential and select ***Edit***. The **Edit Credential** page appears. Update the following fields:



Edit Credential

Name *: DB2 Soap with Powershell Example copy

All Organizations

Timeout (ms): 2000

Content Encoding: text/xml

Method: POST

HTTP Version: http/1.1

URL *: http://%D

HTTP Auth User: [DATABASE_USER]

HTTP Auth Password: ************

Proxy Port: 0

Proxy Password: ************

Embedded Password [%P]: ************

4. Update the values in the following fields:
   - ***Name***. Type a new name for the credential.
   - ***All Organizations***. Toggle on (blue) to align the credential to all organizations, or toggle off (gray) and then select one or more specific organizations from the ***What organization manages this service?*** drop-down field to align the credential with those specific organizations.
   - ***URL***. Leave the default value of https://%D.
   - ***HTTP Auth User***. If you are inserting the database username and password in the PowerShell credential, leave this field blank.
   - ***HTTP Auth Password***. If you are inserting the database username and password in the PowerShell credential, leave this field blank.
   - ***HTTP Headers***. Add the following headers by clicking **+ *Add a header***:
     - `instance:<`*`Instance Name`*`>:<`*`Port`*`>` For example: `instance:db2inst1:50000`
     - `instance:<`*`Instance Name2`*`>:<`*`Port2`*`>` For example: `instance:db2inst2:50000`
     - `powershell:<`*`PowerShell Credential ID`*`>`

NOTE: You can create a header for each Db2 instance you have.

NOTE: During the discovery process, these headers will either find an existing Database credential that matches the user, password, port, and default database, or it will create a Database credential.

NOTE: By default, the SOAP/XML credential deletes any white space before and after the colon (:) in the credential headers. If you want to include paths with white spaces in the credential, surround the path with double quotes after the colon. For example: <base_db2_path:"/opt/folder name/program files">

5. Click the **[Save & Close]** button.

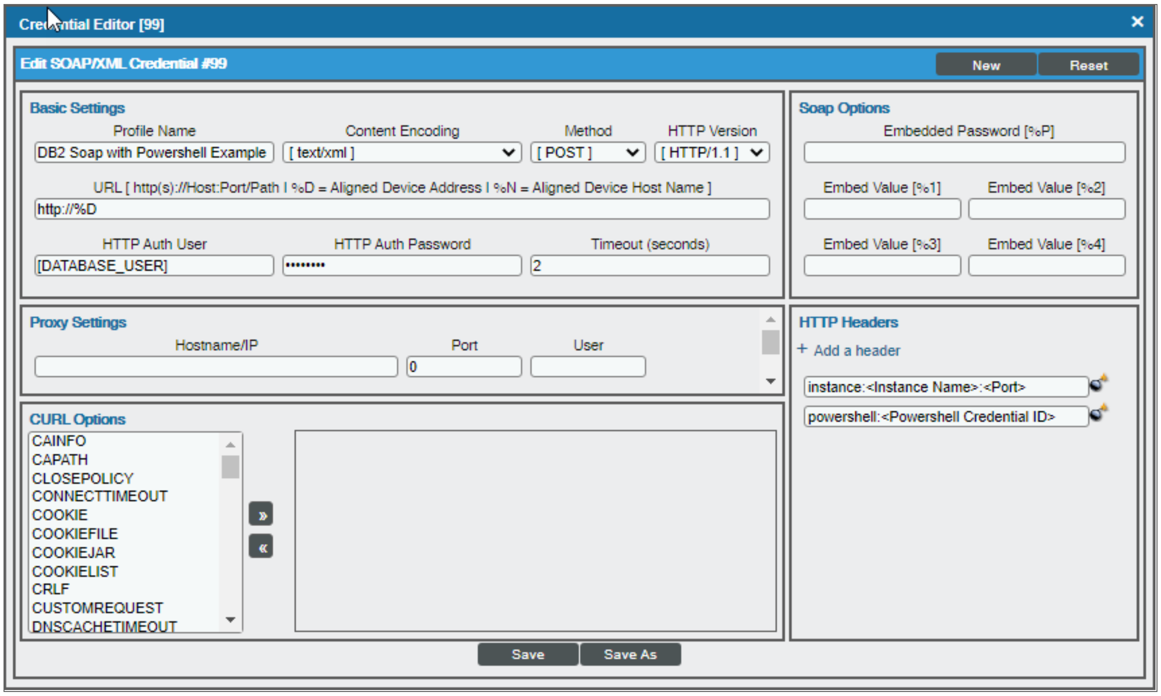
Creating a SOAP/XML Credential (Windows Users) in the SL1 Classic User Interface

After configuring the PowerShell credential, you must then create a SOAP/XML credential.

To create the SOAP/XML credential:

1. Go to the **Credential Management** page (System > Manage > Credentials).

2. Click the wrench icon (🔧) for the "DB2 Soap with PowerShell Example" credential for Windows users. The **Credential Editor** modal page appears:



Profile Name: DB2 Soap with Powershell Example
Content Encoding: [text/xml]
Method: [POST]
HTTP Version: [HTTP/1.1]
URL [http(s)://Host:Port/Path | %D = Aligned Device Address | %N = Aligned Device Host Name]: http://%D
HTTP Auth User: [DATABASE_USER]
HTTP Auth Password: ••••••••
Timeout (seconds): 2
Port: 0
User:
instance:<Instance Name>:<Port>
powershell:<Powershell Credential ID>

3. Update the values in the following fields:

   Basic Settings

   - ***Profile Name***. Type a new name for the credential.
   - ***URL***. Leave the default value of https://%D.
   - ***HTTP Auth User***. If ou are inserting the database username and password in the PowerShell credential, leave this field blank.
   - ***HTTP Auth Password***. If you are inserting the database username and password in the PowerShell credential, leave this field blank.

   HTTP Headers

   - ***HTTP Headers***. Add the following headers by clicking ***+ Add a header***:
     - `instance:<`*`Instance Name`*`>:<`*`Port`*`>` For example: `instance:db2inst1:50000`
     - `instance:<`*`Instance Name2`*`>:<`*`Port2`*`>` For example: `instance:db2inst2:50000`
     - `powershell:<`*`PowerShell Credential ID`*`>`

NOTE: You can create a header for each Db2 instance you have.

NOTE: During the discovery process, these headers will either find an existing Database credential that matches the user, password, port, and default database, or it will create a Database credential.

NOTE: By default, the SOAP/XML credential deletes any white space before and after the colon (:) in the credential headers. If you want to include paths with white spaces in the credential, surround the path with double quotes after the colon. For example: <base_db2_path:"/opt/folder name/program files">

4. Click the **[Save As]** button.

Updating the Database Credential

If the password has changed for the account with access to the Db2 database, you must also update the corresponding Database credential in SL1. Otherwise, you can skip this section.

To update the Database credential:

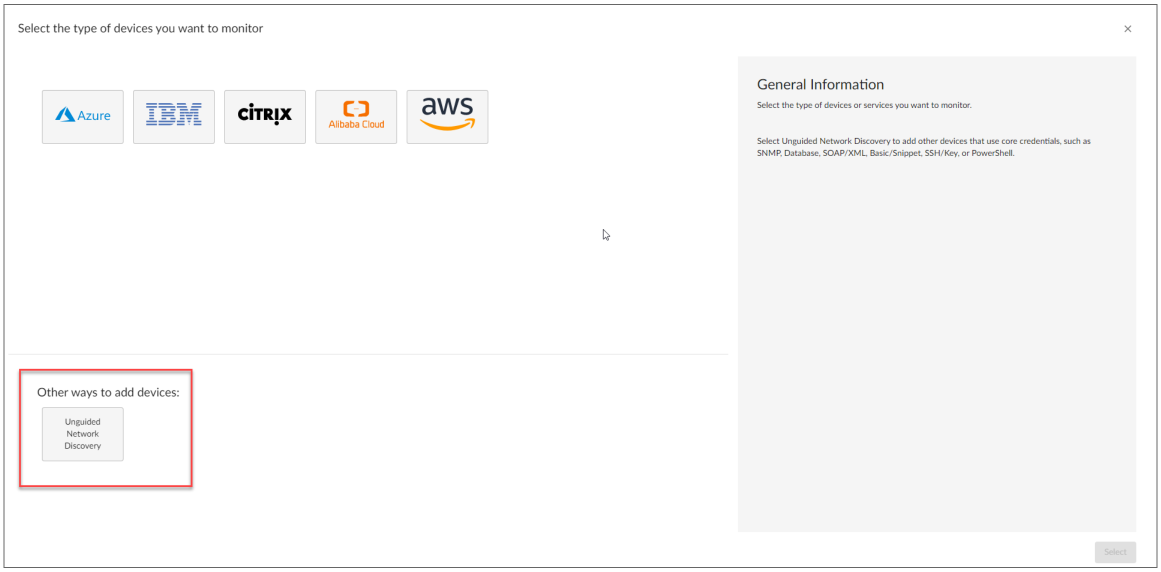
1. Go to the **Credentials** page (Manage > Credentials).
2. Search for and locate the credential that includes the name and port of the database with the updated password, then click the credential's Actions icon (⋯) and select *Edit/Test*.

3. In the **Edit Credential** page that appears, type the new password in the ***Password*** field.
4. Click **[Save & Close]**.

Discovering IBM Db2 Component Devices

To discover an IBM Db2 database:

1. On the **Devices** page (🖥) or the **Discovery Sessions** page (Devices > Discovery Sessions), click the **[Add Devices]** button. The **Select** page appears:



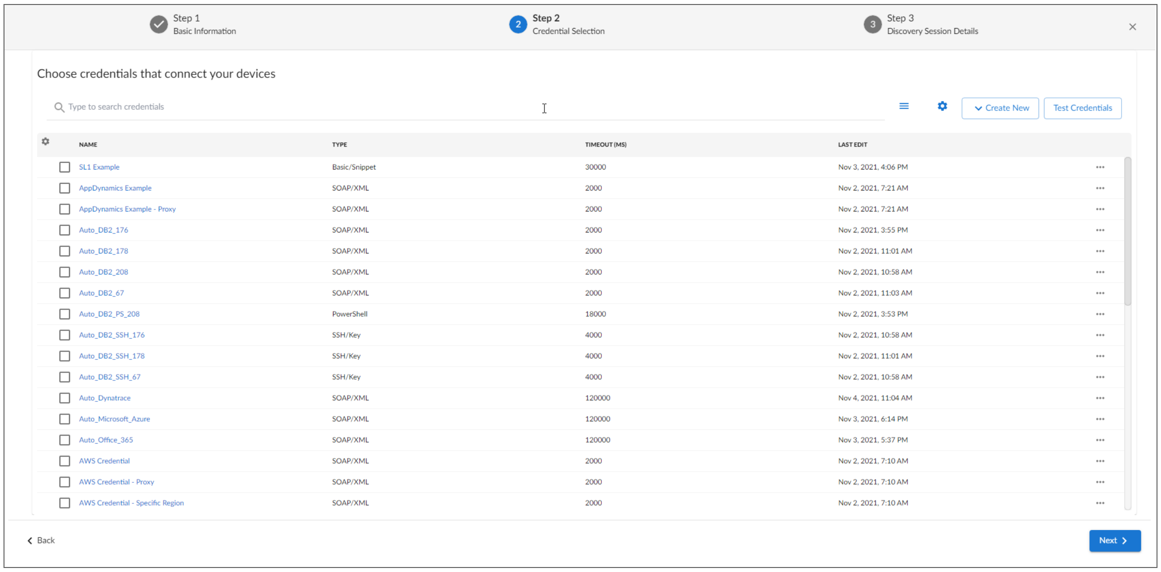
Select the type of devices you want to monitor
×
Azure
IBM
CITRIX
Alibaba Cloud
aws
Other ways to add devices:
Unguided Network Discovery
Select

General Information

Select the type of devices or services you want to monitor.

Select Unguided Network Discovery to add other devices that use core credentials, such as SNMP, Database, SOAP/XML, Basic/Snippet, SSH/Key, or PowerShell.

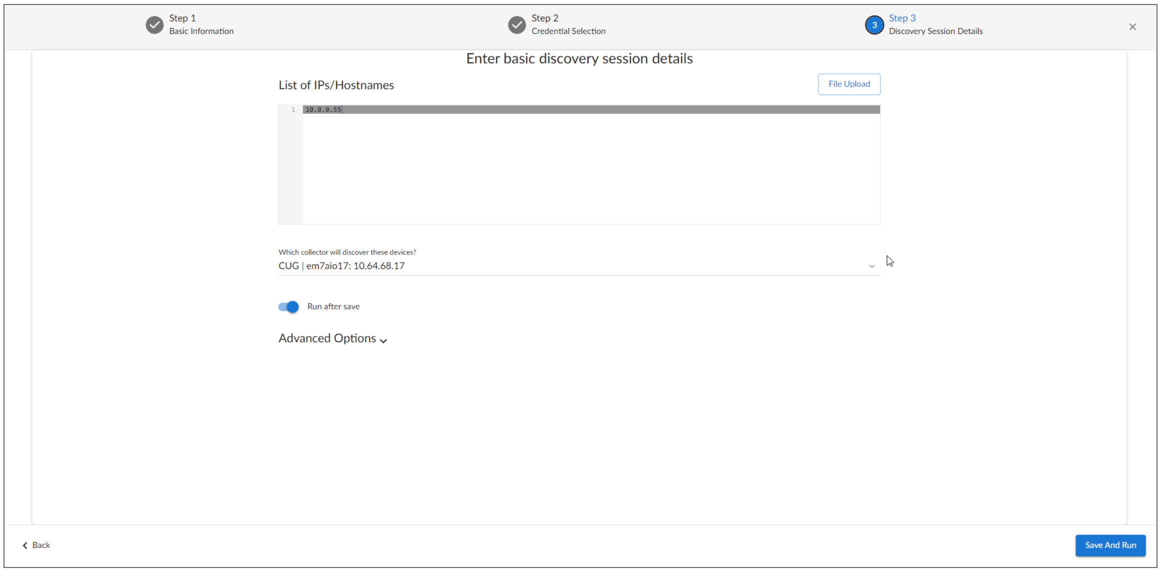
2. Click the **[Unguided Network Discovery]** button. Additional information about the requirements for discovery appears in the **General Information** pane to the right.
3. Click **[Select]**. The **Add Devices** page appears.
4. Complete the following fields:
   - ***Name***. Type a unique name for this discovery session. This name is displayed in the list of discovery sessions on the **[Discovery Sessions]** tab.
   - ***Description***. Optional. Type a short description of the discovery session. You can use the text in this description to search for the discovery session on the **[Discovery Sessions]** tab.
   - ***Select the organization to add discovered devices to***. Select the name of the organization to which you want to add the discovered devices
5. Click **[Next]**. The **Credentials** page of the **Add Devices** wizard appears:



Choose credentials that connect your devices

	NAME	TYPE	TIMEOUT (MS)	LAST EDIT	
□	SL1 Example	Basic/Snippet	30000	Nov 3, 2021, 4:06 PM	···
□	AppDynamics Example	SOAP/XML	2000	Nov 2, 2021, 7:21 AM	···
□	AppDynamics Example - Proxy	SOAP/XML	2000	Nov 2, 2021, 7:21 AM	···
□	Auto_DB2_176	SOAP/XML	2000	Nov 2, 2021, 3:55 PM	···
□	Auto_DB2_178	SOAP/XML	2000	Nov 2, 2021, 11:01 AM	···
□	Auto_DB2_208	SOAP/XML	2000	Nov 2, 2021, 10:58 AM	···
□	Auto_DB2_67	SOAP/XML	2000	Nov 2, 2021, 11:03 AM	···
□	Auto_DB2_PS_208	PowerShell	18000	Nov 2, 2021, 3:53 PM	···
□	Auto_DB2_SSH_176	SSH/Key	4000	Nov 2, 2021, 10:58 AM	···
□	Auto_DB2_SSH_178	SSH/Key	4000	Nov 2, 2021, 11:01 AM	···
□	Auto_DB2_SSH_67	SSH/Key	4000	Nov 2, 2021, 10:58 AM	···
□	Auto_Dynatrace	SOAP/XML	120000	Nov 4, 2021, 11:04 AM	···
□	Auto_Microsoft_Azure	SOAP/XML	120000	Nov 3, 2021, 6:14 PM	···
□	Auto_Office_365	SOAP/XML	120000	Nov 3, 2021, 5:37 PM	···
□	AWS Credential	SOAP/XML	2000	Nov 2, 2021, 7:10 AM	···
□	AWS Credential - Proxy	SOAP/XML	2000	Nov 2, 2021, 7:10 AM	···
□	AWS Credential - Specific Region	SOAP/XML	2000	Nov 2, 2021, 7:10 AM	···

6. On the **Credentials** page, locate and select the SOAP/XML *credential* you created for the Db2 database.
7. Click **[Next]**. The **Discovery Session Details** page of the **Add Devices** wizard appears:



Enter basic discovery session details

List of IPs/Hostnames

```
10.0.0.55
```

Which collector will discover these devices?
CUG | em7aio17: 10.64.68.17

● Run after save

8. Complete the following fields:
   - ***List of IPs/Hostnames***. Type the IP address of Type the IP address for the Db2 database.
   - ***Which collector will monitor these devices?***. Required. Select an existing collector to monitor the discovered devices.
   - ***Run after save***. Select this option to run this discovery session as soon as you save the session.

   In the **Advanced options** section, click the down arrow icon (⌄) to complete the following fields:

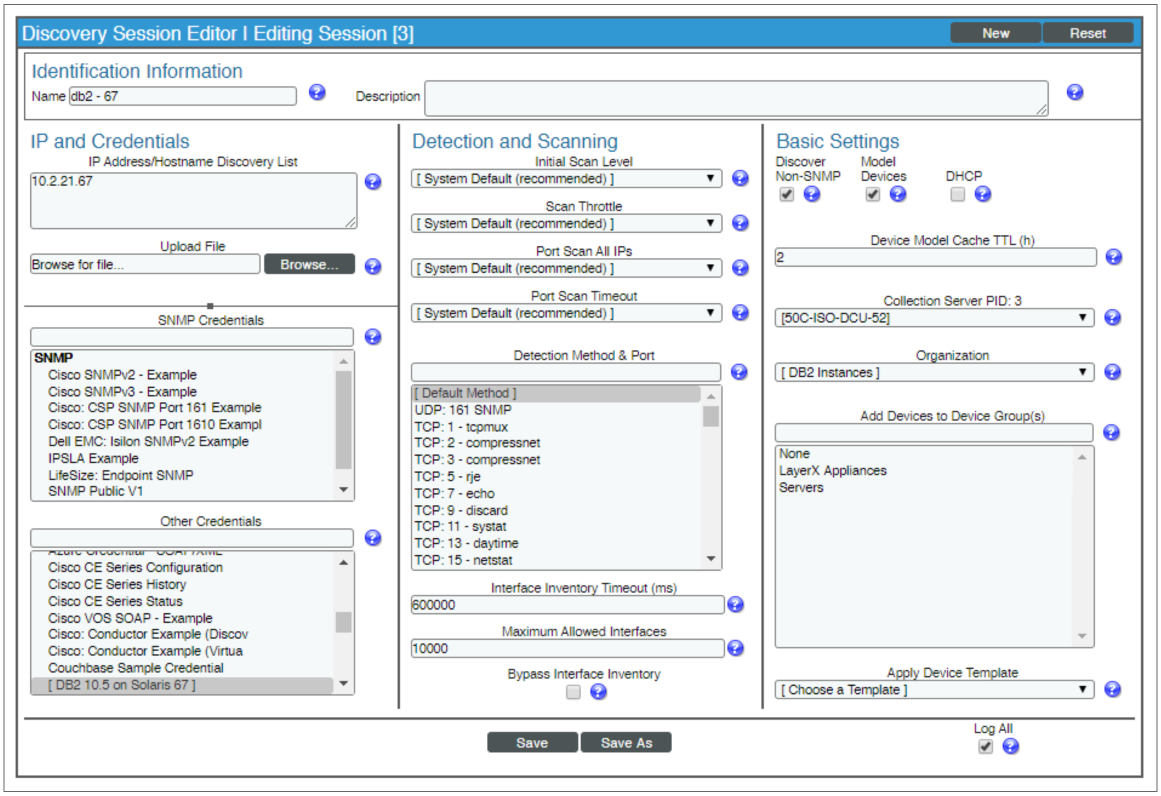
- *Discover Non-SNMP*. Enable this setting.
- *Model Devices*. Enable this setting.

9. Click **[Save and Run]** if you enabled the ***Run after save*** setting, or **[Save and Close]** to save the discovery session. The **Discovery Sessions** page (Devices > Discovery Sessions) displays the new discovery session.
10. If you selected the **Run after save** option on this page, the discovery session runs, and the **Discovery Logs** page displays any relevant log messages. If the discovery session locates and adds any devices, the **Discovery Logs** page includes a link to the **Device Investigator** page for the discovered device.

Discovering IBM Db2 Component Devices in the SL1 Classic User Interface

To discover an IBM Db2 database:

1. Go to the **Discovery Control Panel** page (System > Manage > Classic Discovery).
2. In the **Discovery Control Panel**, click the **[Create]** button. The **Discovery Session Editor** page appears.



Discovery Session Editor | Editing Session [3]

Identification Information

Name: db2 - 67

Description:

IP and Credentials

IP Address/Hostname Discovery List: 10.2.21.67

Upload File: Browse for file...

SNMP Credentials

SNMP
Cisco SNMPv2 - Example
Cisco SNMPv3 - Example
Cisco: CSP SNMP Port 161 Example
Cisco: CSP SNMP Port 1610 Exampl
Dell EMC: Isilon SNMPv2 Example
IPSLA Example
LifeSize: Endpoint SNMP
SNMP Public V1

Other Credentials

Cisco CE Series Configuration
Cisco CE Series History
Cisco CE Series Status
Cisco VOS SOAP - Example
Cisco: Conductor Example (Discov
Cisco: Conductor Example (Virtua
Couchbase Sample Credential
[DB2 10.5 on Solaris 67]

Detection and Scanning

Initial Scan Level: [System Default (recommended)]

Scan Throttle: [System Default (recommended)]

Port Scan All IPs: [System Default (recommended)]

Port Scan Timeout: [System Default (recommended)]

Detection Method & Port

[Default Method]
UDP: 161 SNMP
TCP: 1 - tcpmux
TCP: 2 - compressnet
TCP: 3 - compressnet
TCP: 5 - rje
TCP: 7 - echo
TCP: 9 - discard
TCP: 11 - systat
TCP: 13 - daytime
TCP: 15 - netstat

Interface Inventory Timeout (ms): 600000

Maximum Allowed Interfaces: 10000

Bypass Interface Inventory: □

Basic Settings

Discover Non-SNMP: ☑

Model Devices: ☑

DHCP: □

Device Model Cache TTL (h): 2

Collection Server PID: 3: [50C-ISO-DCU-52]

Organization: [DB2 Instances]

Add Devices to Device Group(s)

None
LayerX Appliances
Servers

Apply Device Template: [Choose a Template]

Log All: ☑

3. In the **Discovery Session Editor** page, complete the following fields:

- ***Name***. Type a name for the discovery session.
- ***IP Address/Hostname Discovery List***. Type the IP address for the Db2 database.

- ***Other Credentials***. Select the SOAP/XML credential you created for the Db2 database.
- ***Discover Non-SNMP***. Select this checkbox.
- ***Model Devices***. Select this checkbox.

4. Optionally, you can enter values in the other fields on this page. For more information about the other fields on this page, see the ***Discovery & Credentials*** manual.
5. Click the **[Save]** button to save the discovery session and then close the **Discovery Session Editor** window.
6. The discovery session you created appears at the top of the **Discovery Control Panel** page. Click its lightning-bolt icon ( ) to run the discovery session.
7. The **Discovery Session** window appears. When the cluster root device(s) are discovered, click the device icon ( ) to view the **Device Properties** page for each device.

Verifying Discovery and Dynamic Application Alignment

To verify that SL1 has automatically aligned the correct Dynamic Applications during discovery:

1. After the discovery session has completed, go to the **Devices** page—or the **Device Manager** (Registry > Devices > Device Manager) page in the SL1 classic user interface—and find the device(s) you discovered.

   When you have located the device, click on its name or click on its edit icon ( ) if you are in the SL1 classic user interface.
2. Click the **[Collections]** tab.
3. All applicable Dynamic Applications for the Db2 devices are automatically aligned during discovery.

> **NOTE:** It can take several minutes after the discovery session has completed for Dynamic Applications to appear in the **Dynamic Application Collections** page.

To verify alignment of the IBM Db2 Dynamic Applications:

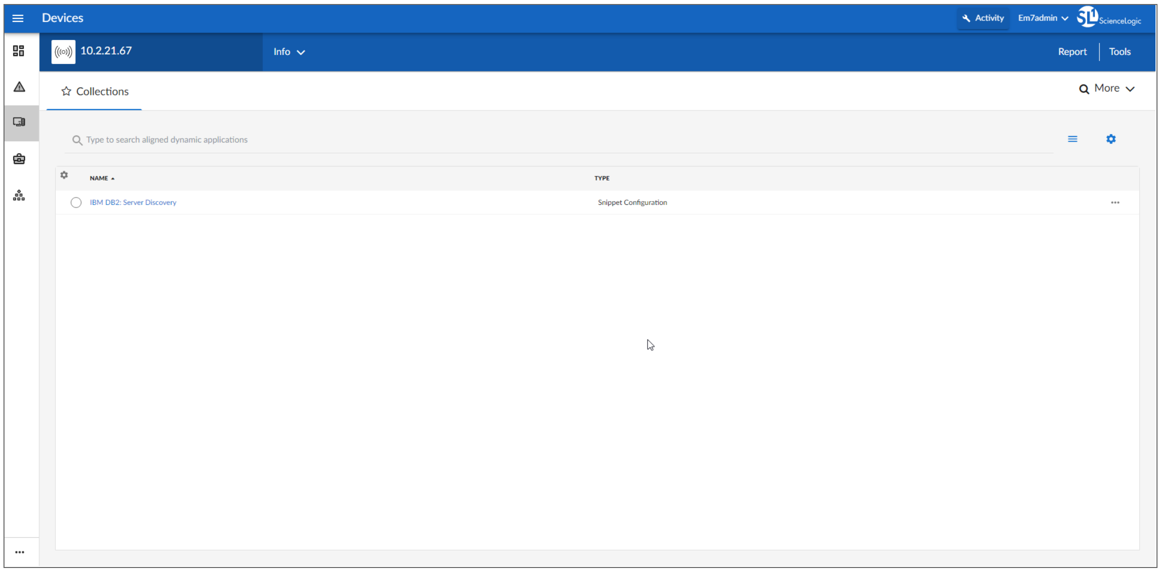
1. After discovery has completed, go to the **Discovery Logs** page (Devices > Discovery Sessions > click the Actions button ··· for that session > click Show Logs) and click on the IP address of the device. If you are in the SL1 classic user interface, click the device icon for the IBM Db2 device ( ). From the **Device Investigator** page for the IBM Db2 device, or the **Device Properties** page if you are in the SL1 classic user interface, click the **[Collections]** tab. The **Dynamic Application Collections** page appears.

> **NOTE:** It can take several minutes after the discovery session has completed for Dynamic Applications to appear in the **Dynamic Application Collections** page.

2. All applicable Dynamic Applications are automatically aligned to the root device and component devices during discovery:

You should see the following Dynamic Application aligned to the root device:

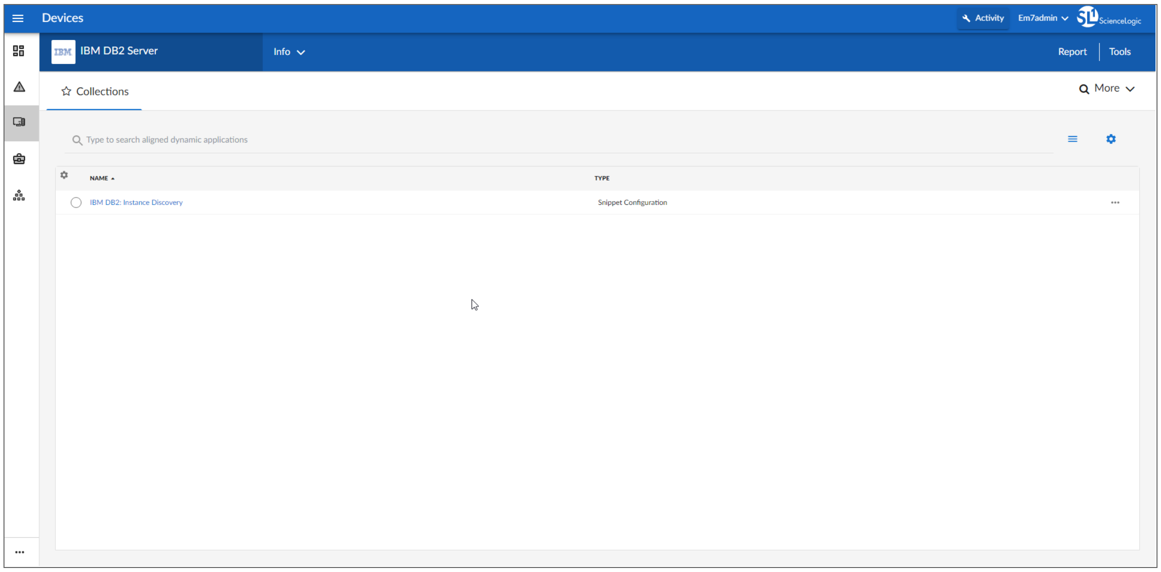
- IBM DB2: Server Discovery



NAME	TYPE
IBM DB2: Server Discovery	Snippet Configuration

You should see the following Dynamic Application aligned to the Db2 server:

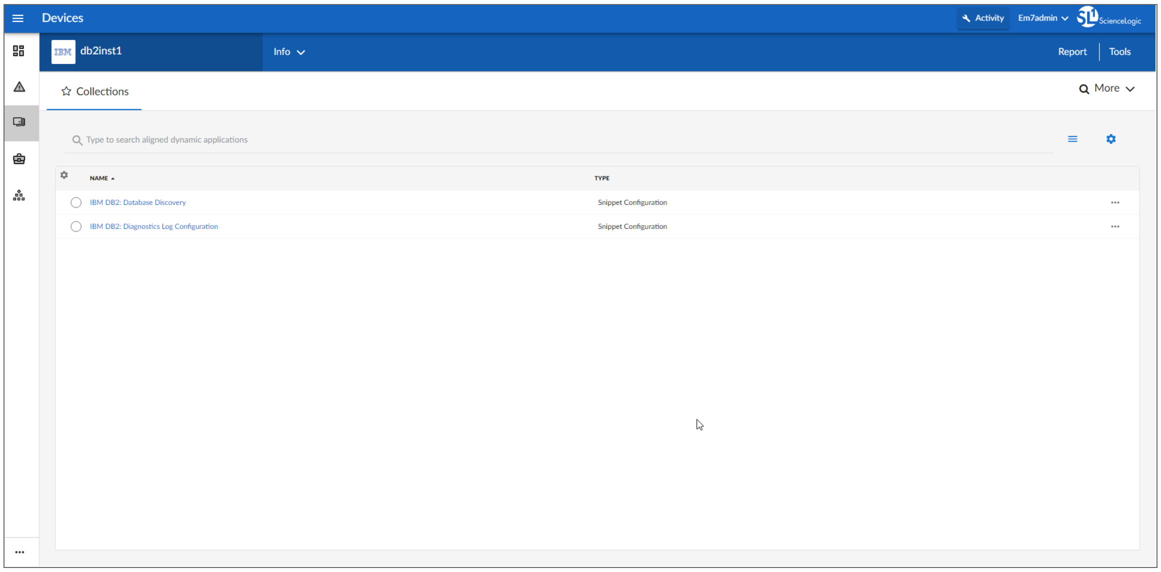
- IBM DB2: Instance Discovery



NAME	TYPE
IBM DB2: Instance Discovery	Snippet Configuration

You should see the following Dynamic Application aligned to the Db2 instance:

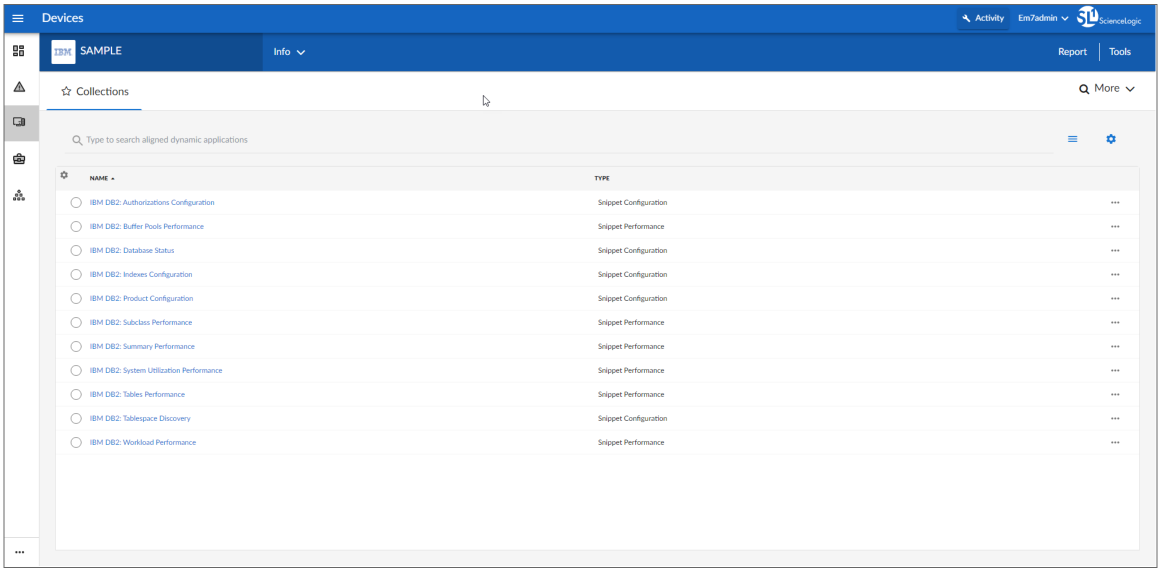
- IBM DB2: Database Discovery
- IBM DB2: Diagnostics Log Configuration



NAME	TYPE
IBM DB2: Database Discovery	Snippet Configuration
IBM DB2: Diagnostics Log Configuration	Snippet Configuration

You should see some or all of the following Dynamic Applications aligned to the Db2 database:

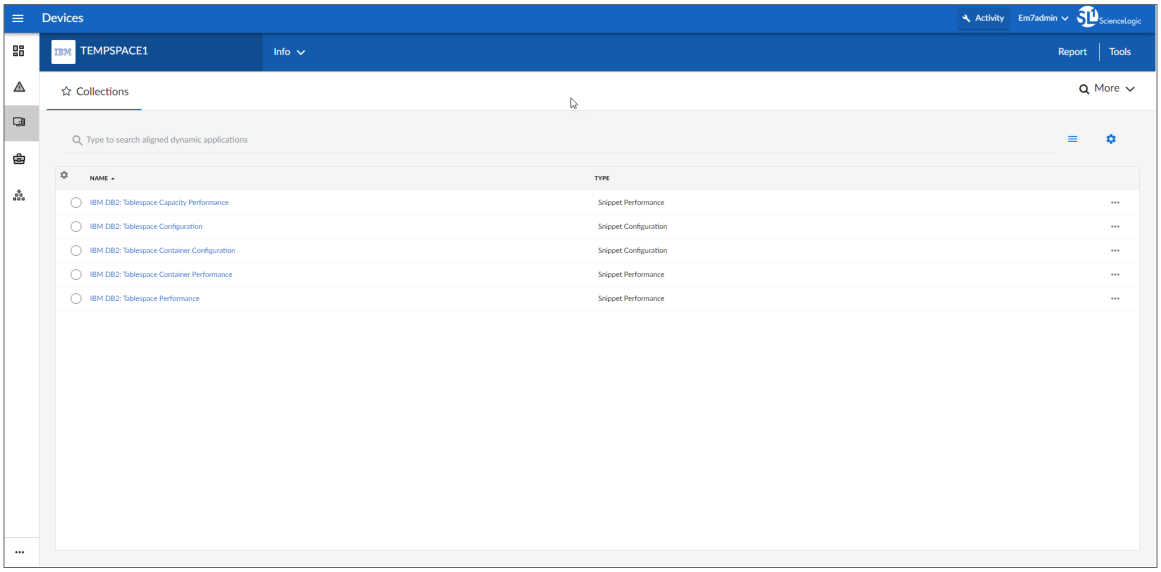
- IBM DB2: Authorizations Configuration
- IBM DB2: Buffer Pools Performance
- IBM DB2: Database Status
- IBM DB2: Indexes Configuration
- IBM DB2: Product Configuration
- IBM DB2: Subclass Performance
- IBM DB2: Summary Performance
- IBM DB2: System Utilization Performance
- IBM DB2: Tables Performance
- IBM DB2: Tablespace Discovery
- IBM DB2: Workload Performance



NAME	TYPE
IBM DB2: Authorizations Configuration	Snippet Configuration
IBM DB2: Buffer Pools Performance	Snippet Performance
IBM DB2: Database Status	Snippet Configuration
IBM DB2: Indexes Configuration	Snippet Configuration
IBM DB2: Product Configuration	Snippet Configuration
IBM DB2: Subclass Performance	Snippet Performance
IBM DB2: Summary Performance	Snippet Performance
IBM DB2: System Utilization Performance	Snippet Performance
IBM DB2: Tables Performance	Snippet Performance
IBM DB2: Tablespace Discovery	Snippet Configuration
IBM DB2: Workload Performance	Snippet Performance

You should see the following Dynamic Applications aligned to the Db2 tablespace:

- IBM DB2: Tablespace Capacity Performance
- IBM DB2: Tablespace Configuration
- IBM DB2: Tablespace Container Configuration
- IBM DB2: Tablespace Container Performance
- IBM DB2: Tablespace Performance



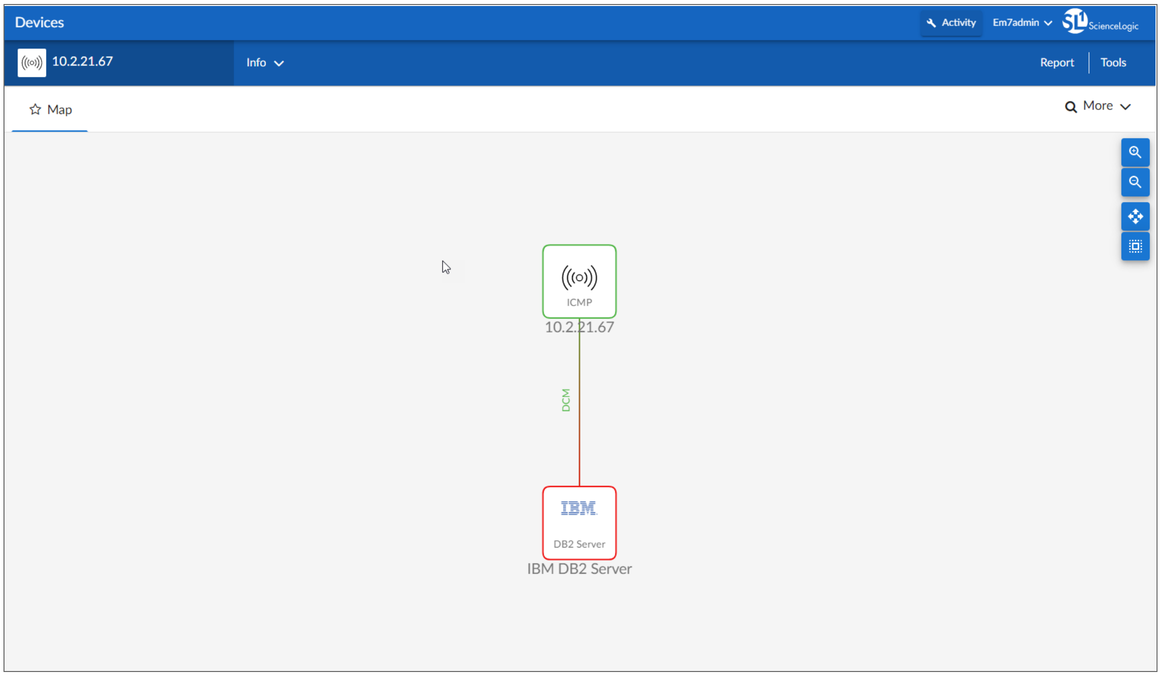
NAME	TYPE
IBM DB2: Tablespace Capacity Performance	Snippet Performance
IBM DB2: Tablespace Configuration	Snippet Configuration
IBM DB2: Tablespace Container Configuration	Snippet Configuration
IBM DB2: Tablespace Container Performance	Snippet Performance
IBM DB2: Tablespace Performance	Snippet Performance

NOTE: The *IBM Db2* PowerPack uses db2ilist to discover all Db2 instances, but the Dynamic Applications will be aligned to only the instances specified in the SOAP/XML credential headers.

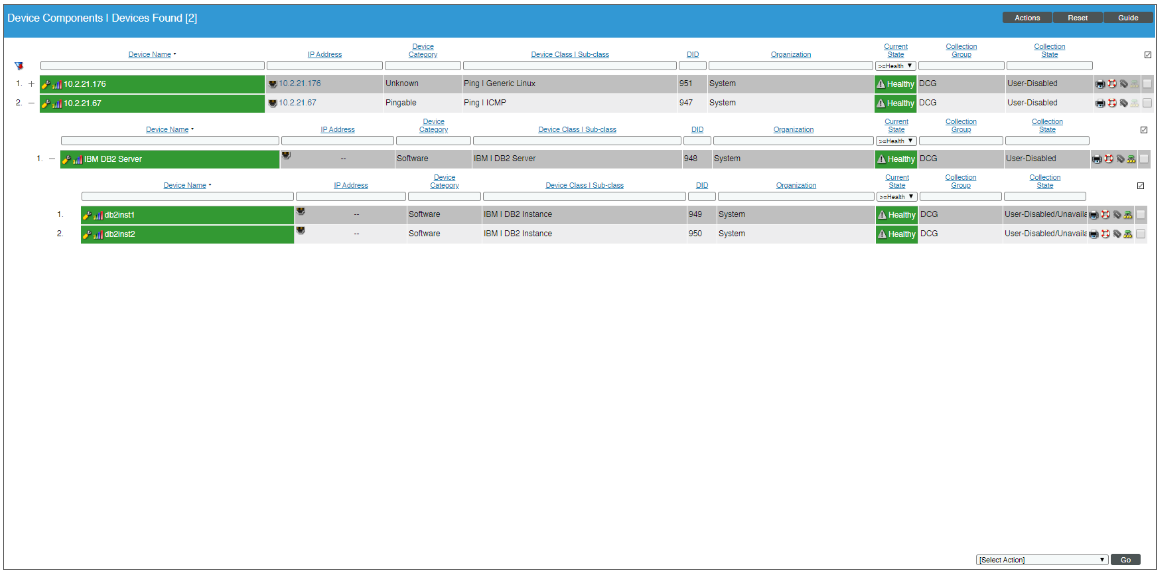
Viewing IBM Db2 Component Devices

In addition to the **Device Manager** page (Registry > Devices > Device Manager), you can view the IBM Db2 server and all associated component devices in the following places in the user interface:

- The **Device Investigator** Map page (click **Map** in the **Device Investigator** page) displays a map of a particular device and all of the devices with which it has parent-child relationships. Double-clicking any of the listed devices reloads the page to make the selected device the primary device:



- The **Device Components** page (Devices > Device Components) displays a list of all root devices and component devices discovered by SL1 in an indented view, so you can easily view the hierarchy and relationships between child devices, parent devices, and root devices. To view the component devices associated with an IBM Db2 server, find the IBM Db2 device and click its plus icon (+):



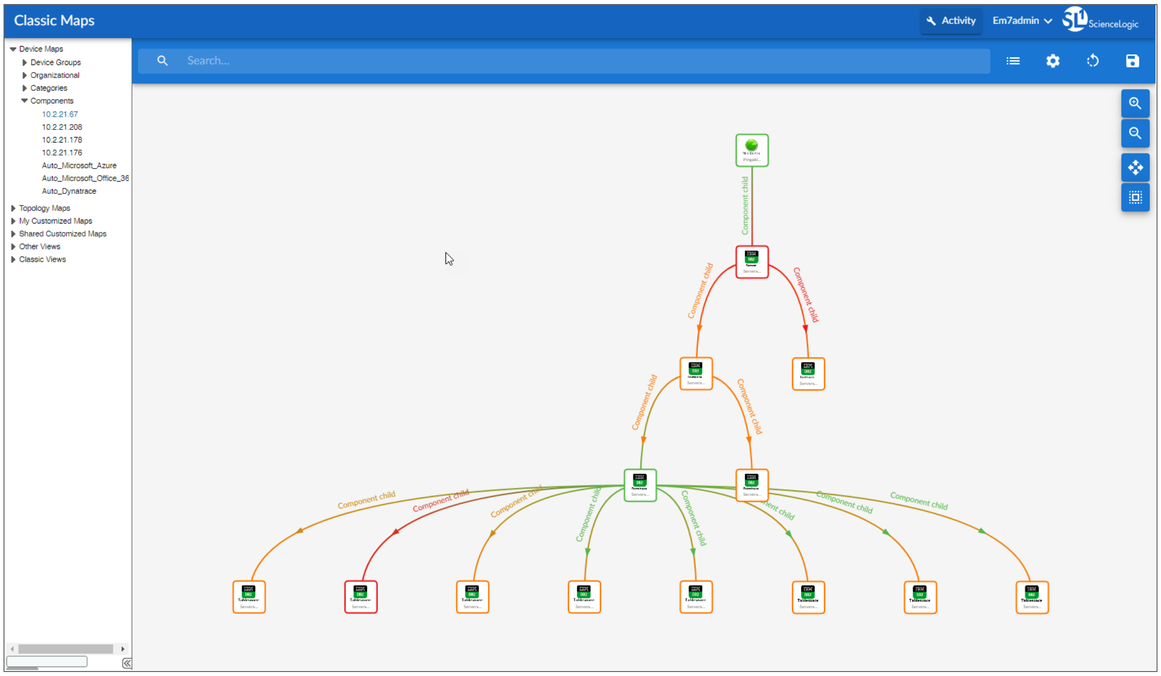
Device Components I Devices Found [2]

	Device Name	IP Address	Device Category	Device Class I Sub-class	DID	Organization	Current State	Collection Group	Collection State
1. +	10.2.21.176	10.2.21.176	Unknown	Ping I Generic Linux	951	System	Healthy	DCG	User-Disabled
2. –	10.2.21.67	10.2.21.67	Pingable	Ping I ICMP	947	System	Healthy	DCG	User-Disabled

	Device Name	IP Address	Device Category	Device Class I Sub-class	DID	Organization	Current State	Collection Group	Collection State
1. –	IBM DB2 Server	--	Software	IBM I DB2 Server	948	System	Healthy	DCG	User-Disabled

	Device Name	IP Address	Device Category	Device Class I Sub-class	DID	Organization	Current State	Collection Group	Collection State
1.	db2inst1	--	Software	IBM I DB2 Instance	949	System	Healthy	DCG	User-Disabled/Unavaila
2.	db2inst2	--	Software	IBM I DB2 Instance	950	System	Healthy	DCG	User-Disabled/Unavaila

- The **Component Map** page (Classic Maps > Device Maps > Components) allows you to view devices by root node and view the relationships between root nodes, parent components, and child components in a map. This makes it easy to visualize and manage root nodes and their components. SL1 automatically updates the **Component Map** as new component devices are discovered. The platform also updates each map with the latest status and event information. To view the map for an IBM Db2 server, go to the **Component Map** page and select the map from the list in the left NavBar. To learn more about the **Component Map** page, see the ***Maps*** manual.



Chapter

3

IBM Db2 Dashboards in the SL1 Classic User Interface

Overview

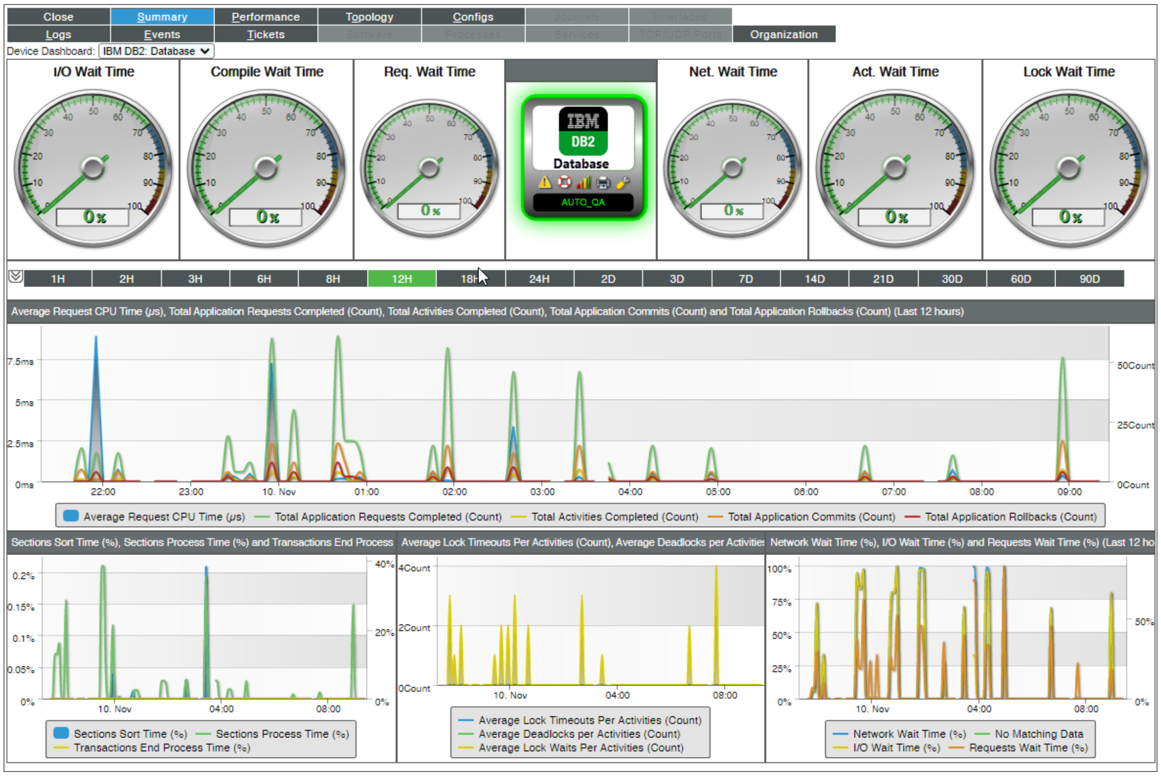
The following section describes the device dashboards that are included in the *IBM: Db2* PowerPack:

This chapter covers the following topics:

Device Dashboard

The *IBM: Db2* PowerPack includes device dashboards that provide summary information for Db2 databases and tablespaces.

IBM Db2: Database

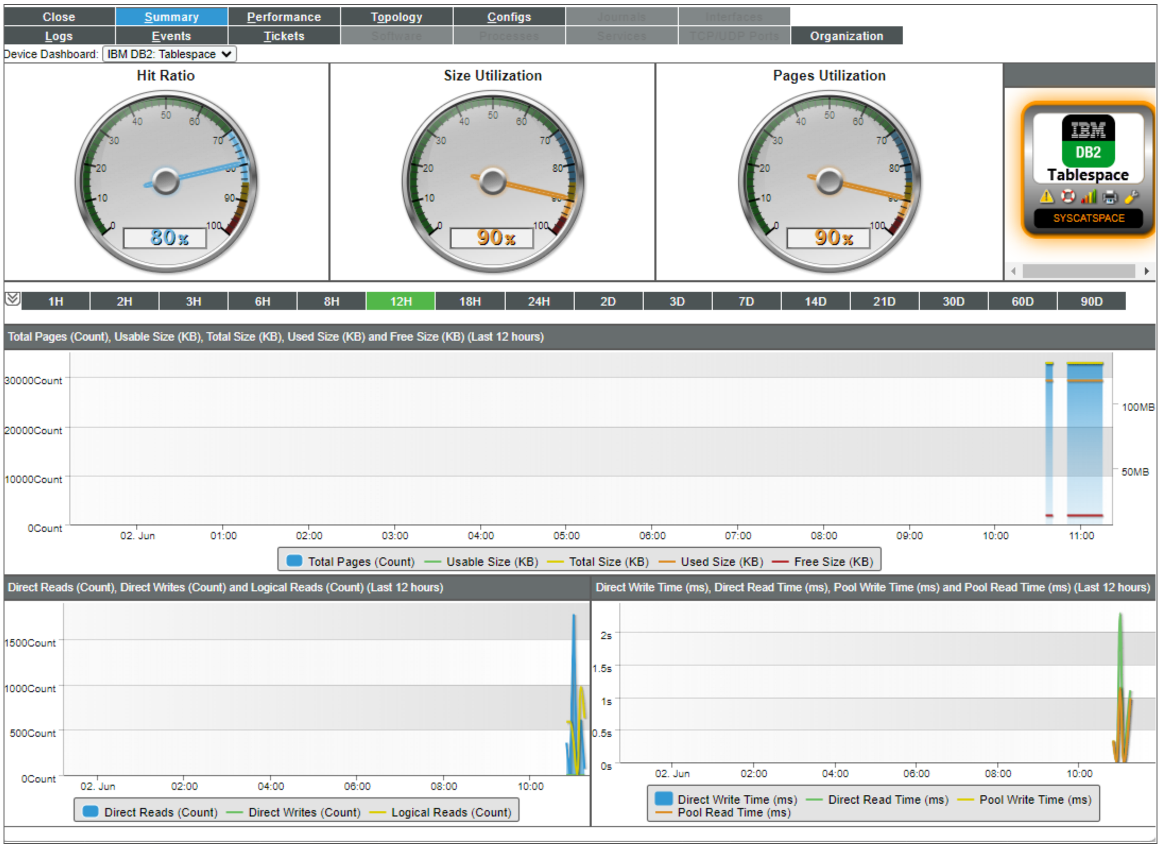

Close
Summary
Performance
Topology
Configs
Logs
Events
Tickets
Organization
Device Dashboard: IBM DB2: Database
I/O Wait Time
Compile Wait Time
Req. Wait Time
IBM DB2 Database
AUTO_QA
Net. Wait Time
Act. Wait Time
Lock Wait Time
0%
1H
2H
3H
6H
8H
12H
18H
24H
2D
3D
7D
14D
21D
30D
60D
90D
Average Request CPU Time (µs), Total Application Requests Completed (Count), Total Activities Completed (Count), Total Application Commits (Count) and Total Application Rollbacks (Count) (Last 12 hours)
7.5ms
5ms
2.5ms
0ms
50Count
25Count
0Count
22:00
23:00
10. Nov
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
Average Request CPU Time (µs)
Total Application Requests Completed (Count)
Total Activities Completed (Count)
Total Application Commits (Count)
Total Application Rollbacks (Count)
Sections Sort Time (%), Sections Process Time (%) and Transactions End Process
Sections Sort Time (%)
Sections Process Time (%)
Transactions End Process Time (%)
Average Lock Timeouts Per Activities (Count), Average Deadlocks per Activities
Average Lock Timeouts Per Activities (Count)
Average Deadlocks per Activities (Count)
Average Lock Waits Per Activities (Count)
Network Wait Time (%), I/O Wait Time (%) and Requests Wait Time (%) (Last 12 ho
Network Wait Time (%)
No Matching Data
I/O Wait Time (%)
Requests Wait Time (%)

The IBM Db2: Database device dashboard displays the following information:

- Six gauges that display the following metrics:
  - I/O Wait Time
  - Compile Wait Time
  - Req. Wait Time
  - Net. Wait Time
  - Act. Wait Time
  - Lock Wait Time
- A line graph that displays the following information:
  - Average Request CPU Time (s)
  - Total Application Requests Completed (Count)
  - Total Activities Completed (Count)

    - Total Application Commits (Count)
    - Total Application Rollbacks (Count)
- A line graph that displays the following information on sections:
    - Sections Sort Time (%)
    - Sections Process Time (%)
    - Transactions End Process Time (%)
- A line graph that displays the following information on locks:
    - Average Lock Timeouts Per Activities (Count)
    - Average Deadlocks per Activities (Count)
    - Average Lock Waits Per Activities (Count)
- A line graph that displays the following information on wait times:
    - Network Wait Time (%)
    - Caching Wait Time (%)
    - I/O Wait Time (%)
    - Requests Wait Time (%)

IBM: DB2 Tablespace



The IBM DB2: Tablespace device dashboard displays the following information:

- Three gauges that display the following metrics:
  - Hit Ratio
  - Size Utilization
  - Pages Utilization
- A line graph that displays the following information:
  - Total Pages (Count)
  - Usable Size (KB)
  - Total Size (KB)
  - Used Size (KB)
  - Free Size (KB)
- A line graph that displays the following information:

    - Direct Reads (Count)
    - Direct Writes (Count)
    - Logical Reads (Count)
- A line graph that displays the following information:
    - Direct Write Time (ms)
    - Direct Read Time (ms)
    - Pool Write Time (ms)
    - Pool Read Time (ms)

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