



**Hewlett Packard**  
Enterprise

# **HPE Database and Middleware Automation**

Ultimate Edition

Software Version: 10.40  
Linux, Solaris, AIX, and HP-UX

## Workflows for Sybase

Document Release Date: December 2015  
Software Release Date: December 2015

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# Sybase

This section includes the following topics:

Workflow type	Workflow name
Compliance	<a href="#">"Sybase - Compliance Audit v2" on the next page</a>
Drop database	<a href="#">"Dump Sybase Database" on page 26</a>
	<a href="#">"Load Sybase Database Dump" on page 39</a>
	<a href="#">"Dump And Load Sybase Database" on page 53</a>
Provisioning	<a href="#">"Workflow 1: Provision Sybase ASE 15 Server" on page 69</a>
	<a href="#">"Workflow 2: Configure Sybase ASE 15 Server" on page 74</a>
	<a href="#">"Workflow 3: Create Sybase Database" on page 77</a>
Release Management	<a href="#">"Sybase Release Management" on page 81</a>
Patching	<a href="#">"Sybase - Patch to Home and Instance" on page 100</a>
	<a href="#">"Sybase - Rollback from Home and Instance" on page 122</a>

## Sybase - Compliance Audit v2

The "[Sybase - Compliance Audit v2](#)" workflow enables you to audit a Sybase Adaptive Server Enterprise instance for compliance with the following security benchmark requirements:

- Center for Internet Security (CIS) security configuration benchmarks
- Payment Card Industry (PCI) data security standard
- Sarbanes-Oxley (SOX) requirements

The workflow performs CIS Level 1 and Level 2 auditing for a Sybase ASE instance. The audit identifies up to 31 compliance related problems with a Sybase ASE instance.

The workflow performs the checks included in the CIS benchmark and then maps those CIS checks to the benchmark type that you specify in the Compliance Type parameter. The audit summary email will match the Compliance Type that you specify.

For links to the CIS, PCI, and SOX standards, see [Sybase Adaptive Server Enterprise \(ASE\) 15.0, version 1.1.0 \(December 2011\)](#).

To use this workflow in your environment, see the following information:

Topic	Information Included
<a href="#">"Prerequisites for this Workflow"</a>	List of prerequisites that must be satisfied before you can run this workflow
<a href="#">"How this Workflow Works"</a>	Information about what the workflow does, including validation checks performed, steps executed, and step descriptions
<a href="#">"How to Run this Workflow"</a>	Instructions for running this workflow in your environment
<a href="#">"Sample Scenarios"</a>	Examples of typical parameter values for this workflow
<a href="#">Parameters</a>	List of input parameters for this workflow



## Prerequisites for this Workflow

Be sure that the following prerequisites are satisfied before you run the ["Sybase - Compliance Audit v2"](#) workflow:

- The latest HPE DMA solution packs require the latest HPE DMA platform. To use the latest solution packs, update the HPE DMA platform. HPE DMA10.40 solution packs are supported on HPE DMA10.40 (and later).
- You have installed the Database Compliance solution pack.

This workflow runs against a Sybase ASE instance by default. You can also run it at the Database level, however, by making a copy and modifying the `Target Level`.

This workflow requires unchallenged `sudo` access to a user (typically `root`) who can access all required files and directories.

`isql` must be installed and accessible via the user/password settings stored in metadata. You may find these setting in the Environment screen.

**Huseni -- Is the above true for Sybase?**

For more information about prerequisites for Sybase Adaptive Server Enterprise, refer to the [Sybase Adaptive Server Enterprise Documentation](#).

**Any other dependencies or other requirements?**

## How this Workflow Works

This workflow performs the following actions:

- Prepares to run the workflow by gathering information about the target Sybase Adaptive Server Enterprise instance and validating parameter values.
- Audits the various configuration settings specified in the pertinent CIS, SOX, or PCI benchmark.
- Composes and sends an email containing the results of the audit.

**Note:** The emails are sent through the mail server configured on the HPE DMA server. You can configure the mail server in the path below:

DMA setup > Configuration > Outgoing Mail > Server.

### Validation Checks Performed

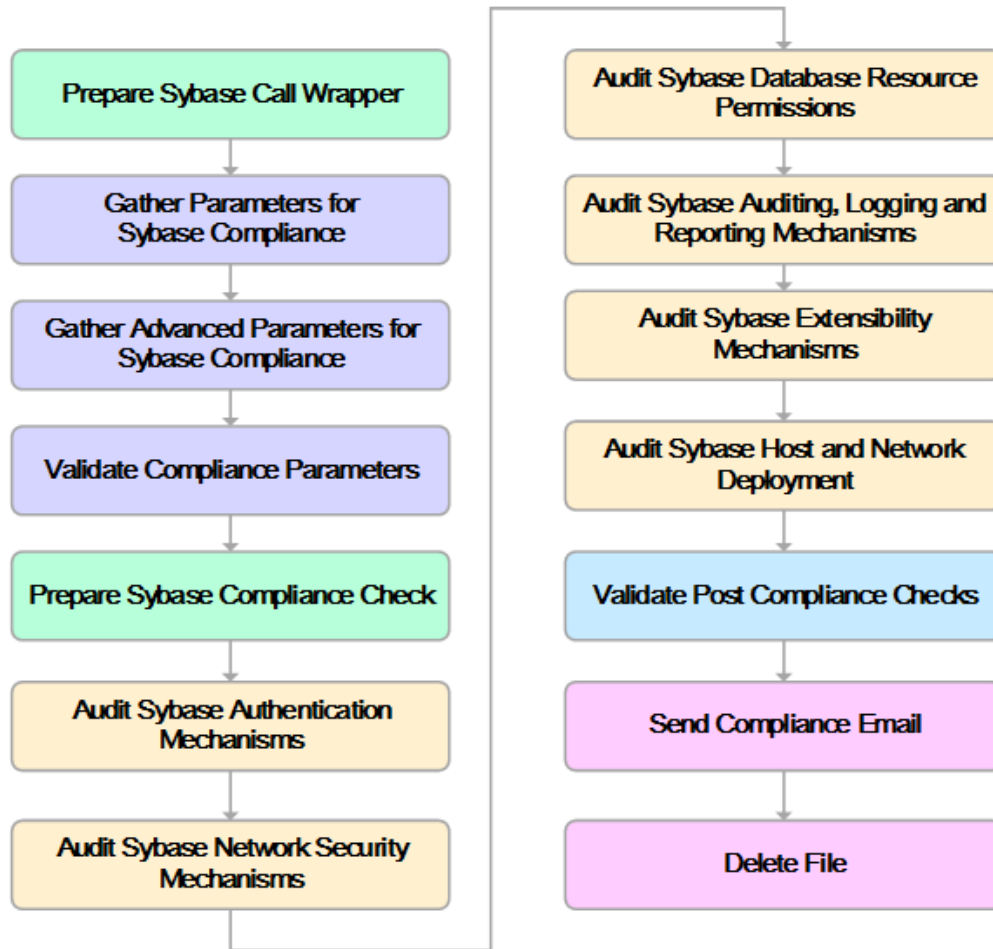
This workflow validates the following conditions:

1. Any Excluded Checks specified by the user refer to actual CIS, SOX, or PCI benchmark checks.
2. Any email addresses specified are valid addresses.
3. The workflow can create the temporary file that will store the compliance check results.

**Steps Executed** show

The "Sybase - Compliance Audit v2" workflow includes the following steps. Each step must complete successfully before the next step can start. If a step fails, the workflow reports a failure and all subsequent steps are skipped.

Click each box in the diagram to view additional information about that step.



**KEY:**

- Workflow preparation
- Parameter gathering and validation
- OS or file system operation
- CIS compliance checking
- Pre/post validation

## Steps Used by Sybase Compliance Audit

Workflow Step	Description
Prepare Sybase Call Wrapper	This step constructs the commands that will be used to execute subsequent workflow steps as either the OS administrative user or the owner of the Sybase ASE installation.
Gather Parameters for Sybase Compliance	This step gathers two types of information: the list of compliance checks to exclude from the audit, and basic information about the Sybase ASE installation.
Gather Advanced Parameters for Sybase Compliance	This step gathers the information that the workflow needs to create and deliver the compliance audit report via email. It also enables you to specify the passwords for the various Sybase ASE user roles.
Validate Compliance Parameters	<p>This step validates the input parameters specified in the previous steps. It validates the list of excluded checks to ensure that all specified checks in the list correspond to actual Center for Internet Security (CIS) benchmark items. It also validates the email information to ensure that all specified email addresses are valid.</p> <p>The step then creates the path to the temporary file that will store the results of the current audit as the workflow is running. This file is deleted after the audit report is sent.</p>
Prepare Sybase Compliance Check	This step checks for database connectivity, verifies that the list of checks to be excluded from this compliance audit is properly formatted, and verifies that the email addresses specified are properly formatted.
Audit Sybase Authentication Mechanisms	<p>This step audits the scorable recommendations in Section 1, Authentication Mechanisms, of the Center for Internet Security (CIS) Security Configuration Benchmark for Sybase Adaptive Server Enterprise (ASE) 15.0, version 1.1.0 (December 2011).</p> <p>Checks not implemented: 1.5 - Remove unused accounts and change default passwords</p>
Audit Sybase Network Security Mechanisms	This step audits the scorable recommendations in Section 2, Network

## Steps Used by Sybase Compliance Audit, continued

Workflow Step	Description
	Security Mechanisms, of the Center for Internet Security (CIS) Security Configuration Benchmark for Sybase Adaptive Server Enterprise (ASE) 15.0, version 1.1.0 (December 2011).
Audit Sybase Database Resource Permissions	This step audits the scorable recommendations in Section 3, Database Resource Permissions, of the Center for Internet Security (CIS) Security Configuration Benchmark for Sybase Adaptive Server Enterprise (ASE) 15.0, version 1.1.0 (December 2011).
Audit Sybase Auditing, Logging and Reporting Mechanisms	This step audits the scorable recommendations in Section 4, Auditing, Logging and Reporting Mechanisms, of the Center for Internet Security (CIS) Security Configuration Benchmark for Sybase Adaptive Server Enterprise (ASE) 15.0, version 1.1.0 (December 2011).
Audit Sybase Extensibility Mechanisms	This step audits the scorable recommendations in Section 5, Extensibility Mechanisms, of the Center for Internet Security (CIS) Security Configuration Benchmark for Sybase Adaptive Server Enterprise (ASE) 15.0, version 1.1.0 (December 2011)
Audit Sybase Host and Network Deployment	This step audits the scorable recommendations in Section 6, Host and Network Deployment, of the Center for Internet Security (CIS) Security Configuration Benchmark for Sybase Adaptive Server Enterprise (ASE) 15.0, version 1.1.0 (December 2011)
Validate Post Sybase Compliance Checks	This step reads the temporary file that contains the results of the compliance audit and prints the audit results to the HPE DMA Console. It also creates (or updates) the compliance metadata fields for the target. If email addresses were specified, it also creates a report in HTML format that will be emailed to those addresses by a later step in the workflow.
Send Compliance Email	If email addresses are provided, this step

## Steps Used by Sybase Compliance Audit, continued

Workflow Step	Description
	sends the previously generated compliance audit report to the specified email addresses.
Delete File	This step deletes the specified file on the target server.

**Note:** For input parameter descriptions and defaults, see "[Parameters for Sybase - Compliance Audit](#)" on page 23.

## How to Run this Workflow

The following instructions show you how to customize and run the ["Sybase - Compliance Audit v2"](#) workflow in your environment.

The workflow provides default values for some parameters. These default values are usually sufficient for a "typical" installation. You can override the defaults by specifying parameter values in the deployment. You can also expose additional parameters in the workflow, if necessary, to accomplish more advanced scenarios. Any parameters not explicitly specified in the deployment will have the default values listed in ["Parameters for Sybase - Compliance Audit" on page 23](#).

**Note:** Before following this procedure, review the ["Prerequisites for this Workflow" on page 9](#), and ensure that all requirements are satisfied.

### To use the Run Sybase Compliance Audit workflow:

1. Create a deployable copy of the workflow.
2. Determine the values that you will specify for the following parameters:

#### Parameters Defined in this Step: Prepare Sybase Call Wrapper

Parameter Name	Default Value	Required	Description
Call Wrapper	see description	optional	Command that will execute this step (or subsequent steps) as a specific user.  For UNIX targets, the default is: <code>/opt/hp/dma/client/jython.sh</code> running as root  For Windows targets, the default is: <code>jython</code> running as Administrator
Sybase OS User Name	sybase	required	OS user who owns the Sybase ASE installation directory.

#### Parameters Defined in this Step: Gather Parameters for Sybase Compliance

Parameter Name	Default Value	Required	Description
Excluded Compliance Checks	no default	optional	Comma-separated list of compliance checks to exclude from the audit. For example: <code>1.2, 2, 3.*, 5*, 6.1.2</code>  <b>Note:</b> Make sure that the checks specified here correspond with the compliance audit type (CIS, PCI, or SOX) that you are running.

## Parameters Defined in this Step: Gather Advanced Parameters for Sybase Compliance

Parameter Name	Default Value	Required	Description
Compliance Type	CIS	optional	Type of compliance report that will be generated by the workflow. Supported types are: CIS = Center for Internet Security (CIS) Security Configuration Benchmark PCI = Payment Card Industry (PCI) Data Security Standard SOX = Sarbanes-Oxley (SOX) sections 302.2, 302.4b, 302.4c, and 302.5 requirements
Email Addresses to Receive Report	no default	optional	Comma-separated list of email addresses for those individuals or groups who will receive a copy of the compliance audit report.



## Parameters Defined in this Step: Audit Sybase Host and Network Deployment

Parameter Name	Default Value	Required	Description
EBF Patch Level	no default	optional	Latest Express Bug Fix (EBF) patch level available from Sybase.
ESD Patch Level	no default	optional	Latest Electronic Software Distribution (ESD) patch level available from Sybase.

**Note:** This is the minimum set of parameters required to run this workflow. You may need to expose additional parameters depending on your objectives.

See "[Parameters for Sybase - Compliance Audit](#)" on page 23 for detailed descriptions of all input parameters for this workflow, including default values.

- In the workflow editor, expose any additional parameters that you need. You will specify values for those parameters when you create the deployment.
- Save the changes to the workflow (click **Save** in the lower right corner).
- Create a new deployment.
- On the Parameters tab, specify values for the required parameters listed in step 2 and any additional parameters that you have exposed. You do not need to specify values for those parameters whose default values are appropriate for your environment.
- On the Targets tab, specify one or more targets for this deployment.
- Save the deployment (click **Save** in the lower right corner).
- Run the workflow using this deployment.

**To verify the results:**

Information about each compliance check is displayed in the step output on the Console (and the History page) for each of the audit steps.

A summary of the compliance audit is also displayed in the step output for the Validate Post Sybase Compliance Checks step.

**To view the reports:**

A compliance audit summary in HTML format is emailed to all parties on the Email Addresses to Receive Report list.

After you run this workflow, you can generate two types of compliance reports on the Reports page:

- Database Compliance Report
- Database Compliance Detail Report

**To access the Database Compliance reports:**

1. Go to the Reports page.
2. At the bottom of the page, specify the following settings:  
For the Database Compliance Report:
  - a. Select the Database Compliance report.
  - b. Select the organization where your target resides.
  - c. Because this report lists the latest compliance audit reports for all targets in the specified organization, you do not specify a Server, Database, or Time span.For the Database Compliance Detail Report:
  - a. Select the Database Compliance Details report.
  - b. Select the organization where your target resides.
  - c. Specify the Server and Instance that you selected when you created your deployment.
3. Click **Run report**.

## Sample Scenarios

This topic shows you how to use various parameters to achieve the following compliance audit scenarios in your environment using the "[Sybase - Compliance Audit v2](#)" workflow.

### Scenario 1: Perform a Partial CIS Compliance Audit and Email the Results

In the scenario, the following checks are excluded from the audit:

- Section 5: Extensibility Mechanisms
- Section 6: Host and Network Deployment

A summary report is sent to the three parties listed in the Email Addresses to Receive Report parameter.

Parameter Name	Example Value	Description
Excluded Compliance Checks	5.*,6.*	Comma-separated list of compliance checks to exclude from the audit. For example:  1.2, 2, 3.*, 5*, 6.1.2  <b>Note:</b> Make sure that the checks specified here correspond with the compliance audit type (CIS, PCI, or SOX) that you are running.
Compliance Type	CIS	Type of compliance report that will be generated by the workflow. Supported types are:  CIS = Center for Internet Security (CIS) Security Configuration Benchmark  PCI = Payment Card Industry (PCI) Data Security Standard  SOX = Sarbanes-Oxley (SOX) sections 302.2, 302.4b, 302.4c, and 302.5 requirements
Email Addresses to Receive Report	SybaseDBAdminTeam@mycompany.com, SybaseDBAdminMgr@mycompany.com, CustomerSupportTeam@mycompany.com	Comma-separated list of email addresses for those individuals or groups who will receive a copy of the compliance audit report.

Be sure that the default values for all remaining input parameters are appropriate for your environment (see "[Parameters for Sybase - Compliance Audit](#)" on page 23).

**Scenario 2: Perform a Full PCI Compliance Audit and Email the Results** show

A summary report is sent to the three parties listed in the Email Addresses to Receive Report parameter.

Parameter Name	Example Value	Description
Compliance Type	PCI	Type of compliance report that will be generated by the workflow. Supported types are:  CIS = Center for Internet Security (CIS) Security Configuration Benchmark  PCI = Payment Card Industry (PCI) Data Security Standard  SOX = Sarbanes-Oxley (SOX) sections 302.2, 302.4b, 302.4c, and 302.5 requirements
Email Addresses to Receive Report	SybaseDBAdminTeam@mycompany.com, SybaseDBAdminMgr@mycompany.com, CustomerSupportTeam@mycompany.com	Comma-separated list of email addresses for those individuals or groups who will receive a copy of the compliance audit report.

**Note:** Some of these parameters are not exposed by default in the deployment.

Be sure that the default values for all remaining input parameters are appropriate for your environment (see ["Parameters for Sybase - Compliance Audit" on page 23](#)).

**Scenario 3: Perform a Full SOX Compliance Audit and Email the Results**

A summary report is sent to the three parties listed in the Email Addresses to Receive Report parameter.

Parameter Name	Example Value	Description
Compliance Type	SOX	Type of compliance report that will be generated by the workflow. Supported types are:  CIS = Center for Internet Security (CIS) Security Configuration Benchmark  PCI = Payment Card Industry (PCI) Data Security Standard  SOX = Sarbanes-Oxley (SOX) sections 302.2, 302.4b, 302.4c, and 302.5 requirements
Email Addresses to Receive Report	SybaseDBAdminTeam@mycompany.com, SybaseDBAdminMgr@mycompany.com, CustomerSupportTeam@mycompany.com	Comma-separated list of email addresses for those individuals or groups who will receive a copy of the compliance audit report.

**Note:** Some of these parameters are not exposed by default in the deployment.

Be sure that the default values for all remaining input parameters are appropriate for your environment.

#### Scenario 4: Perform a Full CIS Compliance Audit and Display the Results on the HPE DMA Console

In the scenario, all scorable checks are performed, and the compliance audit report is displayed only on the HPE DMA Console. In this case, a summary report is not emailed. This scenario would be appropriate for initial testing.

It is not necessary to specify any input parameters in this scenario unless the Sybase ASE inventory file is located in a non-standard directory.

Parameter Name	Example Value	Description
Compliance Type	CIS	Type of compliance report that will be generated by the workflow. Supported types are:  CIS = Center for Internet Security (CIS) Security Configuration Benchmark  PCI = Payment Card Industry (PCI) Data Security Standard  SOX = Sarbanes-Oxley (SOX) sections 302.2, 302.4b, 302.4c, and 302.5 requirements

Be sure that the default values for all remaining input parameters are appropriate for your environment (see ["Parameters for Sybase - Compliance Audit" on the next page](#)).

## Parameters for Sybase - Compliance Audit

The following tables describe the required and optional input parameters for this workflow. Some of these parameters are not initially visible in a deployment. For most parameters, if you do not specify a value for a parameter, a default value is assigned.

### Parameters Defined in this Step: Prepare Sybase Call Wrapper

Parameter Name	Default Value	Required	Description
Call Wrapper	see description	optional	Command that will execute this step (or subsequent steps) as a specific user. For UNIX targets, the default is:  /opt/hp/dma/client/jython.sh running as root  For Windows targets, the default is: jython running as Administrator
Sybase OS User Name	sybase	required	OS user who owns the Sybase ASE installation directory.

### Additional Parameters Defined in this Step: Gather Parameters for Sybase Compliance

Parameter Name	Default Value	Required	Description
Excluded Compliance Checks	no default	optional	Comma-separated list of compliance checks to exclude from the audit. For example:  1.2, 2, 3.*, 5*, 6.1.2  <b>Note:</b> Make sure that the checks specified here correspond with the compliance audit type (CIS, PCI, or SOX) that you are running.

### Additional Parameters Defined in this Step: Gather Advanced Parameters for Sybase Compliance

Parameter Name	Default Value	Required	Description
Compliance Type	CIS	optional	Type of compliance report that will be generated by the workflow. Supported types are:  CIS = Center for Internet Security (CIS) Security Configuration Benchmark  PCI = Payment Card Industry (PCI) Data Security Standard  SOX = Sarbanes-Oxley (SOX) sections 302.2, 302.4b, 302.4c, and 302.5 requirements

## Additional Parameters Defined in this Step: Gather Advanced Parameters for Sybase Compliance, continued

Parameter Name	Default Value	Required	Description
Email Addresses to Receive Report	no default	optional	Comma-separated list of email addresses for those individuals or groups who will receive a copy of the compliance audit report.
OPER Role Password	no default	optional	Password for the Sybase ASE oper_role (operator) role.
SA Role Password	no default	optional	Password for the Sybase ASE sa_role (system administrator) role.
SSO Role Password	no default	optional	Password for the Sybase ASE sso_role (system security officer) role.
Sybase Role Password	no default	optional	Password for the sybase_ts_role (Sybase technical support) role.
List Of Used Accounts	no default	optional	Comma separated list of user accounts that need to be retained and are in use. For example: probe,sybmail,jstask,mon_user.
Sybase Dump File List	no default	optional	List of dump files to be checked for password-protection. For example: /opt/app/sybase/data/somedump1.dmp, /opt/app/sybase/data/somedump2.dmp, /opt/app/sybase/data/somedump3.dmp.

## Additional Parameters Defined in this Step: Audit Sybase Host and Network Deployment

Parameter Name	Default Value	Required	Description
EBF Patch Level	no default	optional	Latest Express Bug Fix (EBF) patch level available from Sybase.
ESD Patch Level	no default	optional	Latest Electronic



Additional Parameters Defined in this Step: Audit Sybase Host and Network Deployment, continued

Parameter Name	Default Value	Required	Description
			Software Distribution (ESD) patch level available from Sybase.

# Dump Sybase Database

This workflow enables you to dump the contents of a Sybase Adaptive Server Enterprise (ASE) database (the source database) into a file (the database dump file).

The workflow performs extensive validation checks prior to and immediately after the dump operation to ensure that the dump file is valid.

This workflow can create and load database dump files that are striped, compressed (at any level 1-9), encrypted, or any combination thereof.

If any source database objects are bound to a specific (non-default) cache, the workflow will create a cache dump file—provided that you specify a valid value for the Cache Dump File parameter. The cache dump file contains details about the specific caches used by the source database and any objects that are bound to each cache. This file is in data-readable format.

To use this workflow in your environment, see the following information:

Topic	Information Included
<a href="#">"Prerequisites for this Workflow"</a>	List of prerequisites that must be satisfied before you can run this workflow
<a href="#">"How this Workflow Works"</a>	Information about what the workflow does, including validation checks performed, steps executed, and a high-level process flow
<a href="#">"How to Run this Workflow"</a>	Instructions for running this workflow in your environment
<a href="#">"Sample Scenarios"</a>	Examples of typical parameter values for this workflow
<a href="#">"Parameters for Dump Sybase Database"</a>	List of input parameters for this workflow

The process of deploying and running this workflow is the same for all scenarios, but the parameters required will differ depending on the specific scenario that you are implementing.

The workflow provides default values for most parameters. These default values are usually sufficient for a "typical" database refresh. You can override the defaults by specifying parameter values in the deployment. You can also expose additional parameters in the workflow, if necessary, to accomplish more advanced scenarios.

Any parameters not explicitly specified in the deployment will have the default values listed in ["Parameters for Dump Sybase Database" on page 36](#).

**Note:** To view detailed information about the steps included in this workflow, see the [Steps in this Workflow](#).

## Prerequisites for this Workflow

**Caution:** You cannot perform a database dump if there are dependencies between the source database and another database in the same or a different Sybase ASE instance. You must remove or disable object referencing (for example: triggers, views, stored procedures, etc.) before you run this workflow.

The following prerequisites must be satisfied before you can run the Dump Sybase Database workflow:

1. The **source** database must exist before the workflow runs.
2. The source database must NOT be mounted on the master device.
3. Both the Adaptive Server instance that executes the `dump` command and the local Backup Server instance must be running, and they must be able to communicate with each other.
4. The master database system table (sys.servers) must contain an entry that assigns the local Backup Server instance to SYB\_BACKUP.
5. By default, the workflow will create the database dump file with the following format:  
`dump_file_path/<databaseName>_<dateTime>.dmp`  
 For example: `/var/tmp/mytestdb_2012111283762.dmp`  
 If you specify a non-default file name (or names) in the Dump File List parameter, the path to each specified file must exist.
6. Adequate disk space must be available to store the database dump file, whether it is stored locally or in a shared NFS location.
7. On Linux and Solaris platforms, the `sudo` package must be installed on the server that hosts the source database.
8. The Dump File Password parameter is required if a password was used to encrypt the **source** database dump file.
9. The workflow assumes the following:
  - The Adaptive Server component is installed in the `/home/Sybase/ASE_15` directory.
  - The Adaptive Server instance name is `NY_DS`.
  - The database name is `mytestdb`.
  - The database dump file is stored in the `/var/tmp` directory.
  - `/var/tmp` is an NFS mount point.
  - The Sybase ASE user specified in the ASE SysAdmin Username parameter is permitted to access the `/var/tmp` directory.
  - The user specified in the Sybase OS User Name parameter (sybase by default) must own the installation directory and be a member of the “sybase” group.

**Note:** The workflow currently does not support reading the database dump file from tape devices.

**Note:** This workflow does not support dump file password encryption for **cross-platform** database refresh (for example: the database dump file was created on a Linux server, and you are loading it onto a Solaris server).

### **Additional Considerations**

It is good practice to run basic database consistency checks (DBCCs) on the source database before running this workflow. You can do this by creating a simple workflow that includes the Run Sybase DBCC Checks step included in this solution pack.

If database transactions occur on the source database after the dump file is created, you should apply the latest transaction log dump to the destination database after you run the "[Load Sybase Database Dump](#)" workflow. Otherwise, these transactions will be missing from the destination database.

For information about prerequisites for Sybase ASE, refer to the [Sybase ASE Product Documentation](#).

## How this Workflow Works

This topic contains the following information about the ["Dump Sybase Database"](#) workflow:

### Validation Checks Performed

The workflow checks the following things prior to dumping the database. If any of these checks fails, the workflow fails.

1. All required parameters have values. If any required parameter does not have a value—either a value that you specify or a default value—the workflow fails in the Sybase - Validate Database Dump Settings step.
2. The Sybase ASE software is installed.
3. The source database exists in the specified Sybase ASE instance.
4. The source Adaptive Server and Backup Server components are running and able to communicate with each other so that they can perform the database dump.
5. The **source** database is online.
6. Adequate disk space is available to store the database dump file.

### Steps Executed

The ["Dump Sybase Database"](#) workflow includes the following steps. Each step must complete successfully before the next step can start. If a step fails, the workflow reports a failure, and all subsequent steps are skipped.

### Process Flow

This workflow performs the following tasks:

1. Creates the Instance Wrapper and Server Wrapper.
2. Verifies that the HPE DMAserver is able to communicate with the server where the workflow is running.
3. Performs the preliminary [validation checks](#) described above.
4. Generates the cache descriptor file for the source database. This is used to replicate the cache objects on the destination server.
5. Performs the database `dump` operation to create the database dump file.
6. Performs post-dump validation checks to ensure that all required parameters had valid values.

### Tips and Best Practices

It is good practice to run basic database consistency checks (DBCCs) on the source database before running this workflow to ensure that there are no internal errors in the database. You can do this by creating a simple workflow that includes the Run Sybase DBCC Checks step included in this solution pack.

If you find errors in the source database, be sure to fix them before running this workflow. The workflow does not have the ability to diagnose or remediate problems in the database prior to performing the database dump.

## How to Run this Workflow

This topic explains how to customize and run the ["Dump Sybase Database"](#) workflow in your environment.

**Note:** Prior to running this workflow, review the ["Prerequisites for this Workflow"](#), and ensure that all requirements are satisfied.

### To customize and run the Dump Sybase Database workflow:

1. Create a deployable copy of the workflow.
2. Determine the values that you will specify for the following parameters. This is the minimum set of parameters required to run this workflow.

Parameter Name	Default Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Cache File	no default	Database cache file associated with this database dump. This is a single filename (with absolute path—path must exist). The file contains detailed information about any specific (non-default) data caches used by the source database and any database objects bound to those caches.
Dump File Compression Level	7	Compression level (1-9) to apply to the dump file (or files) that will be created.
Dump File Password	no default	Password required to decrypt a password-protected encrypted database dump file (required if the dump file is encrypted).  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).

**Note:** This is the minimum set of parameters required to run this workflow. You may need to expose additional parameters depending on your objectives.

See "[Parameters for Dump Sybase Database](#)" on page 36 for detailed descriptions of all input parameters for this workflow, including default values.

To avoid having to re-enter passwords whenever they change, you can create a policy to provide them to the workflow.

3. In the workflow editor, expose any additional parameters that you need (see [How to Expose Additional Workflow Parameters](#) on page 70). You will specify values for those parameters when you create the deployment.
4. Save the changes to the workflow (click Save in the lower right corner).
5. Create a new deployment.
6. On the Parameters tab, specify values for the required parameters listed in step 2 and any additional parameters that you have exposed. You do not need to specify values for those parameters whose default values are appropriate for your environment.
7. On the Targets tab, specify one or more targets for this deployment.
8. Save the deployment (click Save in the lower right corner).
9. Run the workflow using this deployment.

The workflow will complete and report "Success" on the Console if it has run successfully. If an invalid parameter value is specified, an error is logged, and the workflow terminates in the "Failure" state.

## Sample Scenarios

This topic shows you how to use various parameters to achieve the following database refresh scenarios in your environment using the "[Dump Sybase Database](#)" workflow:

### Scenario 1: Perform a Database Refresh Using a Database Dump File that is Not Encrypted or Striped

This is the simplest Sybase ASE database dump scenario.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.

Be sure that the default values for all remaining parameters are appropriate for your environment (see [Parameters for Dump Sybase Database](#)).



## Scenario 2: Perform a Database Refresh Using a Database Dump File that is Encrypted and Compressed

This scenario requires you to specify the encryption password and compression level for the database dump file.

Parameter Name	Example Value	
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File Compression Level	8	Compression level (1-9) to apply to the dump file (or files) that will be created.
Dump File Password	MyPassword1@#	<p>Password that will be used to encrypt the database dump file.</p> <div style="background-color: #e0e0e0; padding: 5px;"> <p><b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).</p> </div>

Be sure that the default values for all remaining parameters are appropriate for your environment (see ["Parameters for Dump Sybase Database" on page 36](#)).

**Scenario 3: Perform a Database Refresh Using a Database Dump File that is Striped and Encrypted**

In this scenario, the database dump file will be striped across multiple files. You must specify all the individual stripe files in the Dump File List parameter (separate them with commas).

If you want the stripe files to be encrypted, you must also specify the Dump File Password parameter.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb1.dmp, /var/tmp/mytestdb2.dmp, /var/tmp/mytestdb3.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Password	MyPassword1@#	Password that will be used to encrypt the database dump file.  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).

Be sure that the default values for all remaining parameters are appropriate for your environment (see ["Parameters for Dump Sybase Database" on page 36](#)).

**Scenario 4: Perform a Database Refresh Using a Cache Dump File**

In this scenario, the database dump file has an associated cache dump file. You must specify the name of the cache dump file by using the Cache File parameter. The workflow will use the cache dump file to rebuild and bind the cache after the database dump file is loaded into the destination database.

Parameter Name	Example Value	
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb1.dmp, /var/tmp/mytestdb2.dmp, /var/tmp/mytestdb3.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Cache File	<code>/var/tmp/runcache_ mytestdb.txt</code>	File where the Sybase ASE database cache configuration data for the source database will be written. This is a single filename (with absolute path—path must exist).

Be sure that the default values for all remaining parameters are appropriate for your environment (see Parameters for Dump Sybase Database).

## Parameters for Dump Sybase Database

The following tables describe the required and optional input parameters for this workflow. Most of these parameters are not initially visible in a deployment. For most parameters, if you do not specify a value for a parameter, a default value is assigned in the following steps:

- Gather Parameters for Sybase Dump or Load
- Gather Advanced Parameters for Sybase Database Dump

### Input Parameters for the Dump Sybase Database Workflow

Parameter Name	Default Value	Required	Description
ASE SysAdmin Password	password	required	Password for the Sybase ASE user specified in the ASE SysAdmin Username parameter.
ASE SysAdmin Username	sa	required	The Sybase ASE user who can perform all administrative operations (typically sa).  This user will perform the database load operation.
Cache File	no default	optional	Database cache file associated with this database dump. This is a single filename (with absolute path—the path and file must exist). The file contains detailed information about any specific (non-default) data caches used by the source database and any database objects bound to those caches.
Call Wrapper	jython	required	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Dump Device Name	n/a	n/a	Not used in this release.
Dump File Compression Level	7	optional	Compression level (1-9) to apply to the dump file (or files) that will be created.
Dump File List	<code>/var/tmp/&lt; databasename&gt;_&lt;datetime&gt;.dmp</code>  For example: <code>/var/tmp/mytestdb_2012111283762.dmp</code>  If you specify a non-	required	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.

## Input Parameters for the Dump Sybase Database Workflow, continued

Parameter Name	Default Value	Required	Description
	default file name (or names) in the Dump File List parameter, the path to each specified file must exist.		
Dump File Password	no default	optional	<p>Password required to decrypt a password-protected encrypted database dump file (required if the dump file is encrypted).</p> <p><b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).</p>
Dump File Path	n/a	n/a	Not used in this release.
Local Backup Instance Name	n/a	n/a	Not used in this release.
Local Backup Instance Port	n/a	n/a	Not used in this release.
Remote Backup Instance Name	n/a	n/a	Not used in this release.
Remote Backup Instance Port	n/a	n/a	Not used in this release.
Role Password SQL Statement	no default	required	Not used in this release.
Source Database Instance Name	NY_DS	required	Name of the Adaptive Server instance where the dump file (or files) will be created. You specify the value of this parameter in the deployment.
Source	mytestdb	required	Name of database from which the dump file (or files)

## Input Parameters for the Dump Sybase Database Workflow, continued

Parameter Name	Default Value	Required	Description
Database Name			will be created.
Sybase ASE Home Directory	/home/sybase/ASE_15	required	Sybase ASE installation home directory, where the source database resides. Sybase will examine the interface file that exists in this directory to determine how to create the specified database dump file (or files).
Sybase OS User Name	sybase	required	OS user (typically, sybase) who owns the Sybase ASE installation directory.

# Load Sybase Database Dump

This workflow enables you to load the contents of a previously created Sybase ASE database dump file (the source data) into an existing Sybase ASE database (the destination database).

The workflow performs extensive validation checks prior to and immediately after loading the source data into the destination database to ensure that the schema and data have been loaded successfully. The workflow restores any existing database users after the source data is loaded into the destination database.

This workflow can perform a cross-platform database refresh (load) if necessary. After it performs a cross-platform load operation, the workflow rebuilds the indexes (clustered or non-clustered indexes on APL/DOL tables) to avoid any page linkage or index corruption issues.

The source database dump file (or files) can be striped, compressed (at any level 1-9), encrypted, or any combination thereof.

To use this workflow in your environment, see the following information:

Topic	Information Included
<a href="#">"Prerequisites for this Workflow"</a>	List of prerequisites that must be satisfied before you can run this workflow
<a href="#">"How this Workflow Works"</a>	Information about what the workflow does, including validation checks performed, steps executed, and a high-level process flow
<a href="#">"How to Run this Workflow"</a>	Instructions for running this workflow in your environment
<a href="#">"Sample Scenarios"</a>	Examples of typical parameter values for this workflow
<a href="#">"Parameters for Load Sybase Database Dump"</a>	List of input parameters for this workflow

The process of deploying and running this workflow is the same for all scenarios, but the parameters required will differ depending on the specific scenario that you are implementing.

The workflow provides default values for most parameters. These default values are usually sufficient for a "typical" database refresh. You can override the defaults by specifying parameter values in the deployment. You can also expose additional parameters in the workflow, if necessary, to accomplish more advanced scenarios.

Any parameters not explicitly specified in the deployment will have the default values listed in ["Parameters for Load Sybase Database Dump" on page 50](#).

**Note:** To view detailed information about the steps included in this workflow, see [Steps in this Workflow](#).

## Prerequisites for this Workflow

The following prerequisites must be satisfied before you can run the Load Sybase Database Dump workflow:

1. The **destination** database must exist before the workflow runs.
2. The destination database must NOT be mounted on the master device.
3. The **source** and destination database servers must use the same page size.
4. No database users may be logged in to the destination database server when this workflow runs.
5. Both the Adaptive Server instance that executes the `load` command and the local Backup Server instance must be running, and they must be able to communicate with each other.
6. The master database system table (`sys.servers`) must contain an entry that assigns the local Backup Server instance to `SYB_BACKUP`.
7. On Linux and Solaris platforms, the `sudo` package must be installed on the server that hosts the destination database.
8. You must specify an operating system file in the Dump File List parameter (for example: `/var/tmp/mydbdump.dmp`). You cannot specify a dump device.  
The database dump file must be accessible from the server where the workflow is executed. The file must be available on the local machine or via a Network File System (NFS) mount.  
The workflows currently do not support writing or reading the database dump file from tape devices.
9. The file (or files) specified in the Dump File List parameter must exist in the specified location.
10. The Dump File Password parameter is required if a password was used to encrypt the source database dump file.
11. The workflow assumes the following:
  - The Adaptive Server component is installed in the `/home/sybase/ASE_15` directory.
  - The Adaptive Server instance name is `NY_DS`.
  - The database name is `mytestdb`.
  - The database dump file is stored in the `/var/tmp` directory.
  - `/var/tmp` is an NFS mount point.
  - The Sybase ASE user specified in the ASE SysAdmin Username parameter is permitted to access the `/var/tmp` directory.
  - The user specified in the Sybase OS User Name parameter (`sybase` by default) must own the installation directory and be a member of the “`sybase`” group.

**Note:** The workflow currently does not support reading the database dump file from tape devices.

**Note:** This workflow does not support dump file password encryption for **cross-platform** database refresh (for example: the database dump file was created on a Linux server, and you are loading it onto a Solaris server).

### Additional Considerations



It is good practice to run basic database consistency checks (DBCCs) on the source database before running this workflow. You can do this by creating a simple workflow that includes the Run Sybase DBCC Checks step included in this solution pack.

If database transactions occur on the source database after the dump file is created, you should apply the latest transaction log dump to the destination database after you run the ["Load Sybase Database Dump"](#) workflow. Otherwise, these transactions will be missing from the destination database.

For information about prerequisites for Sybase ASE, refer to the [Sybase ASE Product Documentation](#).

## How this Workflow Works

This topic contains the following information about the ["Load Sybase Database Dump"](#) workflow:

**Caution:** You cannot refresh the target database (load the database dump) if there are dependencies between the target database and another database in the same or a different Sybase ASE instance. You must remove or disable object referencing (for example: triggers, views, stored procedures, etc.) before you run this workflow.

### Validation Checks Performed

The workflow checks the following things prior to refreshing the database. If any of these checks fails, the workflow fails.

1. All required parameters have values. If any required parameter does not have a value—either a value that you specify or a default value—the workflow fails in the Sybase - Validate Database Refresh Settings step.
2. The Sybase ASE software is installed.
3. The target database and the Backup Server are running and able to communicate with each other.
4. The dump file server page size matches the target database server page size.
5. The Sybase ASE version in the database dump file header is compatible with the target Sybase ASE instance version. The following versions are compatible:

Dump File Version	Target Instance Version
Sybase ASE15.0.3 or 15.5	Sybase ASE15.0.3 or 15.5
Sybase ASE12.5.4	Sybase ASE15.0.3

6. The target database exists.
7. The size of the target database is sufficient to load the database dump file.

The workflow then determines whether the target database server is currently in use by Sybase ASE users. If the database is in use, the workflow creates a backup of the target database users and groups in `tempdb` before it refreshes the database. It restores the users after the database is refreshed.

### Steps Executed

The ["Load Sybase Database Dump"](#) workflow includes the following steps. Each step must complete successfully before the next step can start. If a step fails, the workflow reports a failure, and all subsequent steps are skipped.

## Process Flow

This workflow performs the following tasks:

1. Creates the Instance Wrapper and Server Wrapper.
2. Verifies that the HPE DMAserver is able to communicate with the server where the workflow is running.
3. Performs the pre-refresh [validation checks](#) described above.
4. Reads the header of the database dump file, and validates that the sourceSybase ASE page size matches the target Sybase ASE page size. The workflow fails if the page sizes do not match.
5. Backs up any existing database users and groups.
6. Determines whether the source (the database dump file) and target servers have different byte architectures (big-endian versus little-endian).
7. Enables the database level “dbo use only” option to ensure that no users except the database owner are accessing the destination database.
8. Loads the database dump file on the target database server, and refreshes the destination database.
9. Brings the destination database online and performs the post-refresh checks.
10. Rebuild the indexes using theSybase ASE recommended `sp_post_xpload` system stored procedure.
11. Runs the specified database consistency checker (DBCC) checks to ensure that no database tables or objects have become corrupted. The output of these checks is printed in the step log and stored in files under the specified directory.
12. Builds the specified cache (if specified), and binds the database object to either the default data cache or the specified cache.

## Tips and Best Practices

It is good practice to run basic database consistency checks (DBCCs) on the source database before you create the dump file (or files) to ensure that there are no internal errors in the database. You can do this by creating a simple workflow that includes the Run Sybase DBCC Checks step included in this solution pack.

If you find errors in the source database, be sure to fix them before you create the dump file. The workflow does not have the ability to diagnose or remediate problems in the database.

## Sample Scenarios

This topic shows you how to use various parameters to achieve the following database refresh scenarios in your environment using the "[Load Sybase Database Dump](#)" workflow:

### Scenario 1: Database Dump File is Not Encrypted or Striped

This is the simplest Sybase ASE database refresh scenario. It does not matter whether the database dump file is compressed – if decompression is required, it is handled automatically by the workflow prior to the refresh.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.

Be sure that the default values for all remaining parameters are appropriate for your environment (see "[Parameters for Load Sybase Database Dump](#)" on page 50).

**Scenario 2: Database Dump File is Encrypted**

This scenario requires you to specify the encryption password for the database dump file. It does not matter whether the database dump file is compressed – if decompression is required, it is handled automatically by the workflow prior to the refresh.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Password	MyPassword1@#	Password required to decrypt a password-protected encrypted database dump file (required if the dump file is encrypted).  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).

Be sure that the default values for all remaining parameters are appropriate for your environment (see ["Parameters for Load Sybase Database Dump" on page 50](#)).

**Scenario 3: Database Dump File is Striped**

In this scenario, the database dump file has been striped across multiple files. You must specify all the individual stripe files in the Dump File List parameter (separate them with commas).

If the stripe files are encrypted, you must specify the Dump File Password parameter.

It does not matter whether the database dump file is compressed – if decompression is required, it is handled automatically by the workflow prior to the refresh.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb1.dmp, /var/tmp/mytestdb2.dmp, /var/tmp/mytestdb3.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Password	MyPassword1@#	Password required to decrypt a password-protected encrypted database dump file (required if the dump file is encrypted).  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).

Be sure that the default values for all remaining parameters are appropriate for your environment (see ["Parameters for Load Sybase Database Dump" on page 50](#)).

#### Scenario 4: Using a Cache Dump File

In this scenario, the database dump file has an associated cache dump file. You must specify the name of the cache dump file by using the Cache Dump File parameter. The workflow will rebuild and bind the cache after the database dump file is loaded into the target database.

If the database dump file is encrypted, you must specify the Dump File Password parameter.

If the cache dump file is encrypted, you must specify the Cache Dump File Password parameter.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Password	MyPassword1@#	Password required to decrypt a password-protected encrypted database dump file (required if the dump file is encrypted).  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).
Cache Dump File	<code>/var/tmp/runcache_mytestdb.txt</code>	Database cache file associated with this database dump. This is a single filename (with absolute path—the path and file must exist). The file contains detailed information about any specific (non-default) data caches used by the source database and any database objects bound to those caches.

Be sure that the default values for all remaining parameters are appropriate for your environment (see ["Parameters for Load Sybase Database Dump" on page 50](#)).

## How to Run this Workflow

This topic explains how to customize and run the "Load Sybase Database Dump" workflow in your environment.

**Note:** Prior to running this workflow, review the "Prerequisites for this Workflow", and ensure that all requirements are satisfied.

### To customize and run the Load Sybase Database Dump workflow:

1. Create a deployable copy of the workflow.
2. Determine the values that you will specify for the following parameters. This is the minimum set of parameters required to run this workflow.

Parameter Name	Default Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	/var/tmp/dump.dmp	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Password	no default	Password required to decrypt a password-protected encrypted database dump file (required if the dump file is encrypted).  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).

**Note:** This is the minimum set of parameters required to run this workflow. You may need to expose additional parameters depending on your objectives.

See "Parameters for Load Sybase Database Dump" on page 50 for detailed descriptions of all input parameters for this workflow, including default values.

To avoid having to re-enter passwords whenever they change, you can create a policy to provide them to the workflow.

3. a. In the workflow editor, expose any additional parameters that you need (see How to Expose Additional Workflow Parameters on page 70). You will specify values for those parameters when



- you create the deployment.
- b. Save the changes to the workflow (click Save in the lower right corner).
  - c. Create a new deployment.
  - d. On the Parameters tab, specify values for the required parameters listed in step 2 and any additional parameters that you have exposed. You do not need to specify values for those parameters whose default values are appropriate for your environment.
  - e. On the Targets tab, specify one or more targets for this deployment.
  - f. Save the deployment (click Save in the lower right corner).
  - g. Run the workflow using this deployment.
4. The workflow will complete and report "Success" on the Console if it has run successfully. If an invalid parameter value is specified, an error is logged, and the workflow terminates in the "Failure" state.

## Parameters for Load Sybase Database Dump

The following tables describe the required and optional input parameters for this workflow. Most of these parameters are not initially visible in a deployment. For most parameters, if you do not specify a value for a parameter, a default value is assigned in the following steps:

- Gather Parameters for Sybase Dump or Load
- Gather Advanced Parameters for Sybase Database Load

### Input Parameters for the Load Sybase Database Dump Workflow

Parameter Name	Default Value	Required	Description
ASE SysAdmin Password	password	required	Password for the Sybase ASE user specified in the ASE SysAdmin Username parameter.
ASE SysAdmin Username	sa	required	The Sybase ASE user who can perform all administrative operations (typically sa).  This user will perform the database load operation.
Cache Dump File	no default	optional	Database cache file associated with this database dump. This is a single filename (with absolute path—the path and file must exist). The file contains detailed information about any specific (non-default) data caches used by the source database and any database objects bound to those caches.
Call Wrapper	jython	required	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
DBCC Checks	checkdb, checkalloc, checkcatalog	optional	List of database consistency checker (DBCC) checks that you want to run to ensure that there are no problems with the database after the dump file is loaded.
DBCC Error Directory	/var/tmp	optional	The directory (with absolute path) where you want to store the DBCC results (output files) for post-load checks. This directory must exist.
Database Instance Name	NY_DS	required	The name of the Sybase ASE instance where the database will be loaded from the dump file (or files).
Dump Device Name	n/a	n/a	Not used in this release.

## Input Parameters for the Load Sybase Database Dump Workflow, continued

Parameter Name	Default Value	Required	Description
Dump File List	/var/tmp/dump.dmp	required	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Password	no default	optional	<p>Password required to decrypt a password-protected encrypted database dump file (required if the dump file is encrypted).</p> <p><b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).</p>
Dump File Path	n/a	n/a	Not used in this release.
Local Backup Instance Name	n/a	n/a	Not used in this release.
Local Backup Instance Port	n/a	n/a	Not used in this release.
Remote Backup Instance Name	n/a	n/a	Not used in this release.
Remote Backup Instance Port	n/a	n/a	Not used in this release.
Sybase ASE Home Directory	/home/sybase/ASE_15	required	Sybase ASE installation home directory, where the destination database resides. Sybase ASE will examine the interface file that exists in this directory to determine where to load the specified database dump file (or files).
Sybase OS User Name	sybase	required	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Target Database Instance Name	NY_DS	required	Name of the Sybase ASE instance where the dump file (or files) will be loaded.

## Input Parameters for the Load Sybase Database Dump Workflow, continued

<b>Parameter Name</b>	<b>Default Value</b>	<b>Required</b>	<b>Description</b>
Target Database Name	mytestdb	required	Name of the database where the dump file (or files) will be loaded.
Target Database Page Size	4 KB	optional	Page size of the target database server (in kilobytes).

# Dump And Load Sybase Database

This workflow enables you to dump the contents of a Sybase ASE database (the [source](#)) into a file (the database dump file) and load the contents of that file into an existing Sybase ASE database (the [destination](#)).

The workflow performs extensive validation checks prior to and immediately after the dump operation at the source to ensure that the dump file is valid. It also performs validation checks prior to and immediately after the load operation at the destination to ensure that the data was successfully loaded.

This workflow can perform a cross-platform database refresh (dump and load) when necessary. After it performs a cross-platform load operation, the workflow rebuilds the indexes (clustered or non-clustered indexes on APL/DOL tables) to avoid page linkage or index corruption issues. Password protected dump cannot be supported for cross platform dump and load.

If any source database objects are bound to a specific (non-default) cache, the workflow will create a cache dump file—provided that you specify a valid value for the Cache Dump File parameter. The cache dump file contains details about the specific caches used by the source database and any objects that are bound to each cache. This file is in data-readable format. The workflow uses the cache dump file to refresh the destination database cache (provided that ample cache space is available). The workflow cannot, however, configure or enable cache buffering.

This workflow can create and load database dump files that are striped, compressed (at any level 1-9), encrypted, or any combination thereof.

To use this workflow in your environment, see the following information:

Topic	Information Included
<a href="#">"Prerequisites for this Workflow"</a>	List of prerequisites that must be satisfied before you can run this workflow
<a href="#">"How this Workflow Works"</a>	Information about what the workflow does, including validation checks performed, steps executed, and a high-level process flow
<a href="#">"How to Run this Workflow"</a>	Instructions for running this workflow in your environment
<a href="#">"Sample Scenarios"</a>	Examples of typical parameter values for this workflow
<a href="#">"Parameters for Dump and Load Sybase Database"</a>	List of input parameters for this workflow

The process of deploying and running this workflow is the same for all scenarios, but the parameters required will differ depending on the specific scenario that you are implementing.

The workflow provides default values for most parameters. These default values are usually sufficient for a "typical" database refresh. You can override the defaults by specifying parameter values in the deployment. You can also expose additional parameters in the workflow, if necessary, to accomplish more advanced scenarios.

Any parameters not explicitly specified in the deployment will have the default values listed in ["Parameters for Dump and Load Sybase Database" on page 64](#).

**Note:** To view detailed information about the steps included in this workflow, see [Steps in this Workflow](#).

## Prerequisites for this Workflow

**Caution:** You cannot perform a database dump if there are dependencies between the source database and another database in the same or a different Sybase ASE instance. You must remove or disable object referencing (for example: triggers, views, stored procedures, etc.) before you run this workflow.

The following prerequisites must be satisfied before you can run the Dump and Load Sybase Database workflow:

1. The **source** and **destination** databases must exist before the workflow runs.
2. The source and destination databases must NOT be mounted on the master device.
3. The source and destination database servers must use the same page size.
4. No database users may be logged in to the destination database server when this workflow runs.
5. The source Adaptive Server instance that executes the `dump` command and the local source Backup Server instance must both be running, and they must be able to communicate with each other.
6. The destination Adaptive Server instance that executes the `load` command and the local destination Backup Server instance must both be running, and they must be able to communicate with each other.
7. The master database system table (`sys.servers`) for both source and destination must contain an entry that assigns the local Backup Server instance to `SYB_BACKUP`.
8. By default, the workflow will create the database dump file with the following file name format:

`dump_file_path/databasename_datetime.dmp`

For example: `/var/tmp/mytestdb_2012111283762.dmp`

9. If you specify a non-default file name (or names) in the Dump File List parameter, the path to each specified file must exist.

You must specify an operating system file in the Dump File List parameter (for example: `/var/tmp/mydbdump.dmp`). You cannot specify a dump device.

The database dump file must be accessible from the server where the workflow is executed. The file must be available on the local machine or via a Network File System (NFS) mount.

The workflows currently do not support writing or reading the database dump file from tape devices.

10. Adequate disk space must be available on the shared NFS location where the dump file will be stored.
11. On Linux and Solaris platforms, the `sudo` package must be installed on the target servers.
12. The workflow assumes the following for both the source and destination:
  - The Adaptive Server component is installed under `/home/Sybase/ASE_15`
  - The Adaptive Server instance name is `NY_DS`
  - The database name is `mytestdb`
  - The database dump file is stored in the `/var/tmp` directory
  - `/var/tmp` is an NFS mount point.
  - The Sybase ASE user specified in the ASE SysAdmin Username parameter is permitted to access the `/var/tmp` directory.

- The user specified in the Sybase OS User Name parameter (sybase by default) must own the installation directory and be a member of the “sybase” group.

**Note:** The workflow currently does not support reading the database dump file from tape devices.

**Note:** This workflow does not support dump file password encryption for [cross-platform](#) database refresh (for example: the database dump file was created on a Linux server, and you are loading it onto a Solaris server).

### Additional Considerations

It is good practice to run basic database consistency checks (DBCCs) on the source database before running this workflow. You can do this by creating a simple workflow that includes the Run Sybase DBCC Checks step included in this solution pack.

If database transactions occur on the source database after the dump file is created, you should apply the latest transaction log dump to the destination database after you run the "[Load Sybase Database Dump](#)" workflow. Otherwise, these transactions will be missing from the destination database.

For information about prerequisites for Sybase ASE, refer to the [Sybase ASE Product Documentation](#).

## How this Workflow Works

This topic contains the following information about the ["Dump And Load Sybase Database"](#) workflow:

**Caution:** You cannot perform a database dump if there are dependencies between the source database and another database in the same or a different Sybase ASE instance. You must remove or disable object referencing (for example: triggers, views, stored procedures, etc.) before you run this workflow.

### Validation Checks Performed

The workflow checks the following things prior to refreshing the database. If any of these checks fails, the workflow fails.

1. All required parameters have values. If any required parameter does not have a value—either a value that you specify or a default value—the workflow fails in the Sybase - Validate Database Dump Settings step.
2. The Sybase ASE software is installed.
3. The source database exists in the specified Sybase ASE instance and is online.
4. The source Adaptive Server and Backup Server components are running and able to communicate with each other so that they can perform the database dump.
5. Adequate disk space is available to store the database dump file.
6. The destination database exists in the specified Sybase ASE instance and is online.
7. The destination Adaptive Server and Backup Server components are running and able to communicate with each other.
8. The destination database server page size matches the source database server page size.
9. The Sybase ASE version of the source database is compatible with that of the destination database. The following versions are compatible:

Dump File Version	Target Instance Version
Sybase ASE15.0.3 or 15.5	Sybase ASE15.0.3 or 15.5
Sybase ASE12.5.4	Sybase ASE15.0.3

10. The size of the destination database is sufficient to load the database dump file created from the source database.

The workflow then determines whether the destination database is currently in use by Sybase ASE users. If the database is in use, the workflow creates a backup of the destination database users and groups in tempdb before it loads the contents of the dump file. It restores the users after the database is refreshed.

### Steps Executed

The ["Dump And Load Sybase Database"](#) workflow includes the following steps. Each step must complete successfully before the next step can start. If a step fails, the workflow reports a failure, and all subsequent steps are skipped.



## Process Flow

This workflow performs the following tasks:

1. Creates the Instance Wrapper and Server Wrapper.
2. Verifies that the HPE DMA server is able to communicate with the server where the workflow is running.
3. Performs the pre-dump [validation checks](#) described above.
4. Generates the cache descriptor file for the source database. This is used to replicate the cache objects on the destination server.
5. Performs the database `dump` operation to create the database dump file.
6. Performs post-dump validation checks to ensure that all required parameters had valid values.
7. Reads the header of the database dump file, and validates that the source Sybase ASE page size matches the target Sybase ASE page size. The workflow fails if the page sizes do not match.
8. Backs up any existing database users and groups.
9. Determines whether the source and destination database servers have different byte architectures (big-endian versus little-endian).
10. Enables the database level “`dbo use only`” option to ensure that no users except the database owner are accessing the destination database.
11. Loads the database dump file on the destination database server, and refreshes the destination database.
12. Brings the destination database online and performs the post-refresh checks.
13. Rebuild the indexes using the Sybase ASE recommended `sp_post_xpload` system stored procedure.
14. Runs the specified database consistency checker (DBCC) checks to ensure that no database tables or objects have become corrupted. The output of these checks is printed in the step log and stored in files under the specified directory.
15. Builds the specified cache (if specified), and binds the database object to either the default data cache or the specified cache.

## Tips and Best Practices

It is good practice to run basic database consistency checks (DBCCs) on the source database before running this workflow to ensure that there are no internal errors in the database. You can do this by creating a simple workflow that includes the Run Sybase DBCC Checks step included in this solution pack.

If you find errors in the source database, be sure to fix them before running this workflow. The workflow does not have the ability to diagnose or remediate problems in the database prior to performing the database dump.

## Sample Scenarios

This topic shows you how to use various parameters to achieve the following database refresh scenarios in your environment using the "[Dump And Load Sybase Database](#)" workflow:

### Scenario 1: Perform a Database Refresh Using a Dump File is Not Encrypted or Striped

This is the simplest Sybase ASE database refresh scenario.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.

Be sure that the default values for all remaining parameters are appropriate for your environment (see Parameters for Load Sybase Database Dump).

**Scenario 2: Perform a Database Refresh Using a Dump File that is Compressed and Encrypted**

This scenario requires you to specify the encryption password and compression level for the database dump file.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Compression Level	8	Compression level (1-9) to apply to the dump file (or files) that will be created.
Dump File Password	MyPassword1@#	Password required to encrypt and decrypt the database dump file.  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).

Be sure that the default values for all remaining parameters are appropriate for your environment (see Parameters for Load Sybase Database Dump).

**Scenario 3: Perform a Database Refresh Using a Dump File that is Striped**

In this scenario, the database dump file will be striped across multiple files. You must specify all the individual stripe files in the Dump File List parameter (separate them with commas). If the stripe files are encrypted, you must also specify the Dump File Password parameter.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb1.dmp, /var/tmp/mytestdb2.dmp, /var/tmp/mytestdb3.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Password	MyPassword1@#	Password required to encrypt and decrypt the database dump file.  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).

Be sure that the default values for all remaining parameters are appropriate for your environment (see Parameters for Load Sybase Database Dump).

#### Scenario 4: Perform a Database Refresh Using a Cache Dump File

In this scenario, the database dump file has an associated cache dump file. You must specify the name of the cache dump file by using the Cache File parameter. The workflow will rebuild and bind the cache after the database dump file is loaded into the target database.

If the database dump file is encrypted, you must specify the Dump File Password parameter.

If the cache dump file is encrypted, you must specify the Cache Dump File Password parameter.

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Dump File List	<code>/var/tmp/mytestdb.dmp</code>	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Password	MyPassword1@#	Password required to encrypt and decrypt the database dump file.  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).
Cache File	<code>/var/tmp/runcache_mytestdb.txt</code>	Database cache file associated with this database dump. This is a single filename (with absolute path—path must exist). The file contains detailed information about any specific (non-default) data caches used by the source database and any database objects bound to those caches.

Be sure that the default values for all remaining parameters are appropriate for your environment (see Parameters for Load Sybase Database Dump).

## How to Run this Workflow

This topic explains how to customize and run the ["Dump And Load Sybase Database"](#) workflow in your environment.

**Note:** Prior to running this workflow, review the ["Prerequisites for this Workflow"](#), and ensure that all requirements are satisfied.

### To customize and run the Dump and Load Sybase Database workflow:

1. Create a deployable copy of the workflow.
2. Determine the values that you will specify for the following parameters. This is the minimum set of parameters required to run this workflow.

Parameter Name	Default Value	Description
Call Wrapper	jython	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
Sybase OS User Name	sybase	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Cache File	no default	Database cache file associated with this database dump. This is a single filename (with absolute path—path must exist). The file contains detailed information about any specific (non-default) data caches used by the source database and any database objects bound to those caches.
Dump File Compression Level	7	Compression level (1-9) to apply to the dump file (or files) that will be created.
Dump File Password	no default	Password required to encrypt and decrypt the database dump file.  <b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).
Sybase ASE Home Directory	/home/sybase/ASE_15	Sybase ASE installation home directory, where the destination database resides. Sybase ASE will examine the interface file that exists in this directory to determine where to load the specified database dump file (or files).  If the Sybase ASE installation home directory is the same on

Parameter Name	Default Value	Description
		the source and the destination servers, you do not need to specify this parameter. The default is assumed for the source—if you want to specify a different home directory for the source, you will need to expose the Sybase ASE Home Directory parameter in the Gather Advanced Parameters for Sybase Database Dump step (see step 3).

**Note:** This is the minimum set of parameters required to run this workflow. You may need to expose additional parameters depending on your objectives.

See "[Parameters for Load Sybase Database Dump](#)" on page 50 for detailed descriptions of all input parameters for this workflow, including default values.

3. In the workflow editor, expose any additional parameters that you need. You will specify values for these parameters when you create the deployment.
4. Save the changes to the workflow (click **Save** in the lower right corner).
5. Create a new deployment.
  - a. On the Targets tab, select all the target servers—both source and destination—that will participate in this database refresh. The targets that you select here will be available in the Target Parameters drop-down menus on the Run page (see [step 7](#)).
  - b. On the Parameters tab, specify values for the required parameters listed in [step 2](#) and any additional parameters that you exposed in [step 3](#). You do not need to specify values for those parameters whose default values are appropriate for your environment.
6. Save the deployment (click **Save** in the lower right corner).
7. Run the workflow using this deployment.

On the Run page, select the following targets from the respective drop-down menus:

Parameter Name	Default	Description
Source Instance	no default	The Adaptive Server instance where the dump file will be created. You specify this when you run the workflow.  <b>Note:</b> The Source Instance that you specify at run time must match the Source Database Instance Name that you specify in the deployment.
Target Instance	no default	The Adaptive Server instance where the destination database will be loaded from the dump file (or files). You specify this when you run the workflow.  <b>Note:</b> The Target Instance that you specify at run time must match the Target Database Instance Name that you specify in the deployment.

The workflow will complete and report “Success” on the Console if it has run successfully. If an invalid parameter value is specified, an error is logged, and the workflow terminates in the “Failure” state.

## Parameters for Dump and Load Sybase Database

The following tables describe the required and optional input parameters for this workflow. Most of these parameters are not initially visible in a deployment. For most parameters, if you do not specify a value for a parameter, a default value is assigned in the following steps:

- Gather Parameters for Sybase Dump or Load
- Gather Advanced Parameters for Sybase Database Dump

### Input Parameters for the Dump Sybase Database Workflow

Parameter Name	Default Value	Required	Description
ASE SysAdmin Password	password	required	Password for the Sybase ASE user specified in the ASE SysAdmin Username parameter.
ASE SysAdmin Username	sa	required	The Sybase ASE user who can perform all administrative operations (typically sa).  This user will perform the database dump and load operations.
Cache Dump File	no default	optional	Database cache file associated with this database dump. This is a single filename (with absolute path—path must exist). The file contains detailed information about any specific (non-default) data caches used by the source database and any database objects bound to those caches.
Call Wrapper	jython	required	Command that will be used to construct the call wrapper. The workflow uses the call wrapper to execute subsequent steps as either the OS administrative user (for example: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> ) or the owner of the Sybase ASE installation (for example: <code>sudo su - sybase /opt/hp/dma/client/bin/jython.sh</code> ).
DBCC Checks	checkdb, checkalloc, checkcatalog	optional	List of database consistency checker (DBCC) checks that you want to run to ensure that there are no problems with the database after the dump file is loaded.
DBCC Error Directory	/var/tmp	optional	The directory (with absolute path) where you want to store the DBCC results (output files) for post-load checks. This directory must exist.
Dump Device Name	n/a	n/a	Not used in this release.
Dump File Compression	7	optional	Compression level (1-9) to apply to the dump file (or files) that will be created.



## Input Parameters for the Dump Sybase Database Workflow, continued

Parameter Name	Default Value	Required	Description
Level			
Dump File List	<p><code>/var/tmp/&lt;dbname&gt;_&lt;datetime&gt;.dmp</code></p> <p>For example:  <code>/var/tmp/mytestdb_2012111283762.dmp</code></p> <p>If you specify a non-default file name (or names) in the Dump File List parameter, the path to each specified file must exist.</p>	required	Comma-separated list of database dump files (with absolute paths—all specified paths must exist). For a single dump file, no comma is necessary.
Dump File Password	no default	optional	<p>Password required to encrypt and decrypt the database dump file.</p> <p><b>Note:</b> You cannot use an encrypted dump file to perform a cross-platform refresh when an architectural endian difference exists (for example: create dump on Linux, load dump on Solaris).</p>
Dump File Path	n/a	n/a	Not used in this release.
Local Backup Instance Name	n/a	n/a	Not used in this release.
Local Backup Instance Port	n/a	n/a	Not used in this release.
Remote Backup Instance Name	n/a	n/a	Not used in this release.
Remote Backup Instance Port	n/a	n/a	Not used in this release.
Role	no default	required	Not used in this release.

## Input Parameters for the Dump Sybase Database Workflow, continued

Parameter Name	Default Value	Required	Description
Password SQL Statement			
Source Database Instance Name	NY_DS	required	Name of the Adaptive Server instance where the dump file (or files) will be created. You specify the value of this parameter in the deployment.  <b>Note:</b> The Source Instance that you specify at run time must match the Source Database Instance Name that you specify in the deployment.
Source Database Name	mytestdb	required	Name of database from which the dump file (or files) will be created.
Source Instance	no default	required	The Adaptive Server instance where the dump file will be created. You specify this when you run the workflow.  <b>Note:</b> The Source Instance that you specify at run time must match the Source Database Instance Name that you specify in the deployment.
Sybase ASE Home Directory	/home/sybase/ASE_15	required	Sybase ASE installation home directory, where the source and destination databases each reside. Sybase ASE will examine the interface file that exists in this directory to determine where to first create and then load the specified database dump file (or files).
Sybase OS User Name	sybase	required	OS user (typically, sybase) who owns the Sybase ASE installation directory.
Target Database Instance Name	NY_DS	required	Name of the Adaptive Server instance where the destination database will be loaded from the dump file (or files). You specify the value of this parameter in the deployment.  <b>Note:</b> The Target Instance that you specify at run time must match the Target Database Instance Name that you specify in the deployment.
Target Database Name	mytestdb	required	Name of the database where the dump file (or files) will be loaded.

## Input Parameters for the Dump Sybase Database Workflow, continued

Parameter Name	Default Value	Required	Description
Target Instance	no default	required	<p>The Adaptive Server instance where the destination database will be loaded from the dump file (or files). You specify this when you run the workflow.</p> <p><b>Note:</b> The Target Instance that you specify at run time must match the Target Database Instance Name that you specify in the deployment.</p>

## Provision Database

This section describes how to use Database and Middleware Automation (HPE DMA) to create a repeatable, standardized “gold image” for provisioning SAP Sybase Adaptive Server Enterprise (ASE) version 15.0.3 or 15.5.

## Prerequisites

Before performing the procedures in this section, your environment must meet the following minimum requirements:

- A server running one of the following operating systems:
  - Red Hat Enterprise Linux
  - SUSE Linux Enterprise
  - Solaris (SPARC)
  - AIX

**Tip:** See the *HPE DMA Support Matrix* for supported operating system versions.

See the Sybase Release Bulletin to verify that the operating system platform is certified for the Sybase version.

- Sufficient disk space on the target servers.
- The user specified for Sybase OS User Name must be a member of the group specified for Default Group.
- Sybase license: You must acquire and activate a valid Sybase license within 30 days of installation. You can either specify the license information by providing values for the pertinent optional parameters, or you can use the SySAM utility to manually activate your license later.
- HPE DMA license
- The Provision Sybase ASE 15 Server workflow must have the unchallenged ability to become the following:
  - OS administrator user (typically “root” on UNIX systems)
  - Sybase database user (typically “sybase”)
  - Sybase administrator user (typically “sa”)

- The Provision Sybase ASE 15 Server workflow must have access to the ASE installation binaries, either on a network drive or on a DVD (which must be in the DVD drive).
- The infrastructure required for provisioning is in place.
- Shared memory is properly configured.
- The target servers must have the `gunzip` and `tar` utilities in the `$PATH`.
- On Linux or Solaris platforms, the `sudo` package must be installed on the target servers.
- The Configure Sybase ASE 15 Server workflow must have the specified Sybase instance available.
- The Configure Sybase ASE 15 Server workflow must have the Backup Server component associated with this Adaptive Server is running, and the two components can communicate with each other.

**Note:** For complete installation requirements for SAP Sybase , see:  
[sybooks.sybase.com/sybooks/sybooks.xhtml](http://sybooks.sybase.com/sybooks/sybooks.xhtml)

## Process Overview

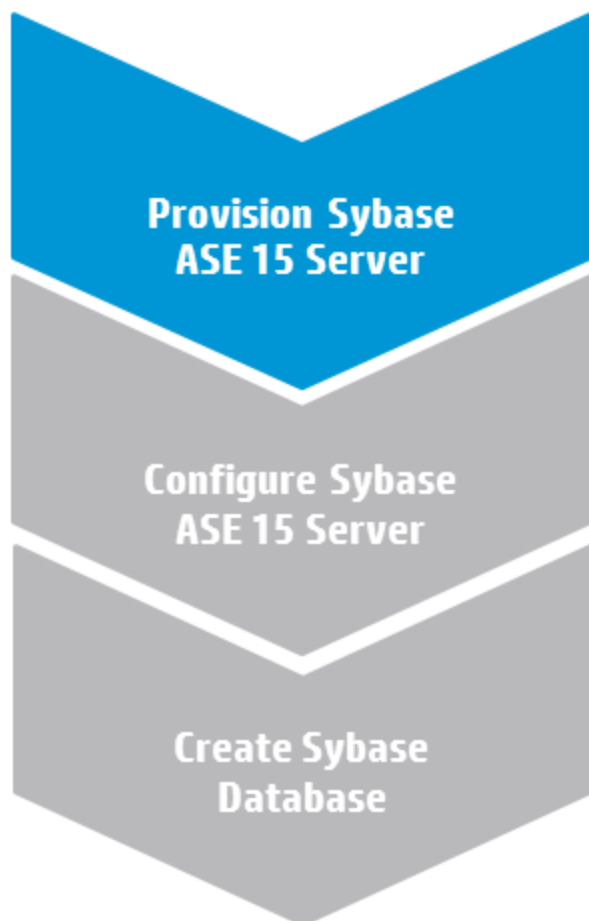
Use the following HPE DMA workflows to standardize the process of provisioning Sybase—installing the software, configuring the instance, and creating the database:

**Tip:** After running the Provision Sybase ASE 15 Server workflow you should register your Sybase software. You can do this manually or by running the Register Sybase SySAM License workflow.

The following section provides detailed information required to run the workflow.

The following sections provide detailed information required to run each workflow.

## Workflow 1: Provision Sybase ASE 15 Server



This section provides detailed information required to run the Provision Sybase ASE 15 Server workflow.

### Solution pack

This workflow requires the Database Provisioning Solution Pack.

### Parameters to expose

None

### Input parameters

When you deploy the Provision Sybase ASE 15 Server workflow, specify input parameter values for the following steps.

**Note:** Bold text in the following tables indicates that you must specify a value for the parameter.

**Note:** HPE DMA uses the latest (highest version number) of steps.

## Step: Prepare Sybase Call Wrapper

Parameter	Description	Example Value
Call Wrapper	Required: Command that will execute the subsequent steps as the OS administrative user. Example for UNIX targets: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code>	jython
Sybase OS User Name	Required: The OS user who owns the Sybase ASE installation directory. This is the directory specified in the Sybase Install Directory parameter, where the Sybase ASE binaries will be extracted.	sybase

## Step: Validate Sybase ASE 15 Provisioning Parameters

Parameter	Description	Example Value
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## Step: Sybase - Advanced Parameters

Parameter	Description	Example Value
Backup Server Name	Required (if a response file not used): The Backup Server name. The backup server is responsible for performing backups (dumps) and restores (loads) on selected databases and transaction logs.  The default is based on the Sybase ASE version.	NY_DSMIN2_BS
Database Server Name	Required (if a response file not used): The Adaptive Server name. The Adaptive server component manages databases and users, records the location of data on disks, maps logical data descriptions to physical data storage, and manages data and procedure caches in memory.  The default is based on the Sybase ASE version.	NY_DSMIN2
File To Download	Required: File name of the compressed Sybase ASE installation binary.	ase155esd2_linuxx86-64.tgz

## Step: Sybase - Advanced Parameters, continued

Parameter	Description	Example Value
	<p>The default is based on the Sybase ASE version and the target operating system.</p> <p>For example: ase155esd2_linuxx86-64.tgz</p>	
Master Device	<p>Optional for file system installation, required for raw partition installation: For a file system installation, this is the file system location (absolute path) where the Sybase ASE master device will reside. If you do not specify this path, a default path will be used (\$SYBASE/\$SYBASE_ASE/data).</p> <p>For a raw partition installation, this is the name of the bound raw device where the Sybase ASE master device will be mounted. For example: /dev/raw/raw1 on Linux or /dev/rdisk/c0t10d0s0 on Solaris</p>	
Master Device Size	<p>Optional: Size (in MB) of the master device. Minimum recommended size is 240 MB. For a file system installation, the maximum amount of space initially allocated for the master device (can be increased later, if necessary). The default is the server page size. The default is 200.</p>	
Raw Device File	<p>Optional: The system raw device binding file (required to create databases on raw bound devices). This file maps raw partitions to character devices. The raw devices listed in this file must be created and started prior to running this workflow. This parameter value is populated automatically by HPE DMA.</p> <p>For example: /etc/sysconfig/rawdevices on Linux. The value should be empty for Solaris raw device provisioning.</p>	

## Step: Sybase - Advanced Parameters, continued

Parameter	Description	Example Value
Sybase ASE Version	Required: The version of Sybase ASE that you are installing (for example: 15.7, 15.5 or 15.0.3).	15.5
System Device	<p>Optional for file system installation, required for raw partition installation: For a file system installation, this is the file system location (absolute path) where the Sybase ASEsybssystemdb device will reside. If you do not specify this path, a default path based on the Sybase Install Directory will be used (\$SYBASE/data).</p> <p>For a raw partition installation, this is the name of the bound raw device where the Sybase ASEsybssystemdb device will be mounted. For example:  /dev/raw/raw2 on Linux,  /dev/rdisk/c0t10d0s1 on Solaris</p>	
System Device Size	<p>Optional for file system installation, required for raw partition installation: Maximum amount of space that will be initially allocated for the sybssystemdb device (in MB). It can be increased later, if necessary. The default is 50.</p> <p>For a raw partition installation, this must be less than or equal to the size of the raw partition. The device can be resized later, but the partition cannot be.</p> <p>Minimum recommended size: 5-24 MB (larger page sizes require more space).</p>	
System Proc Device	Optional for file system installation, required for raw partition installation: For a file system installation, this is the file system location (absolute path) where the Sybase ASEsysprocsdev device will reside. If you do not specify this path, a default path based on the Sybase Install Directory will be	



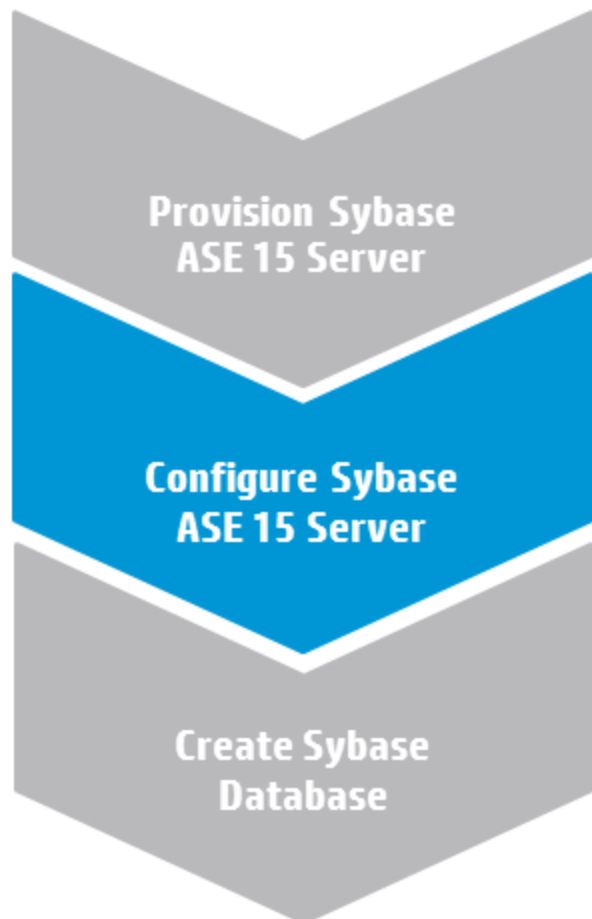
## Step: Sybase - Advanced Parameters, continued

Parameter	Description	Example Value
	<p>used (\$SYBASE/data).</p> <p>For a raw partition installation, this is the name of the bound raw device where the Sybase ASE<code>sysprocsdev</code> device will be mounted. For example:  <code>/dev/raw/raw3</code> on Linux or  <code>/dev/rdisk/c0t10d0s2</code> on Solaris</p>	
System Proc Device Size	<p>Optional for file system installation, required for raw partition installation: Maximum amount of space that will be initially allocated for the <code>sysprocsdev</code> device (in MB). It can be increased later, if necessary.</p> <p>If you do not provide a value for a file system installation 200 MB is used.</p> <p>For a raw partition installation, this must be less than or equal to the size of the raw partition. The device can be resized later, but the partition cannot be.</p> <p>Minimum recommended size: 140 MB</p>	
Temp DB Device	<p>Optional for file system installation, required for raw partition installation: For a file system installation, this is the file system location (absolute path) where the Sybase ASE<code>tempdbdev</code> device will reside (for example: <code>\$SYBASE/data</code>). If you do not specify this path, a default path based on the Sybase Install Directory will be used.</p> <p>For a raw partition installation, this is the name of the bound raw device where the Sybase ASE<code>sybtempdb</code> device will be mounted. For example:  <code>/dev/raw/raw4</code> on Linux or  <code>/dev/rdisk/c0t10d0s4</code> on Solaris</p>	

Step: Sybase - Advanced Parameters, continued

Parameter	Description	Example Value
Temp DB Device Size	<p>Optional for file system installation, required for raw partition installation: Maximum amount of space that will be initially allocated for the tempdbdev device (in MB). It can be increased later, if necessary. The default is 100.</p> <p>For a raw partition installation, this must be less than or equal to the size of the raw partition. The device can be resized later, but the partition cannot be.</p> <p>Minimum recommended size: 5 \u2013 24MB (larger page sizes require more space).</p>	

## Workflow 2: Configure Sybase ASE 15 Server



This section provides detailed information required to run the Configure Sybase ASE 15 Server workflow.

## Solution pack

This workflow requires the Database Provisioning Solution Pack.

## Parameters to expose

None

## Input parameters

When you deploy the Configure Sybase ASE 15 Server workflow, specify input parameter values for the following steps.

**Note:** Bold text in the following tables indicates that you must specify a value for the parameter.

**Note:** HPE DMA uses the latest (highest version number) of steps.

### Step: Prepare Sybase Call Wrapper

Parameter	Description	Example Value
Call Wrapper	Required: Command that will execute the subsequent steps as the OS administrative user. Example for UNIX targets: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code>	jython
Sybase OS User Name	Required: The OS user who owns the Sybase ASE installation directory. This is the directory specified in the Sybase Install Directory parameter, where the Sybase ASE binaries will be extracted.	sybase

### Step: Gather Sybase ASE 15 Server Configuration Parameters

Parameter	Description	Example Value
ASE SysAdmin Password	Required: Password for ASE SysAdmin Password.	●●●
ASE SysAdmin Username	Required: Sybase database username that will perform the restore.	sa
Database Instance Name	Required: The Sybase ASE	NY_DSMIN7

Step: Gather Sybase ASE 15 Server Configuration Parameters, continued

Parameter	Description	Example Value
	Database Instance Name.	
Sybase ASE Home Directory	Required: The Sybase ASE home directory.	/opt/sybase/ASE_15_5

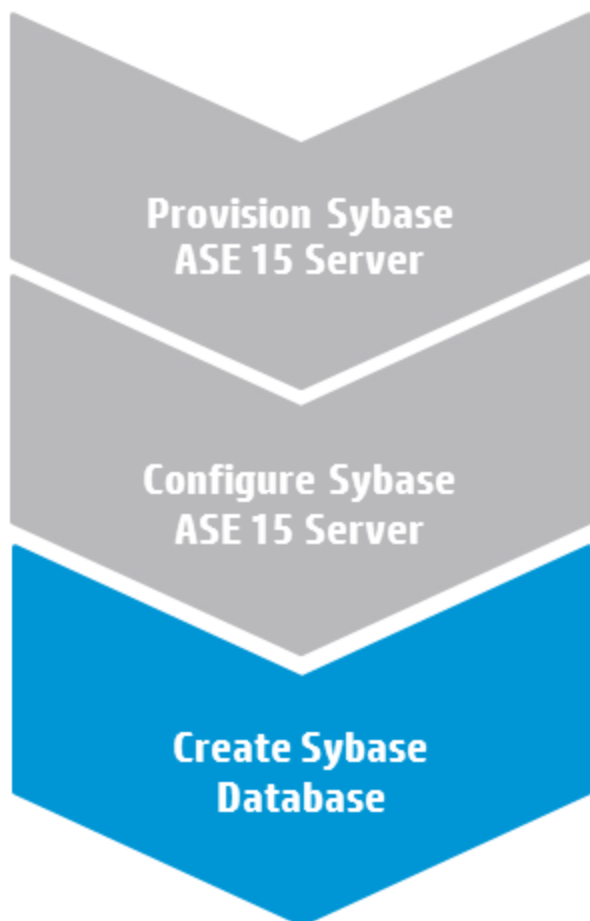
Step: Gather Advanced Sybase ASE 15 Server Configuration Parameters

Parameter	Description	Example Value
Configuration Type	Optional: The ASE Server Configuration type. Valid values: Production, Developer, Staging.  The default is: Production, Development, Staging	Production, Development, Staging  Development

Step: Startup Sybase Dataserver

Parameter	Description	Example Value
Sybase ASE Directory	Required: Main Sybase ASE directory - equivalent to \$SYBASE_ASE environment variable (i.e. ASE-15_0)	ASE-15_0

## Workflow 3: Create Sybase Database



This section provides detailed information required to run the Create Sybase Database workflow.

### Solution pack

This workflow requires the Database Provisioning Solution Pack.

### Parameters to expose

None

### Input parameters

When you deploy the Create Sybase Database workflow, specify input parameter values for the following steps.

**Note:** Bold text in the following tables indicates that you must specify a value for the parameter.

**Note:** HPE DMA uses the latest (highest version number) of steps.

## Step: Prepare Sybase Call Wrapper

Parameter	Description	Example Value
Call Wrapper	Required: Command that will execute the subsequent steps as the OS administrative user. Example for UNIX targets: <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code>	jython
Sybase OS User Name	Required: The OS user who owns the Sybase ASE installation directory. This is the directory specified in the Sybase Install Directory parameter, where the Sybase ASE binaries will be extracted.	sybase

## Step: Validate Sybase Create Database Parameters

Parameter	Description	Example Value
Create Devices	Required: Flag to determine whether to create devices. If False, devices will not be created. Valid values: True or False	True
Data Device Size	Required for file-based provisioning (filesystem device path), optional for raw devices: Size of Data Device file in megabytes. Partition cannot be shared with other Sybase ASE devices	100
Database Name	Required: Name of the new database.	mydbMIN2
Database Server Name	Required: Name of database server instance where you want to create the new database.	NY_DSMIN2 <i>Use the same value as the Database Server Name parameter for the Provision Sybase ASE 15 Server deployment.</i>
Database Size	Required: Size of the database (megabytes).	5
Disk Sync Flag	Required: Flag that determines whether the disk will be synchronized. If False, 'dsync = false' option is set on disk initializations. Disk writes will be	True

## Step: Validate Sybase Create Database Parameters, continued

Parameter	Description	Example Value
	buffered by OS. Valid values: True or False	
Log Device Size	Required for raw provisioning, optional for file provisioning: Size of log device (megabytes). Partition cannot be shared with other Sybase ASE	10
Logical Data Device Name	Required: The logical data device name that will refer to the physical data device name.	datadev
Logical Log Device Name	Required: The logical log device name that will refer to the physical log device name.	logdev
Physical Data Device Path	Required: If used for provisioning for raw devices, the character raw partition path. For example: /dev/raw/raw1  If used for file system provisioning, the file system device path. For example: /home/sybase/ASE_15/data/my_test_data.dat	/home/sybase/data/data_dev.dat
Physical Log Device Path	Required: If used for raw device provisioning, the character raw partition path. For example: /dev/raw/raw1  If used for file system provisioning, the file system device path. For example: \$SYBASE/\$SYBASE_ASE/data/mytesdevt.dat	/home/sybase/data/log_dev.dat
Sybase Home	Required: The Sybase ASE installation home directory where the database will be created.	/opt/sybase/ASE_15_5  <i>Use the same value as the Sybase ASE Home Directory parameter for the Configure Sybase ASE 15 Server deployment.</i>
Sybase User Name Sybase User Name	Required: The ASE database username for administrative operations. Usually 'sa'.	sa autotest  <i>Use the same value as the ASE SysAdmin Username parameter for the Configure Sybase ASE 15 Server deployment.</i>

## Step: Validate Sybase Create Database Parameters, continued

Parameter	Description	Example Value
Sybase User Password	Required: The password for Sybase User Name.	●●● <i>Use the same value as the ASE SysAdmin Password parameter for the Configure Sybase ASE 15 Server deployment.</i>
Temporary Database	Required: Flag to determine whether the database will be created using the temporary flag. Valid values: 'True' or 'False'	False



# Sybase Release Management

This workflow is designed to release **T-SQL** code for a Sybase Adaptive Server Enterprise (Sybase ASE) database. The workflow can be used to:

- Release **DDL/DML/DCL** T-SQL code.
- Update the database server level configuration.
- Update the database options.
- Restrict the user from executing prohibited commands or regular expressions in the code.

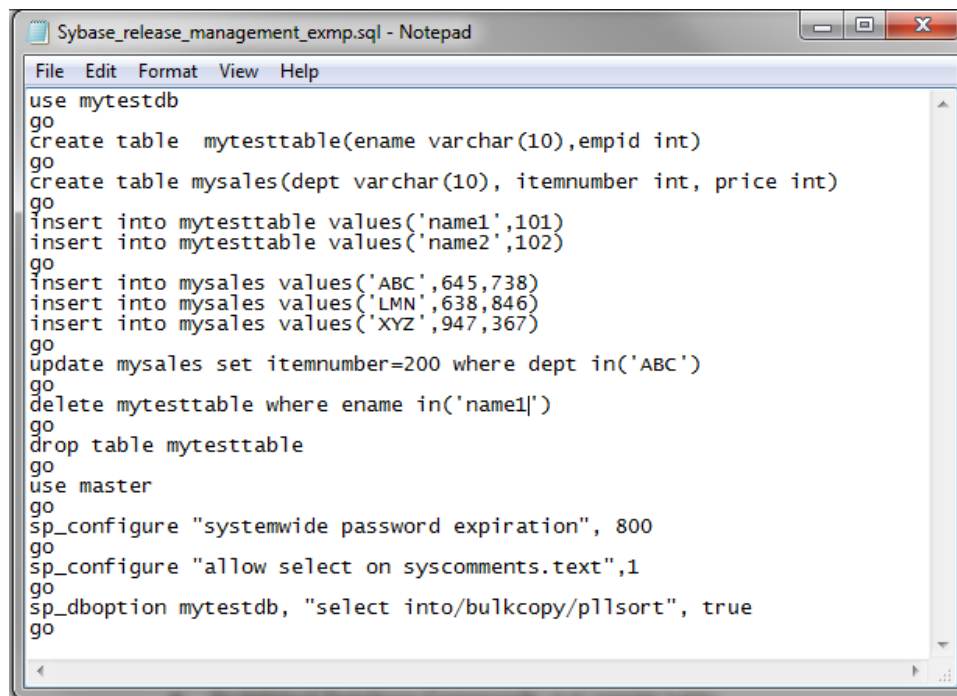
T-SQL scripts, Adaptive Server configuration parameters, and database options are deployed and executed against target Sybase ASE databases.

The workflow extensively checks the T-SQL scripts before executing and committing changes to the target database on the discovered ASE Server. It can match a regular expression and can prohibit restricted database commands (DDL/DML/DCL), server level configuration changes, and database level option settings. It also avoids executing any remote database commands such as creating proxy tables or proxy databases.

This workflow enables you to perform the following Sybase ASE database commands:

- DB DDL/DML/DCL—to run common Sybase ASE database queries
- `sp_dboption`—to control the database level configuration
- `sp_configure`—to control the server level configuration
- `regex`—to set exceptions to the regular expiration of permissions

Before running the Sybase Release Management workflow you need to create the SQL script file (or files), for example:



```

Sybase_release_management_exmp.sql - Notepad
File Edit Format View Help
use mytestdb
go
create table mytesttable(ename varchar(10),empid int)
go
create table mysales(dept varchar(10), itemnumber int, price int)
go
insert into mytesttable values('name1',101)
insert into mytesttable values('name2',102)
go
insert into mysales values('ABC',645,738)
insert into mysales values('LMN',638,846)
insert into mysales values('XYZ',947,367)
go
update mysales set itemnumber=200 where dept in('ABC')
go
delete mytesttable where ename in('name1')
go
drop table mytesttable
go
use master
go
sp_configure "systemwide password expiration", 800
go
sp_configure "allow select on syscomments.text",1
go
sp_dboption mytestdb, "select into/bulkcopy/p11sort", true
go

```

You can use the input parameters to customize the following:

- Provide prohibited database commands (DDL/DML/DCL commands).
- Override the prohibited configuration updates (`sp_configure` commands) with a list of approved updates.
- Override the prohibited database options (`sp_dboption` commands) with a list of approved options.
- Provide prohibited regular expressions.
- Check the syntax of the SQL queries.
- Show the query plan—without actually executing the SQL scripts.
- Estimate the time required to execute the SQL scripts—without actually executing.
- Show the logical and physical input and output counts that will be required to execute each query—without actually executing.
- If all the tests pass, deploy and execute the SQL scripts against the target Sybase ASE databases.

**Note:** This workflow does not provide any rollback capability.

To use this workflow in your environment, see the following information:

Topic	Information Included
<a href="#">"Prerequisites for this Workflow"</a>	List of prerequisites that must be satisfied before you can run this workflow
<a href="#">"How this Workflow Works"</a>	Information about what the workflow does, including validation checks performed, and steps executed
<a href="#">"How to Run this Workflow"</a>	Instructions for running this workflow in your environment
<a href="#">"Sample Scenarios"</a>	Examples of typical parameter values for this workflow
<a href="#">Parameters</a>	List of input parameters for this workflow

## Prerequisites for this Workflow

Be sure that the following prerequisites are satisfied before you run the ["Sybase Release Management"](#) workflow.

### Dependencies

- The latest HPE DMA solution packs require the latest HPE DMA platform. To use the latest solution packs, update the HPE DMA platform. HPE DMA 10.30 solution packs are supported on HPE DMA 10.40 (and later).
- You have installed the Database Release Management solution pack.
- You have installed the native isql (Interactive SQL parser to Adaptive Server) utility from OCS (Open Client Server) and made it accessible via the user/password settings stored in the metadata. Check the Environment page for those settings.
- The user specified in the Sybase User parameter has default database access to the target database when logged in to Sybase ASE.
- The target database instance and the databases within it have been discovered prior to running this workflow to gather the instance information from the metadata.
- You need an SSO (System Security Officer) or SA ( System Administrator) role to perform any server level or database level updates.
- The SQL script must reside in the software repository or on the target.

### Supported Versions of Sybase ASE

15.0.3, 15.5, 15.7 (tested)

15.0, 15.0.1, 15.0.2 (not tested)

### SQL Scripts

You need to create the SQL script file (or files) that manage the release. The files may contain the following Sybase ASE SQL commands:

- Supported DML, DDL, and DCL statements:

ALTER DATABASE	CREATE TABLE	REVOKE
ALTER ROLE	CREATE VIEW	SELECT
CHECKPOINT	DELETE	SELECT INTO
COMMIT	DISK INIT	SETUSER
CREATE CLUSTERED INDEX	DROP DATABASE	TRUNCATE
CREATE DATABASE	DROP INDEX	UPDATE
CREATE DEFAULTS	DROP SYNONYM	UPDATE ALL STATISTICS
CREATE NONCLUSTERED INDEX	DROP TABLE	UPDATE INDEX STATISTICS
CREATE ROLE	DROP VIEW	UPDATE STATISTICS
CREATE RULES	EXECUTE	UPDATE TABLE STATISTICS
CREATE SCHEMA	GRANT	
CREATE SYNONYM	INSERT	
	REORG REBUILD	

- All the Sybase system stored procedures, for example: `sp_helpdb`, `sp_helpindex`, `sp_help`
- All the global variable execution, for example: `select @@version`
- All the native Sybase system functions, for example: `select db_name()`
- All the Sybase supported dbcc commands, for example: `dbcc checkalloc`

**Tip:** List the SQL script files in the SQL scripts parameter in the order in which they need to be executed.

### Sybase Adaptive Server Enterprise Documentation

For more information about prerequisites for "[Sybase Release Management](#)", refer to the [Sybase Adaptive Server Enterprise Documentation](#).

## How this Workflow Works

The following information describes how the "Sybase Release Management" workflow works.

### Overview

The workflow starts by constructing commands that will be used in subsequent steps and by gathering and validating input parameters.

If the T-SQL scripts, server level configurations, and database option settings do not exist on the specified target location, they are stored and downloaded from the HPE DMA software repository.

Based on the parameters you set when you create your deployment, this workflow will do the following things:

- Scan the T-SQL code for prohibited database commands, prohibited configuration updates, prohibited database options, and regular expressions—if any are found, the workflow will exit with a failure code.
- Analyze the T-SQL code for remote server usage (database commands such as creating proxy tables or proxy databases)—if any are found, the workflow will exit with a failure code.
- Determine if there are syntax errors—if any problems are found, the query will not be executed, and the errors will be reported on the step log Error tab.
- Parse and verify that the server level configuration and database level options exist on the specified target database server and database respectively—if any are found, the workflow will exit with a failure code.
- Run the `isql` (Interactive SQL parser to Adaptive Server) utility to simulate the execution of the SQL script files—without running the actual T-SQL code. Based on your input parameters, show a query plan, show the statistics time, and/or show the statistics of logical/physical input and output. If you run this simulation, the workflow assumes that you want to review the reports so do not want to actually execute the SQL script files.
- Run the `isql` utility to deploy and execute the SQL script files against the target Sybase ASE databases—only if the run flag is set, no errors were found in the SQL scripts, and you did not request any of the simulation reports (Generate Query Plan, Generate Optimizer Statistics, or Generate Logical I/O Counts).

If the workflow proceeds successfully to the last step, it writes status messages to the Output tab of the step log. If it fails, it writes error messages to the Error tab.

### Validation Checks Performed

This workflow validates the input parameters in the following ways:

1. Checks that there are values for the required input parameters: Sybase Home, Sybase User, Sybase Password, and SQL Scripts.
2. Checks whether the Sybase Release Management SQL scripts exist—if not, adds them to a list of files to be downloaded .
3. Checks that the database is online.
4. Checks that all flag parameters are y, yes, no, no, t, true, f, or false—case insensitive.

This workflow validates the SQL scripts in the following ways:

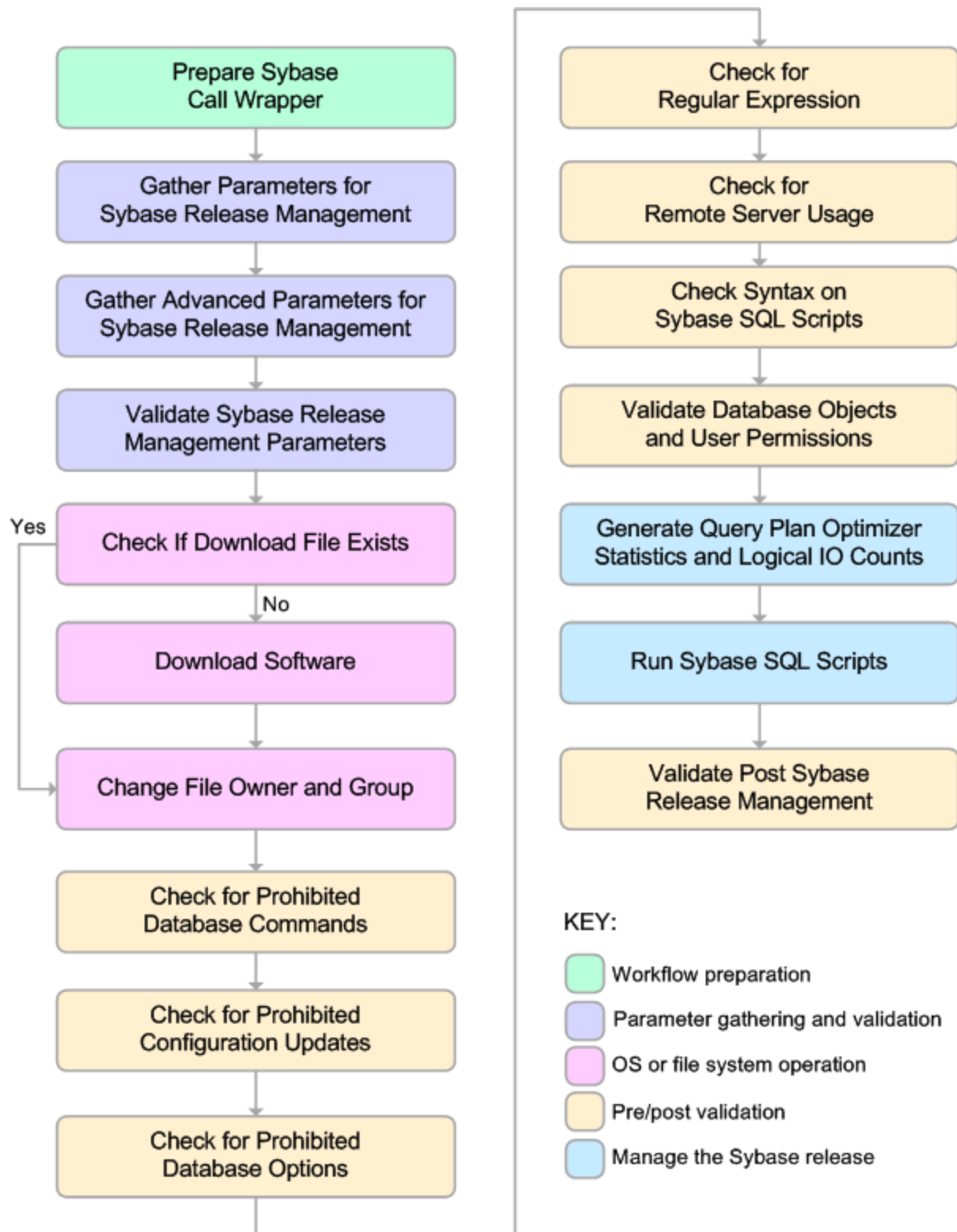
1. Checks whether the SQL statements contain any of the specified Prohibited Database Commands..
2. Checks whether the SQL statements contain any prohibited configuration updates defined in the `sysconfigures` system catalog—unless you specifically approve them in the Approved Configuration Updates parameter.
3. Checks whether the SQL statements contain any prohibited database options defined in the `spt_values` system catalog—unless you specifically approve them in the Approved Database Options parameter.
4. Checks whether the SQL statements match any of the specified prohibited Regular Expressions.
5. Checks whether the SQL statements contain the following remote server usage commands: `create proxy_table`, `sp_addserver`, or `sp_dropserver`.
6. If you set the Run Check Syntax flag, checks whether the SQL statements have valid syntax.
7. Checks that the database objects used in the script exist and are available and that the user has permission to modify the database objects.

If any of the validations fail, the workflow will output the offending SQL line to `stdout`, return an error status, and the SQL scripts will not be executed.

### Steps Executed

The "[Sybase Release Management](#)" workflow includes the following steps. Each step must complete successfully before the next step can start. If a step fails, the workflow reports a failure and all subsequent steps are skipped.

Click each box in the diagram to view additional information about that step.





## Steps Used in Sybase Release Management:

Workflow Step	Description
Prepare Sybase Call Wrapper	This step constructs the commands that will be used to execute subsequent workflow steps as either the OS administrative user or the owner of the Sybase ASE installation. The step also creates utility parameters that will be used by subsequent steps.
Gather Parameters For Sybase Release Management	This step accepts the basic input parameters for the "Sybase Release Management" workflow. The parameters will be used in subsequent steps.
Gather Advanced Parameters for Sybase Release Management	This step accepts the advanced input parameters for the "Sybase Release Management" workflow. The parameters will be used in subsequent steps.
Validate Sybase Release Management Parameters	This step validates the input parameters that manage the Sybase ASE release: the required input parameters have values, the SQL script files exist or will be downloaded, the Sybase ASE database is online, and the flag parameters have appropriate yes or no values.
Check if Download File Exists	This step determines whether one or more specified files already exist on the target server.
Download Software	This step downloads a list of files to a specified location on the target server.
Change File Owner and Group	This step changes the ownership and group of each file specified. A warning is issued for files that are not found.
Check for Prohibited Database Commands	This step checks the SQL scripts for any invalid database commands that you specify in the Prohibited Database Commands parameter.
Check for Prohibited Configuration Updates	This step checks the SQL scripts for any invalid <code>sp_configure</code> configuration updates. You can specify which configuration updates are valid with the Approved Configuration Updates parameter.
Check for Prohibited Database Options	This step checks the SQL scripts for any invalid <code>sp_dboption</code> database options. You can specify which database options are valid with the Approved Database Options parameter.

## Steps Used in Sybase Release Management:, continued

Workflow Step	Description
Check for Regular Expressions	This step checks the SQL scripts for any text that matches what you specify in the Regular Expressions parameter. This step is skipped if no Regular Expressions are specified.
Check for Remote Server Usage	This step checks the SQL scripts for the usage of remote servers. The keywords <code>create proxy_table</code> , <code>sp_addserver</code> , and <code>sp_dropserver</code> indicate that a remote server is used.
Check Syntax on Sybase SQL Scripts	If the Run Check Syntax flag is set, this step checks the SQL scripts for any syntax errors. The underlying code will not be executed.
Validate Database Objects and User Permissions	<p>This step checks the SQL scripts to ensure that:</p> <ul style="list-style-type: none"> <li>• Database objects used in the script exist and are available.</li> <li>• The user has permission to modify the database objects.</li> </ul>
Generate Query Plan Optimizer Statistics and Logical IO Counts	<p>This step runs the <code>isql</code> (Interactive SQL parser to Adaptive Server) utility to simulate the execution of the SQL script files—without running the actual T-SQL code. If the following input flags are set:</p> <ul style="list-style-type: none"> <li>• Generate Query Plan—the step will show a query plan.</li> <li>• Generate Optimizer Statistics—the step will show the statistics time.</li> <li>• Generate Logical I/O Counts—the step will show the statistics of logical/physical input and output.</li> </ul>
Run Sybase SQL Scripts	This step runs the <code>isql</code> (Interactive SQL parser to Adaptive Server) utility to deploy and execute the SQL script files against the target Sybase ASE databases—only if the run flag is set, no errors were found in the SQL scripts, and the Generate Query Plan, Generate Optimizer Statistics, and Generate Logical I/O Counts flags are all set to N.
Validate Post Sybase Release Management	<p>This step sends messages to <code>steplog</code> that the workflow was successful:</p> <ul style="list-style-type: none"> <li>• Input TSQL/config/dboptions files have been verified successfully and have not been run.</li> <li>• All Sybase Release Management scripts ran successfully.</li> </ul>

**Note:** For input parameter descriptions and defaults, see "[Parameters for Sybase Release Management](#)" on page 97.

## How to Run this Workflow

The following instructions show you how to customize and run the ["Sybase Release Management"](#) workflow in your environment.

The workflow provides default values for some parameters. These default values are usually sufficient for a "typical" installation. You can override the defaults by specifying parameter values in the deployment. You can also expose additional parameters in the workflow, if necessary, to accomplish more advanced scenarios. Any parameters not explicitly specified in the deployment will have the default values listed in ["Parameters for Sybase Release Management" on page 97](#).

**Note:** Before following this procedure, review the ["Prerequisites for this Workflow" on page 83](#), and ensure that all requirements are satisfied.

### To use the Sybase Release Management workflow:

1. Create a deployable copy of the workflow.
2. Determine the values that you will specify for the following parameters:

#### Input Parameters for Prepare Sybase Call Wrapper

Parameter Name	Default Value	Required	Description
Call Wrapper	See description	optional	Command that will execute this step (or subsequent steps) as a specific user. For UNIX targets, the default is: <code>/opt/hp/dma/client/jython.sh</code> running as root For Windows targets, the default is: <code>jython</code> running as Administrator
Sybase OS User Name	sybase	required	OS user who owns the Sybase ASE installation directory.

#### Input Parameters for Gather Parameters For Sybase Release Management

Parameter Name	Default Value	Required	Description
SQL Scripts	no default	required	Comma-separated list of SQL script files that will be released to (executed on) the target Sybase ASE database. These files can contain various SQL queries, configuration parameters, and database options. For example: <code>mysql.sql</code>  <b>Note:</b> List the SQL script files in the order in which they need to be executed.

## Input Parameters for Gather Advanced Parameters For Sybase Release Management

Parameter Name	Default Value	Required	Description
Approved Configuration Updates		optional	Comma-separated list of configuration updates ( <code>sp_configure</code> commands) that are allowed to be performed by the specified SQL Scripts. This overrides configuration updates that would normally be prohibited. For example: <code>systemwide password expiration</code>
Approved Database Options		optional	Comma-separated list of database options ( <code>sp_dboption</code> commands) that are allowed to be configured by the specified SQL Scripts. This overrides database options that would normally be prohibited. For example: <code>select into/bulkcopy/pllsort</code>
Generate Logical I/O Counts	N	optional	Set to Y to enable generation of logical/physical input or output counts required to execute each query in the specified SQL Scripts.
Generate Optimizer Statistics	N	optional	Set to Y to enable generation of Optimizer Statistics for each query in the specified SQL Scripts.
Generate Query Plan	N	optional	Set to Y to enable the generation of the Optimizer Query Plan required to execute each query in the specified SQL Scripts.
Prohibited Database Commands		optional	Comma-separated list of database commands ( <code>sp_dboption</code> commands) that will be ignored in the specified SQL Scripts. For example: <code>dbo use only,select into/bulkcopy/pllsort</code>
Regular Expressions		optional	Comma-separated list of formatted regular expressions that will be searched for in the specified SQL Scripts. The expression can fall anywhere in the SQL command line. For example: <code>drop table, truncate table</code>

**Note:** This is the minimum set of parameters required to run this workflow. You may need to expose additional parameters depending on your objectives.

See "[Parameters for Sybase Release Management](#)" on page 97 for detailed descriptions of all input parameters for this workflow, including default values.

- In the workflow editor, expose any additional parameters that you need.
- Save the changes to the workflow (click Save in the lower right corner).

5. Create a new deployment.
6. On the Parameters tab, specify values for the required parameters listed in step 2 and any additional parameters that you have exposed. You do not need to specify values for those parameters whose default values are appropriate for your environment.
7. On the Targets tab, specify one or more targets for this deployment.
8. Save the deployment (click Save in the lower right corner).
9. Run the workflow using this deployment.

**To verify the results:**

The workflow will complete and report SUCCESS on the Console if it has run successfully. If an error occurs during workflow execution, the error is logged, and the workflow terminates in the FAILURE state.

*Optional:* If you want to further verify the results:

Log in to your database to make sure that whatever you created or modified was actually done.

**To view the output:**

The workflow generates an output file for each SQL script file that is executed and stores it in the /tmp directory. Open the output files to see the execution results for the T-SQL, Adaptive Server configuration changes, and database option settings. The workflow also writes the execution output for SQL script execution in the HPE DMA Steplog.

If you have chosen to view the optimizer query plan or to generate the statistics before the query execution, these files will also be created and stored in the /tmp directory.

## Sample Scenarios

This topic shows you typical parameter values for different use cases for the ["Sybase Release Management"](#) workflow.

### Scenario 1: Check the SQL script files for prohibited configuration updates, prohibited database options, and invalid syntax; then deploy and execute the SQL scripts

In this scenario, you only specify the SQL Scripts parameter since this scenario takes advantage of many parameter defaults. Running this scenario will check the SQL script files for:

- The normal prohibited configuration updates (`sp_configure` commands).
- The normal prohibited database options (`sp_dboption` commands).
- Any invalid syntax of the SQL queries.
- No database commands—since no prohibited database commands are specified by default.
- No regular expressions—since no regular expressions are specified by default.

It will not simulate executing the SQL scripts to generate a query plan, optimizer statistics, or logical/physical input and output counts. If all the tests pass, the SQL scripts are deployed and executed against the target Sybase ASE databases.

#### Input Parameters for Gather Parameters For Sybase Release Management

Parameter Name	Example Value	Description
SQL Scripts	mysql.sql	<p>Comma-separated list of SQL script files that will be released to (executed on) the target Sybase ASE database. These files can contain various SQL queries, configuration parameters, and database options.</p> <p>For example: mysql.sql</p> <p><b>Note:</b> List the SQL script files in the order in which they need to be executed.</p>

Be sure that the default values for all remaining input parameters are appropriate for your environment (see ["Parameters for Sybase Release Management" on page 97](#)).

**Scenario 2: Check the SQL script files for specified prohibited database commands, prohibited configuration updates, prohibited database options, prohibited regular expressions, and invalid syntax; simulate running the SQL scripts to generate statistics; then deploy and execute the SQL scripts**

In this scenario, you take advantage of the customized checks and reports that are available in Sybase Release Management. Running this scenario will check the SQL script files for:

- Prohibited database commands (`sp_dboption` commands) that you specify.
- Prohibited configuration updates (`sp_configure` commands) except for the updates that you specifically approve.
- Prohibited database options (`sp_dboption` commands) except for the options that you specifically approve.
- Prohibited regular expressions that you specify.
- Any invalid syntax of the SQL queries.

Then this scenario will simulate running the SQL scripts—without actually executing them—to give the following

- Show the query plan.
- Estimate the time required to execute the SQL scripts.
- Show the logical and physical input and output counts that will be required to execute each query.

If all the tests pass, the SQL scripts are deployed and executed against the target Sybase ASE databases.

**Input Parameters for Gather Parameters For Sybase Release Management**

Parameter Name	Example Value	Description
SQL Scripts	<code>mysql.sql</code>	Comma-separated list of SQL script files that will be released to (executed on) the target Sybase ASE database. These files can contain various SQL queries, configuration parameters, and database options.  For example: <code>mysql.sql</code>  <b>Note:</b> List the SQL script files in the order in which they need to be executed.

**Input Parameters for Gather Advanced Parameters For Sybase Release Management**

Parameter Name	Example Value	Description
Approved Configuration Updates	see description	Comma-separated list of configuration updates ( <code>sp_configure</code> commands) that are allowed to be performed by the specified SQL Scripts. This overrides configuration updates that would normally be prohibited.  For example: <code>systemwide password expiration</code>
Approved Database Options	see description	Comma-separated list of database options ( <code>sp_dboption</code> commands) that are allowed to be configured by the specified SQL Scripts. This overrides database options that would normally be prohibited.  For example: <code>select into/bulkcopy/p11sort</code>

## Input Parameters for Gather Advanced Parameters For Sybase Release Management, continued

Parameter Name	Example Value	Description
Generate Logical I/O Counts	Y	Set to Y to enable generation of logical/physical input or output counts required to execute each query in the specified SQL Scripts.
Generate Optimizer Statistics	Y	Set to Y to enable generation of Optimizer Statistics for each query in the specified SQL Scripts.
Generate Query Plan	Y	Set to Y to enable the generation of the Optimizer Query Plan required to execute each query in the specified SQL Scripts.
Prohibited Database Commands	see description	Comma-separated list of database commands (sp_dboption commands) that will be ignored in the specified SQL Scripts. For example: dbo use only,select into/bulkcopy/p11sort
Regular Expressions	see description	Comma-separated list of formatted regular expressions that will be searched for in the specified SQL Scripts. The expression can fall anywhere in the SQL command line. For example: drop table, truncate table

Be sure that the default values for all remaining input parameters are appropriate for your environment (see ["Parameters for Sybase Release Management" on the next page](#)).



## Parameters for Sybase Release Management

The following tables describe the required and optional input parameters for this workflow. Some of these parameters may not be initially visible in a deployment. For some parameters, if you do not specify a value for a parameter, a default value is assigned.

Only those parameters that are configurable in a standard deployment are listed here. Input parameters that must be mapped to output parameters of previous steps are not listed.

### Parameters Defined in this Step: Prepare Sybase Call Wrapper

Parameter Name	Default Value	Required	Description
Call Wrapper	See description	optional	<p>Command that will execute this step (or subsequent steps) as a specific user.</p> <p>For UNIX targets, the default is:</p> <pre>/opt/hp/dma/client/jython.sh</pre> <p>running as root</p> <p>For Windows targets, the default is: jython running as Administrator</p>
Sybase OS User Name	sybase	required	OS user who owns the Sybase ASE installation directory.

### Parameters Defined in this Step: Gather Parameters For Sybase Release Management

Parameter Name	Default Value	Required	Description
SQL Scripts	no default	required	<p>Comma-separated list of SQL script files that will be released to (executed on) the target Sybase ASE database. These files can contain various SQL queries, configuration parameters, and database options.</p> <p>For example: mysql.sql</p> <div style="background-color: #e0e0e0; padding: 5px; border: 1px solid #ccc;"> <p><b>Note:</b> List the SQL script files in the order in which they need to be executed.</p> </div>
Sybase Home	see description	required	<p>Sybase ASE installation directory (absolute path). For example: <code>/opt/sybase/ase_1503</code></p> <p>If the Discovery workflow has previously been executed, this parameter value is automatically detected. You can specify a different installation directory if you prefer.</p> <p>The default is the metadata value for <code>Instance.sybase home</code>.</p>
Sybase Password	see description	required	<p>Adaptive Server (instance) login password for the Sybase User.</p> <p>If the Discovery workflow has previously been executed, this parameter value is automatically detected. You can specify a different password if you prefer.</p> <p>The default is the metadata value for <code>Instance.password</code>.</p>

## Parameters Defined in this Step: Gather Parameters For Sybase Release Management, continued

Parameter Name	Default Value	Required	Description
Sybase User	see description	required	<p>Adaptive Server (instance) user who will execute the specified SQL Scripts on the target. For example: admin</p> <p>If the Discovery workflow has previously been executed, this parameter value is automatically detected. You can specify a different Sybase ASE user if you prefer.</p> <p>The default is the metadata value for Instance.user.</p>

## Parameters Defined in this Step: Gather Advanced Parameters For Sybase Release Management

Parameter Name	Default Value	Required	Description
Approved Configuration Updates		optional	<p>Comma-separated list of configuration updates (<code>sp_configure</code> commands) that are allowed to be performed by the specified SQL Scripts. This overrides configuration updates that would normally be prohibited.</p> <p>For example: <code>systemwide password expiration</code></p>
Approved Database Options		optional	<p>Comma-separated list of database options (<code>sp_dboption</code> commands) that are allowed to be configured by the specified SQL Scripts. This overrides database options that would normally be prohibited.</p> <p>For example: <code>select into/bulkcopy/pllsort</code></p>
Download Location	/tmp	optional	Location where the SQL Scripts files will be downloaded from software repository if they are not found on the target server.
Generate Logical I/O Counts	N	optional	Set to Y to enable generation of logical/physical input or output counts required to execute each query in the specified SQL Scripts.
Generate Optimizer Statistics	N	optional	Set to Y to enable generation of Optimizer Statistics for each query in the specified SQL Scripts.
Generate Query Plan	N	optional	Set to Y to enable the generation of the Optimizer Query Plan required to execute each query in the specified SQL Scripts.
Prohibited Database Commands		optional	<p>Comma-separated list of database commands (<code>sp_dboption</code> commands) that will be ignored in the specified SQL Scripts.</p> <p>For example: <code>dbo use only,select into/bulkcopy/pllsort</code></p>
Regular Expressions		optional	<p>Comma-separated list of formatted regular expressions that will be searched for in the specified SQL Scripts. The expression can fall anywhere in the SQL command line.</p> <p>For example: <code>drop table, truncate table</code></p>

Parameters Defined in this Step: Gather Advanced Parameters For Sybase Release Management, continued

<b>Parameter Name</b>	<b>Default Value</b>	<b>Required</b>	<b>Description</b>
Run Check Syntax	Y	optional	Set to Y to enable syntax checking of the queries included in the specified SQL Scripts .
Run SQL Scripts Flag	Y	optional	Set to Y to perform the checks and run the specified SQL Scripts on the target. Set to N to only perform the checks.

## Sybase - Patch to Home and Instance

This workflow applies an Emergency Bug Fix (EBF) patch to an existing Sybase Adaptive Server Enterprise (ASE) version 15.7 installation. It uses a binary setup.bin installation utility to apply the patch and then runs post-patching scripts.

If you have problems after applying the patch, you can remove it by running ["Sybase - Rollback from Home and Instance" on page 122](#).

To use this workflow in your environment, see the following information:

Topic	Information Included
<a href="#">"Prerequisites for this Workflow"</a>	List of prerequisites that must be satisfied before you can run this workflow
<a href="#">"How this Workflow Works"</a>	Information about what the workflow does, including validation checks performed, steps executed, and a high-level process flow
<a href="#">"How to Run this Workflow"</a>	Instructions for running this workflow in your environment
<a href="#">"Sample Scenario"</a>	Examples of typical parameter values for this workflow
<a href="#">"Parameters for Sybase - Patch Home and Instance" on page 114</a>	List of input parameters for this workflow

**Note:** The documentation for this workflow contains steps that are referred to by their base names. The names in the HPE DMA user interface may have a version appended, for example, v2.

## Prerequisites for this Workflow

Be sure that the following prerequisites are satisfied before you run the ["Sybase - Patch to Home and Instance" on the previous page](#) workflow:

- The latest HPE DMA solution packs require the latest HPE DMA platform. To use the latest solution packs, update the HPE DMA platform. HPE DMA 10.40 solution packs are supported on HPE DMA 10.40 (and later).
- You have installed the HPE DMA Database Patching solution pack.
- You need to have Sybase provisioned and operational. You can do this by running the following workflows in the HPE DMA Database Provisioning Solution Pack:
  - Sybase Provision Software
  - Sybase Provision Instance v2
- You have read access to all specified inventory pointers (Linux/UNIX).
- You have a Sybase support contract and have downloaded the appropriate patches either to the software repository or to the target machine.
- You have unchallenged sudo access to a user (typically root) who can access all required files and directories to download and execute.

For more information about prerequisites for Sybase, refer to the [Sybase Product Documentation](#).

## How this Workflow Works

The following information describes how the Sybase - Patch to Home and Instance workflow works:

### **Overview**

This workflow does the following things in the order shown:

- The initial steps of the workflow prepare it to patch the Sybase Home. The workflow processes and validates user input parameters, executes commands used in subsequent steps, downloads any required files, takes backup of the database, database tables, and server configuration, and shuts down the Sybase server. Default values are set for optional parameters if no values are specified.
- The workflow applies the patch to the Sybase Database Home.
- The workflow applies the patch to the Sybase Instances.
- The final steps of the workflow allow the workflow to end cleanly. The workflow restarts Sybase server, brings Sybase database online, and discovers Sybase database. Then it cleans up the downloaded files.

### **Validation Checks Performed**

Much of the validation centers on the input parameters:

- The input parameters have the proper syntax (no special characters or spaces).
- Files exist or have valid specifications if they do not exist.
- The supplied patch update applies to the current Sybase Database version.

## Steps Used in Sybase - Patch to Home and Instance

Workflow Step	Description
Gather Parameters for Sybase Patch Home and Instance	This step gathers the required parameters for the Sybase - Patch to Home and Instance workflow.
Gather Advanced Parameters for Sybase Patch Home and Instance	This step gathers the optional advanced parameters for the Sybase - Patch to Home and Instance workflow.
Prepare Sybase Call Wrapper v2	This step constructs the commands that will be used to execute subsequent workflow steps as either the OS administrative user or the owner of the Sybase ASE installation.
Validate Parameters for Sybase Patch Home and Instance	This step validates the values specified for the input parameters used by the Sybase - Patch to Home and Instance workflow. It also sets the values of various output parameters that will be consumed by subsequent steps.
Download Software	This step downloads a list of files to a specified location on the target server.
Uncompress Sybase File v2	For each supplied file, this step extracts the contents of the archive file (or files).
Run Sybase DBCC Checks v2	This step runs the specified database consistency checker (DBCC) checks to ensure that no database tables or objects have become corrupted. The output of these checks is printed in the step log and stored in files under the specified directory. .
Backup Sybase System Databases v2	This step takes backup the user databases, schemas, and transaction logs and stores them in the backup directory.
Backup Sybase System Tables v2	This step takes backup the system tables and store the backup in the backup directory.
Backup Sybase Server Configuration v2	This step takes backup the database server level configuration details and stores them in the backup directory.
Backup Sybase Directory v2	This step creates a backup copy of the entire Sybase installation folder and Sybase device files.
Validate Patch for Target Platform	This step validates the following: <ul style="list-style-type: none"> <li>• If the patch and the target OS and architecture (64-bit or 32-bit) are compatible</li> </ul>

## Steps Used in Sybase - Patch to Home and Instance, continued

Workflow Step	Description
Compatibility	<ul style="list-style-type: none"> <li>• If the intended patch is more recent than the existing patch on the Sybase installation</li> <li>• If the ESD number of the patch is greater than the ESD number of the current sybase installation</li> <li>• If the EBF number of the patch is greater than the EBF number of the current sybase installation</li> </ul>
Shutdown Sybase Servers v2	This step shuts down the Sybase server prior to installing the EBF patch.
Install Sybase Patch	This step installs EBF patch for Sybase ASE.
Cleanup Downloaded Files v2	This step removes files and archives that were downloaded to the target system during previous workflow steps.
Startup Sybase Servers v2	This step invokes the Sybase commands to startup the Sybase servers. It can startup dataserver, backupserver, and monserver if proper input parameter values are provided. It verifies that the servers have been started successfully by checking the process running on the operating system.
Copy Directory	This step creates a backup copy of the entire Sybase installation folder and Sybase device files.
Run Sybase Post Patch System Scripts	This step executes the Sybase system scripts necessary as configured in the workflow deployment post EBF patch for the Sybase installation on the target server.
Bring Sybase Database Online v2	This step brings the user-defined databases online within the database server.
Shutdown Sybase Servers	This step shuts down the dataserver instance.
Startup Sybase Servers v2	This step implements the Sybase commands to startup the Sybase servers. It can startup dataserver, backupserver, and monserver if proper input parameter values are provided. It verifies that the servers have been started successfully by checking the process running on the operating system.
Disable Sybase Database Object DDL Text v2	This step disables access to the database object's DDL text.
Cleanup Downloaded Files v2	This step removes files and archives that were downloaded to the target system during previous workflow steps.



## Steps Used in Sybase - Patch to Home and Instance, continued

Workflow Step	Description
Run Sybase DBCC Checks v2	This step runs the specified database consistency checker (DBCC) checks to ensure that no database tables or objects have become corrupted. The output of these checks is printed in the step log and stored in files under the specified directory.
Update Sybase Version v2	This step updates the Sybase Instance.Version metadata information for a Sybase Dataserver Instance.
Discover Sybase Databases v2	This step audits the server's physical environment looking for Sybase databases and instances.

For parameter descriptions and defaults, see "[Parameters for Sybase - Patch Home and Instance](#)".

## How to Run this Workflow

The following instructions show you how to customize and run the ["Sybase - Patch to Home and Instance"](#) workflow in your environment.

The workflow provides default values for some parameters. These default values are usually sufficient for a "typical" installation. You can override the defaults by specifying parameter values in the deployment. You can also expose additional parameters in the workflow, if necessary, to accomplish more advanced scenarios. Any parameters not explicitly specified in the deployment will have the default values listed in ["Parameters for Sybase - Patch Home and Instance" on page 114](#).

**Note:** Before following this procedure, review the ["Prerequisites for this Workflow" on page 101](#), and ensure that all requirements are satisfied.

To run this workflow, you need to set your parameters differently depending on the location and status of your EBF patch. Use the following table to choose the method that matches your situation.

**To use the Sybase - Patch to Home and Instance workflow:**

1. Create a deployable copy of the workflow.
2. Determine the values that you will specify for the following parameters:

**Basic Parameters**

<b>Parameter Name</b>	<b>Default Value</b>	<b>Required</b>	<b>Description</b>
Call Wrapper	see description	required	Command that will execute this step (or subsequent steps) as a specific user.  For UNIX targets, the default is:  <code>/opt/hp/dma/client/jython.sh</code> running as root
Sybase OS User Account	sybase	required	OS user who owns the Sybase ASE installation directory. This is the directory specified in the Sybase Install Directory parameter, where the Sybase ASE binaries will be installed.
Sybase Installation Location	no default	required	The directory where the patch will be installed. This is equivalent to the \$SYBASE environment variable.  For example: <code>/home/sybase/ASE_15_5</code> .
Sybase Admin Password	no default	required	The password for the ASE system administrator (specified in the Sybase Admin Login parameter). This password is assigned after ASE is provisioned to validate the installation.
Sybase Admin Login	no default	required	The Sybase ASE user who is the ASE system administrator and possesses all ASE privileges.
Sybase Patch Archive	no default	required	The name of sybase binary EBF patch file.  For example: <code>EBF18380.tgz</code> .
Web Service Password	no default	required	DMA Web Service password of DMA user.
Web Service URL	no default	required	The path for DMA web service.
Web Service User	no default	required	The DMA user.
Backup Server Name	no default	required	The Backup Server name associated with the Adaptive Server (dataserver). Backup Server is responsible for performing backups (dumps) and restores (loads) on selected databases and transaction logs. If not specified, it will not be rebooted after rolling back the patch.  For example: <code>BS_DEV_300</code> .

## Advanced Parameters

Parameter Name	Default Value	Required	Description
Backup Sybase Server Configuration v2	yes	optional	<p>Flag that determines whether to backup Sybase system configuration before EBF patch is applied.</p> <p>If yes, Sybase system configuration backup is taken before EBF patching. If no, Sybase system configuration backup is not taken.</p> <p>Valid values are y, yes, true, n, no, or false. Default is yes.</p>
Backup Sybase System Databases v2	yes	optional	<p>Flag that determines whether to backup Sybase system database before EBF patch is applied.</p> <p>If yes, Sybase system database backup is taken before EBF patching. If no, Sybase system database backup is not taken.</p> <p>Valid values are y, yes, true, n, no, or false. Default is yes.</p>
Backup Sybase System Tables v2	yes	optional	<p>Flag that determines whether to backup Sybase system tables before EBF patch is applied.</p> <p>If yes, Sybase system tables backup is taken before EBF patching. If no, Sybase system tables backup is not taken.</p> <p>Valid values are y, yes, true, n, no, or false. Default is yes.</p>
Clean on Failure	true	optional	<p>Flag that determines whether to clean up on workflow failure. If true, downloaded files will be cleaned up on failure of workflow.</p> <p>Valid values are y, yes, true, n, no, or false. Default is yes.</p>
Clean on Success	true	optional	<p>Flag that determines whether to clean up on workflow success. If true, downloaded files will be cleaned up on success of workflow.</p> <p>Valid values are y, yes, true, n, no, or false. Default is yes.</p>
DBCC Check List	checkdb, checkalloc,	optional	The comma-separated list of database consistency checker (DBCC) checks that

## Advanced Parameters, continued

Parameter Name	Default Value	Required	Description
	checkcatalog		you want to run to check whether there are issues with the database before and after applying the patch.  Default value is checkdb, checkalloc, or checkcatalog.
DBCC Errorlog Location	/SYBASE_OS_HOME_DIR/dbcclog	optional	The fully-qualified directory path where you want to store the DBCC run log results (output files) for pre-patch and post-patch checks.  The default value is /SYBASE_OS_HOME_DIR/dbcclog.
Run Sybase DBCC Check v2	yes	optional	Flag that determines whether to run Sybase DBCC patch before EBF patch is applied. If yes, Sybase DBCC check will be done before EBF patching. If no, DBCC check will be skipped.  Valid values are y, yes, true, n, no, or false. Default is yes.
Sybase Admin Login:		required	Required: The Admin Login for the Sybase ASE system administrator. It is used to validate the installation by logging in to the server
Sybase Admin Password	no default	required	The password for the Sybase ASE system administrator. It is used to validate the installation by logging in to the server.
Sybase Archive Location	/tmp/dma/archive	optional	Fully qualified directory on the target server where the Sybase ASE installation binaries will be downloaded, or the location where the ASE software installation .tar or .tgz file is located.  The default is /tmp/dma/archive.
Sybase Backup Location	/<<SYBASE_OS_HOME_DIR>/syb_backup	optional	The absolute directory path where the backup of the Sybase ASE installation will be stored before applying the patch.  Default is /<SYBASE_OS_HOME_DIR>/syb_backup.
Sybase Backupserver Name	no default	optional	The Backup Server name associated with the Adaptive server (dataserver). Backup

## Advanced Parameters, continued

Parameter Name	Default Value	Required	Description
			Server is responsible for performing backups (dumps) and restores (loads) on selected databases and transaction logs. If not specified, it will not be rebooted after applying the patch.
Sybase Dataserver Name	See description	optional	The Adaptive Server instance running on the target machine with the dataserver process. The Adaptive server component manages databases and users, records the location of data on disks, maps logical data descriptions to physical data storage, and manages data and procedure caches in memory.  The default value is set from the deployment instance.
Sybase Installation Location	no default	required	The directory where the Sybase Software was provisioned.
Sybase Master Device Name	master	optional	Name of the Sybase system device where the master database is mounted and running. If the default device for the master database is not master.dat this is required. If using raw device provisioning and the master database is mounted on dev/raw/raw1, then the value can be raw1.  The default is master.
Sybase Monitorserver Name	no default	optional	The Monitor Server name associated with the Adaptive server (dataserver). The Monitor Server is responsible for monitoring and supervising the Adaptive Server. If not specified, it will not be rebooted after applying the patch to reflect the EBF updates
Sybase OS User Account	sybase	required	Sybase account OS user who owns the Sybase ASE installation directory and instance. The default is sybase.
Sybase Patch Archive	no default	required	The name of sybase binary EBF patch file.  For example: EBF18380.tgz.
Sybase Postpatch	installmaster,	optional	Comma-separated list of Sybase

## Advanced Parameters, continued

Parameter Name	Default Value	Required	Description
System Script List	instmsgs.ebf, installcommit		provided scripts to be run after patching the Sybase instance. These scripts make the appropriate changes to the system tables and procedures and update the Adaptive Server version.  The default is 'installmaster, instmsgs.ebf, or installcommit.
Sybase Servers Errorlog File Format	See description	optional	Adaptive Server errorlog file format. Used to allow a non-standard SAP server errorlog file name. Specify your own format that includes '%s'. The '%s' will be replaced with the Adaptive Server name. For example, if the format is set to 'errorLog_%s' and the server name is 'NY_DS', the workflow will create the errorlog file 'errorLog_NY_DS'. This also applies if any backupserver or monserver are being patched and rebooted. The default is '%s.log'.
Sybase Staging Location	/tmp/dma/staging	optional	The staging location on the target server where the Sybase ASE binaries will be stored prior to installation.  The default is /tmp/dma/staging.
Sybase System Scripts Location	\$SYBASE/ASE-15_ 0/scripts	optional	Fully qualified directory path where Post Install Script List (the Sybase provided scripts) is available to run after applying the EBF patch. These scripts make the appropriate changes to the system tables and procedures and update the ASE version.  The default is \$SYBASE/ASE-15_ 0/scripts.
Sybase Version	See description	optional	Sybase Version that is installed on the target machine to be patched with provided EBF. Valid values are 15.0.3 or 15.5.  Default: It will be extracted from the target machine Sybase installation.
User Defined Patch Responsefile	no default	optional	The silent install response file name. If not provided, then the workflow will use the deployment parameters to create a

## Advanced Parameters, continued

Parameter Name	Default Value	Required	Description
			response file that will be used for patching Sybase. If the response file is provided, the workflow will override the response file parameters with values from the silent response file. If the response file is invalid or has a problem, the workflow behavior may be unpredictable.

- In the workflow editor, expose any additional parameters that you need. You will specify values for those parameters when you create the deployment.
- Save the changes to the workflow (click **Save** in the lower right corner).
- Create a new deployment.
- On the Parameters tab, specify values for the required parameters listed in step 2. You do not need to specify values for those parameters whose default values are appropriate for your environment.
- On the Targets tab, specify one or more targets for this deployment.
- Save the deployment (click **Save** in the lower right corner).
- Run the workflow using this deployment.

**Note:** See "[Parameters for Sybase - Patch Home and Instance](#)" on page 114 for detailed descriptions of all input parameters for this workflow, including default values.

**To verify the results:**

The workflow will complete and report SUCCESS on the Console if it has run successfully. If an error occurs during workflow execution, the error is logged, and the workflow terminates in the FAILURE state.

See the Console page output for error messages that indicate whether problems occurred during the application of the patches.

*Optional:* If you want to further verify that the patch was successfully applied to the Sybase Database Instances associated with the Sybase Home:

- Verify the EBF version by querying the global variable (@@version) value. It should match the EBF Patch Number specified.
- Verify that all databases are online and users are able to log-in.
- Run basic database consistency check commands, and ensure that no errors are reported.



## Sample Scenario

This topic shows you typical parameter values for different use cases for the "[Sybase - Patch to Home and Instance](#)" workflow. The workflow applies Emergency Bug Fix (EBF) patch to an existing Sybase Adaptive Server Enterprise (ASE) version 15.7 installation. It uses a binary setup.bin installation utility to apply the patch and then runs post-patching scripts.

### Input Parameters for Gather Parameters for Sybase Patch Home and Instance

Parameter Name	Example Value	Description
Call Wrapper	jython	Command that will execute this step (or subsequent steps) as a specific user.
Sybase OS User Account	sybase	OS user who owns the Sybase ASE installation directory. This is the directory specified in the Sybase Install Directory parameter, where the Sybase ASE binaries will be installed.
Sybase Installation Location	/opt/app/sybase	The directory where the patch will be installed. This is equivalent to the \$SYBASE environment variable.
Sybase Admin Login	sa	The Sybase ASE user who is the ASE system administrator and possesses all ASE privileges.
Sybase Patch Archive	EBF20953.tar	The name of Sybase binary EBF patch file.

### Input Parameters for Gather Advanced Parameters for Sybase Patch Home and Instance

Parameter Name	Example Value	Description
Sybase Backupserver Name	BS_200	The Backup Server name associated with the Adaptive server (dataserver).
Sybase Master Device Name	raw1	Name of the Sybase system device where the master database is mounted and running.
Sybase Version	15.7	Sybase Version that is installed on the target machine to be patched with provided EBF.

## Parameters for Sybase - Patch Home and Instance

The following tables describe the required and optional input parameters for this workflow.

### Input Parameters Defined in this Step: Gather Parameters for Sybase Patch Home and Instance

Parameter Name	Default Value	Required	Description
Call Wrapper	see description	required	Command that will execute this step (or subsequent steps) as a specific user.  For UNIX targets, the default is:  <code>/opt/hp/dma/client/jython.sh</code> running as root
Sybase OS User Account	sybase	required	OS user who owns the Sybase ASE installation directory. This is the directory specified in the Sybase Install Directory parameter, where the Sybase ASE binaries will be installed.
Sybase Installation Location	no default	required	The directory where the patch will be installed. This is equivalent to the \$SYBASE environment variable.  For example: <code>/home/sybase/ASE_15_5.</code>
Sybase Admin Password	no default	required	The password for the ASE system administrator (specified in the Sybase Admin Login parameter). This password is assigned after ASE is provisioned to validate the installation.
Sybase Admin Login	no default	required	The Sybase ASE user who is the ASE system administrator and possesses all ASE privileges.
Sybase Patch Archive	no default	required	The name of sybase binary EBF patch file.  For example: <code>EBF18380.tgz.</code>
Web Service Password	no default	required	DMA Web Service password of DMA user.
Web Service URL	no default	required	The path for DMA web service (DMA URL).
Web Service User	no default	required	The DMA user.

## Input Parameters Defined in this Step: Gather Parameters for Sybase Patch Home and Instance, continued

Parameter Name	Default Value	Required	Description
Backup Server Name	no default	required	The Backup Server name associated with the Adaptive Server (dataserver). Backup Server is responsible for performing backups (dumps) and restores (loads) on selected databases and transaction logs. If not specified, it will not be rebooted after rolling back the patch.  For example: BS_DEV_300.

## Additional Input Parameters Defined in this Step: Gather Advanced Parameters for Sybase Patch Home and Instance

Parameter Name	Default Value	Required	Description
Backup Sybase Server Configuration	yes	optional	Flag that determines whether to backup Sybase system configuration before EBF patch is applied.  If yes, Sybase system configuration backup is taken before EBF patching. If no, Sybase system configuration backup is not taken.  Valid values are y, yes, true, n, no, or false. Default is yes.
Backup Sybase System Databases	yes	optional	Flag that determines whether to backup Sybase system database before EBF patch is applied.  If yes, Sybase system database backup is taken before EBF patching. If no, Sybase system database backup is not taken.  Valid values are y, yes, true, n, no, or false.

## Additional Input Parameters Defined in this Step: Gather Advanced Parameters for Sybase Patch Home and Instance, continued

Parameter Name	Default Value	Required	Description
			Default is yes.
Backup Sybase System Tables	yes	optional	<p>Flag that determines whether to backup Sybase system tables before EBF patch is applied.</p> <p>If yes, Sybase system tables backup is taken before EBF patching. If no, Sybase system tables backup is not taken.</p> <p>Valid values are y, yes, true, n, no, or false. Default is yes.</p>
Clean on Failure	true	optional	<p>Flag that determines whether to clean up on workflow failure. If true, downloaded files will be cleaned up on failure of workflow.</p> <p>Valid values are y, yes, true, n, no, or false. Default is yes.</p>
Clean on Success	true	optional	<p>Flag that determines whether to clean up on workflow success. If true, downloaded files will be cleaned up on success of workflow.</p> <p>Valid values are y, yes, true, n, no, or false. Default is yes.</p>
DBCC Check List	checkdb, checkalloc, checkcatalog	optional	<p>The comma-separated list of database consistency checker (DBCC) checks that you want to run to check whether there are issues with the database before and after applying the patch.</p>

## Additional Input Parameters Defined in this Step: Gather Advanced Parameters for Sybase Patch Home and Instance, continued

Parameter Name	Default Value	Required	Description
			Default value is checkdb, checkalloc, or checkcatalog.
DBCC Errorlog Location	/SYBASE_OS_HOME_DIR/dbcclog	optional	The fully-qualified directory path where you want to store the DBCC run log results (output files) for pre-patch and post-patch checks.  The default value is /SYBASE_OS_HOME_DIR/dbcclog.
Run Sybase DBCC Check	yes	optional	Flag that determines whether to run Sybase DBCC patch before EBF patch is applied. If yes, Sybase DBCC check will be done before EBF patching. If no, DBCC check will be skipped.  Valid values are y, yes, true, n, no, or false. Default is yes.
Sybase Backup Location	/<SYBASE_OS_HOME_DIR>/syb_backup	optional	The absolute directory path where the backup of the Sybase ASE installation will be stored before applying the patch.  Default is /<SYBASE_OS_HOME_DIR>/syb_backup.
Sybase Backupserver Name	no default	optional	The Backup Server name associated with the Adaptive server (dataserver). Backup Server is responsible for performing backups (dumps) and restores (loads) on selected databases and transaction logs. If not

## Additional Input Parameters Defined in this Step: Gather Advanced Parameters for Sybase Patch Home and Instance, continued

Parameter Name	Default Value	Required	Description
			specified, it will not be rebooted after applying the patch.
Sybase Dataserver Name	See description	optional	<p>The Adaptive Server instance running on the target machine with the dataserver process. The Adaptive server component manages databases and users, records the location of data on disks, maps logical data descriptions to physical data storage, and manages data and procedure caches in memory.</p> <p>The default value is set from the deployment instance.</p>
Sybase Installation Location	no default	required	The directory where the Sybase Software was provisioned.
Sybase Master Device Name	master	optional	<p>Name of the Sybase system device where the master database is mounted and running. If the default device for the master database is not master.dat this is required. If using raw device provisioning and the master database is mounted on dev/raw/raw1, then the value can be raw1.</p> <p>The default is master.</p>
Sybase Monitorserver Name	no default	optional	The Monitor Server name associated with the Adaptive server (dataserver). The Monitor Server is

## Additional Input Parameters Defined in this Step: Gather Advanced Parameters for Sybase Patch Home and Instance, continued

Parameter Name	Default Value	Required	Description
			responsible for monitoring and supervising the Adaptive Server. If not specified, it will not be rebooted after applying the patch to reflect the EBF updates
Sybase OS User Account	sybase	required	Sybase account OS user who owns the Sybase ASE installation directory and instance. The default is sybase.
Sybase Patch Archive	no default	required	The name of sybase binary EBF patch file.  For example: EBF18380.tgz.
Sybase Postpatch System Script List	installmaster, instmsgs.ebf, installcommit	optional	Comma-separated list of Sybase provided scripts to be run after patching the Sybase instance. These scripts make the appropriate changes to the system tables and procedures and update the Adaptive Server version.  The default is 'installmaster, instmsgs.ebf, or installcommit.
Sybase Servers Errorlog File Format	See description	optional	Adaptive Server errorlog file format. Used to allow a non-standard SAP server errorlog file name. Specify your own format that includes '%s'. The '%s' will be replaced with the Adaptive Server name. For example, if the formast is set to 'errorLog_%s' and the server name is 'NY_DS',

## Additional Input Parameters Defined in this Step: Gather Advanced Parameters for Sybase Patch Home and Instance, continued

Parameter Name	Default Value	Required	Description
			the workflow will create the errorlog file 'errorLog_NY_DS'. This also applies if any backupserver or monserver are being patched and rebooted. The default is '%s.log'.
Sybase Staging Location	/tmp/dma/staging	optional	The staging location on the target server where the Sybase ASE binaries will be stored prior to installation.  The default is /tmp/dma/staging.
Sybase System Scripts Location	\$SYBASE/ASE-15_0/scripts	optional	Fully qualified directory path where Post Install Script List (the Sybase provided scripts) is available to run after applying the EBF patch. These scripts make the appropriate changes to the system tables and procedures and update the ASE version.  The default is \$SYBASE/ASE-15_0/scripts.
Sybase Version	See description	optional	Sybase Version that is installed on the target machine to be patched with provided EBF. Valid values are 15.0.3 or 15.5.  Default: It will be extracted from the target machine Sybase installation.
User Defined Patch Responsefile	no default	optional	The silent install response file name. If



## Additional Input Parameters Defined in this Step: Gather Advanced Parameters for Sybase Patch Home and Instance, continued

Parameter Name	Default Value	Required	Description
			not provided, then the workflow will use the deployment parameters to create a response file that will be used for patching Sybase. If the response file is provided, the workflow will override the response file parameters with values from the silent response file. If the response file is invalid or has a problem, the workflow behavior may be unpredictable.

# Sybase - Rollback from Home and Instance

Use this workflow if you encounter problems after applying a patch update. Only the last patch that was applied is rolled back.

This workflow requires previously created robust copy of ASE binary files which you may want to use to rollback the current Sybase ASE installation binaries.

To use this workflow in your environment, see the following information:

Topic	Information Included
<a href="#">"Prerequisites for this Workflow"</a>	List of prerequisites that must be satisfied before you can run this workflow
<a href="#">"How this Workflow Works"</a>	Information about what the workflow does, including validation checks performed, steps executed, and a high-level process flow
<a href="#">"How to Run this Workflow"</a>	Instructions for running this workflow in your environment
<a href="#">"Sample Scenario"</a>	Examples of typical parameter values for this workflow
<a href="#">"Parameters for Sybase - Rollback Patch from Home and Instance" on page 134</a>	List of input parameters for this workflow

## Prerequisites for this Workflow

Be sure that the following prerequisites are satisfied before you run the "[Sybase - Rollback from Home and Instance](#)" workflow:

- The latest HPE DMA solution packs require the latest HPE DMA platform. To use the latest solution packs, update the HPE DMA platform. HPE DMA 10.40 solution packs are supported on HPE DMA 10.40 (and later).
- You have installed the HPE DMA Database Patching Solution Pack.
- You need to have Sybase provisioned and operational. You can do this by running the following workflows in the HPE DMA Database Provisioning Solution Pack:  
Create Sybase Database
- You have read access to all specified inventory pointers (Linux/UNIX).
- You have unchallenged sudo access to a user (typically root) who can access all required files and directories to download and execute.
- For more information about prerequisites for Sybase database, refer to the [Sybase Product Documentation](#).

## How this Workflow Works

The following information describes how the ["Sybase - Rollback from Home and Instance"](#) workflow works:

### **Overview**

This workflow does the following things in the order shown:

- The Sybase - Rollback from Home and Instance workflow first makes the necessary preparations before actually rolling back the EBF patch. It processes and validates user input parameters. It makes sure files exist or have valid specifications. It executes commands used in subsequent steps. It takes backup of the database, database tables, and server configuration, and shuts down the Sybase server.
- Then the workflow rolls back the EBF patch to the Sybase Database Home.
- To finish up, the workflow restarts all the Sybase Instances and attempts to restart the Sybase database.

### **Validation Checks Performed**

Much of the validation centers on the input parameters:

- The input parameters have the proper syntax (no special characters or spaces).
- Files exist or have valid specifications.

## Steps Used in Sybase - Rollback from Home and Instance

Workflow Step	Description
Prepare Sybase Call Wrapper v2	This step constructs the commands that will be used to execute subsequent workflow steps as either the OS administrative user or the owner of the Sybase ASE installation.
Gather Parameters for Rollback Patch from Home and Instance	This step gathers the required parameters for the Sybase - Rollback from Home and Instance workflow.
Gather Advanced Parameters for Rollback EBF Patch from Home and Instance	This step gathers the optional advanced parameters for the Sybase - Rollback from Home and Instance workflow.
Validate Parameters for Rollback EBF Patch from Home and Instance	This step validates the values specified for the input parameters used by the Sybase - Rollback from Home and Instance workflow. It also sets the values of various output parameters that will be consumed by subsequent steps.
Backup Sybase System Tables v2	This step takes backup the system tables and store the backup in the backup directory.
Backup Sybase System Databases v2	This step takes backup the user databases, schemas, and transaction logs and stores them in the backup directory.
Backup Sybase Server Config	This step takes backup the database server level configuration details and stores them in the backup directory.
Backup Sybase Directory v2	This step copies the entire Sybase installation as well as Sybase device files.
Shutdown Sybase Servers v2	This step shuts down the Sybase server prior to rollback of the EBF patch.
Restore Adaptive Server Home	This step rolls back EBF patch applied for Sybase ASE and restores Sybase Home.
Copy Directory	This step takes backup of the Sybase installation folder.
Startup Sybase Servers v2	This step implements the Sybase commands to startup the Sybase servers. It can startup dataserver, backupserver, and monserver if proper input parameter values are provided. It verifies that the servers have been started successfully by checking the process running on the operating system.
Copy Directory	This step takes backup of the Sybase installation folder.
Verify Post Sybase Rollback Patch	This step performs post patch validation for Rollback of EBF/ESD for the current Sybase ASE installation.

## Steps Used in Sybase - Rollback from Home and Instance, continued

Workflow Step	Description
Startup Sybase Servers v2	This step implements the Sybase commands to startup the Sybase servers. It can startup dataserver, backupserver, and monserver if proper input parameter values are provided. It verifies that the servers have been started successfully by checking the process running on the operating system.
Run Sybase Post Patch System Scripts	This step executes the Sybase system scripts necessary as configured in the workflow deployment post EBF patch rollback for the Sybase installation on the target server.
Shutdown Sybase Servers v2	This step shuts down the dataserver instance.
Shutdown Sybase Servers v2	This step shuts down the dataserver instance.
Update Sybase Version Tag	This step updates the Sybase Instance.Version metadata information for a Sybase Dataserver Instance.
Backout Rolledback Sybase ASE Home	This step backouts the rolled back Sybase ASE home.
Copy Directory	This step takes backup of the Sybase installation folder.
Startup Sybase Servers v2	This step invokes the Sybase commands to startup the Sybase servers. It can startup dataserver, backupserver, and monserver if proper input parameter values are provided. It verifies that the servers have been started successfully by checking the process running on the operating system.
Copy Directory	This step takes backup of the Sybase installation folder.
Startup Sybase Servers v2	This step invokes the Sybase commands to startup the Sybase servers. It can startup dataserver, backupserver, and monserver if proper input parameter values are provided. It verifies that the servers have been started successfully by checking the process running on the operating system.

For parameter descriptions and defaults, see ["Parameters for Sybase - Rollback Patch from Home and Instance" on page 134](#).

## How to Run this Workflow

The following instructions show you how to customize and run the Sybase - Rollback from Home and Instance workflow in your environment.

The workflow provides default values for some parameters. These default values are usually sufficient for a "typical" installation. You can override the defaults by specifying parameter values in the deployment. You can also expose additional parameters in the workflow, if necessary, to accomplish more advanced scenarios. Any parameters not explicitly specified in the deployment will have the default values listed in ["Parameters for Sybase - Rollback Patch from Home and Instance" on page 134](#).

**Note:** Before following this procedure, review the ["Prerequisites for this Workflow" on page 123](#), and ensure that all requirements are satisfied.

**To use the Sybase - Rollback from Home and Instance workflow:**

1. Create a deployable copy of the workflow.
2. Determine the values that you will specify for the following parameters:

## Call Wrapper Parameters

Parameter Name	Default Value	Required	Description
Call Wrapper	see description	required	Command that will execute this step (or subsequent steps) as a specific user. For UNIX targets, the default is: <code>/opt/hp/dma/client/jython.sh</code> running as root
Sybase OS User Name	sybase	required	OS user who owns the Sybase ASE installation directory.

## Basic Parameters

Parameter Name	Default Value	Required	Description
Backup Sybase System Databases	Yes	optional	Flag that determines whether to backup Sybase system databases before EBF patch is rolled back. If yes, Sybase system database backup is taken. If no, Sybase system configuration backup is not taken. Valid values are y, yes, true, n, no, or false. Default is yes.
Backup Sybase System Tables	Yes	optional	Flag that determines whether to backup Sybase system tables before EBF patch is rolled back. If yes, Sybase system table backup is taken. If no, Sybase system configuration backup is not taken. Valid values are y, yes, true, n, no, or false. Default is yes.
Sybase Backup Directory to Rollback	no default	required	The fully-qualified backup directory of the Sybase ASE binary files that was created before applying the recent EBF/ESD Patch. Example: <code>/opt/syb_backup/EBF20953/sybase</code>
Sybase Data Directory after Rollback	no default	required	The fully-qualified directory of the Sybase ASE data files that is created after the rollback.
Sybase Installation Backup Directory	no default	required	The directory where the workflow will back up the current (working) Sybase installation directory, important system tables backup, and server configuration backup. Example: <code>opt/sybase/ase_155_backup_20120829</code>



## Advanced Parameters

Parameter Name	Default Value	Required	Description
Backup Server Name	no default	optional	The Backup Server name associated with the Adaptive Server (dataserver). Backup Server is responsible for performing backups (dumps) and restores (loads) on selected databases and transaction logs. If not specified, it will not be rebooted after rolling back the patch.
Clean on Failure	no default	optional	Flag that determines whether to clean up on workflow failure.  If yes, downloaded files will be cleaned up on failure of workflow.  Valid values are y, yes, true, n, no, or false. Default is yes.
Master Device Name	master.dat	optional	Name of the Sybase system device where the master database is mounted and running. If the default device for the master database is not master.dat, it is required. If using raw device provisioning and the master database is mounted on dev/raw/raw1, then the value can be raw1. The default is master.
Monitor Server Name	no default	optional	The Monitor Server name associated with the Adaptive Server (dataserver). Monitor Server is responsible for monitoring and supervising of Adaptive Server. If not specified, it will not be rebooted after rolling back the patch.
Server Errorlog File Format	%s.log	optional	Adaptive Server errorlog file format. Used to allow a non-standard SAP server errorlog file name. Specify your own format that includes '%s'. The '%s' will be replaced with the Adaptive Server name. For example, if set to errorLog_%s and the server name is 'NY_DS', the workflow will create the errorlog file errorLog_NY_DS. The same convention also applies if any backupserver or monserver are being patched and rebooted.  The default is %s.log.
Sybase Installed Home	no default	required	The current Sybase installation directory with absolute path. If Discovery was run

## Advanced Parameters, continued

Parameter Name	Default Value	Required	Description
			before executing the current workflow, the default is populated from the SA core. If user wants to specify installation directory other than the one that is discovered, then it can be specified. Example: /opt/sybase.
Sybase Instance Name	no default	required	The current Sybase ASE Server/instance name. If Discovery was run before executing the current workflow, the default is populated from the SA core. If user wants to specify Sybase ASE Instance/Server other than the one that is discovered, then it can be specified. Example: LN_SERVER.
Sybase Instance Password	no default	required	The current Sybase ASE Server/instance login password. If Discovery was run before executing the current workflow, the default is populated from the SA core. If user wants to specify Sybase ASE Instance/Server login password other than the one that is discovered, then it can be specified. Example: PaS#%&Wor*
Sybase Instance User	no default	required	The current Sybase ASE Server/instance login user. If Discovery was run before executing the current workflow, the default is populated from the SA core. If user wants to specify Sybase ASE Instance/Server login user other than the one that is discovered, then it can be specified. Example: sa.
Sybase Post Patch System Script List	installmaster, instmsgs.ebf, installcommit	optional	Comma-separated list of Sybase provided scripts to be run after rolling back the patch from the Sybase instance. These scripts make the appropriate changes to the system tables and procedures and update the Adaptive Server version. The default is 'installmaster, instmsgs.ebf, or installcommit.

- In the workflow editor, expose any additional parameters that you need. You will specify values for those parameters when you create the deployment.
- Save the changes to the workflow (click **Save** in the lower right corner).

5. Create a new deployment.
6. On the Parameters tab, specify values for the required parameters listed in step 2. You do not need to specify values for those parameters whose default values are appropriate for your environment.
7. On the Targets tab, specify one or more targets for this deployment.
8. Save the deployment (click **Save** in the lower right corner).
9. Run the workflow using this deployment.

**To verify the results:**

See the Console page output for error messages that indicate whether problems occurred during the application of the patches. The workflow will complete and report SUCCESS on the Console if it has run successfully. If an error occurs during workflow execution, the error is logged, and the workflow terminates in the FAILURE state.

*Optional:* If you want to further verify that the patch was successfully applied to the Sybase Database Instances associated with the Sybase Home:

1. Verify the EBF version by querying the global variable (@@version) value. It should match the EBF Patch Number specified.
2. Verify that all databases are online and users are able to log-in.
3. Run basic database consistency check commands, and ensure that no errors are reported.

## Sample Scenario

It is very straightforward to run the Sybase - Rollback from Home and Instance workflow. This topic shows you typical parameter values to use.

### Input Parameters for "Prepare Sybase Call Wrapper"

Parameter Name	Example Value	Description
Call Wrapper	jython	The command that executes the step as the OS administrative user (for example, <code>sudo su - root /opt/hp/dma/client/bin/jython.sh</code> for UNIX targets)
Sybase OS User Name	sybase	Sybase Account OS user who owns the Sybase ASE installation directory. Workflow steps will switch to Sybase Account user to perform any administrative tasks where Sybase Account User is necessary.

### Input Parameters for "Gather Parameters for Rollback Patch from Home and Instance"

Parameter Name	Example Value	Description
Backup Sybase System Databases	yes	Flag that determines whether to backup sybase system databases before EBF patch is applied. If yes, backup sybase system databases will be done before EBF patching. If no, backup sybase system databases will be skipped.
Backup Sybase System Tables	yes	Flag that determines whether to backup sybase system tables before EBF patch is applied. If yes, backup sybase system tables will be done before EBF patching. If no, backup sybase system tables will be skipped.
Sybase Backup Data Directory to Rollback	/opt/app/syb_backup/EBF20953/syb_data	The fully-qualified robust backup directory of the Sybase ASE data files that was created before applying the recent EBF/ESD Patch.
Sybase Backup Directory to Rollback	/opt/app/syb_backup/EBF20953/sybase	The fully-qualified robust backup directory of the Sybase ASE binary files that was created before applying the recent EBF/ESD Patch.
Sybase Data Directory after Rollback	/opt/app/syb_data	The fully-qualified directory of the Sybase ASE data files that is created after rollback.
Sybase Installation Backup	/opt/app/syb_backup/ase_157_backup20150508	The directory where the workflow will back up the current (working) Sybase installation directory, important system tables backup, and server configuration backup.

## Input Parameters for "Gather Parameters for Rollback Patch from Home and Instance", continued

Parameter Name	Example Value	Description
Directory		

## Input Parameters for "Gather Advanced Parameters for Sybase Rollback from Home and Instance"

Parameter Name	Example Value	Description
Backup server Name	BS_200	The Backup Server name associated with the Adaptive Server ('dataserver'). Backup Server is responsible for performing backups (dumps) and restores (loads) on selected databases and transaction logs. If not specified, it will not be rebooted after rolling back the patch.
Clean on Failure	yes	Flag that determines whether to clean up on workflow failure. If yes, downloaded files will be cleaned up on failure of workflow.

## Parameters for Sybase - Rollback Patch from Home and Instance

The following tables describe the required and optional input parameters for this workflow.

### Input Parameters for Prepare Sybase Call Wrapper

Parameter Name	Default Value	Required	Description
Call Wrapper	see description	required	Command that will execute this step (or subsequent steps) as a specific user.  For UNIX targets, the default is:  <code>/opt/hp/dma/client/jython.sh</code> running as root
Sybase OS User Name	sybase	required	OS user who owns the Sybase ASE installation directory.

### Input Parameters for Gather Parameters for Rollback Patch Home and Instance

Parameter Name	Default Value	Required	Description
Backup Sybase System Databases	Yes	optional	Flag that determines whether to backup Sybase system databases before EBF patch is rolled back.  If yes, Sybase system database backup is taken. If no, Sybase system configuration backup is not taken.  Valid values are y, yes, true, n, no, or false. Default is yes.
Backup Sybase System Tables	Yes	optional	Flag that determines whether to backup Sybase system tables before EBF patch is rolled back.  If yes, Sybase system table backup is taken. If no, Sybase system configuration backup is not taken.  Valid values are y, yes, true, n, no, or false. Default is yes.
Sybase Backup Data Directory to Rollback	no default	required	The fully-qualified backup directory of the Sybase ASE data files that was created before applying the recent EBF/ESD Patch.  Example: <code>/opt/syb_backup/EBF20953/syb_data</code>
Sybase Backup Directory to Rollback	no default	required	The fully-qualified backup directory of the Sybase ASE binary files that was created before applying the recent EBF/ESD Patch.  Example: <code>/opt/syb_backup/EBF20953/sybase</code>
Sybase Installation Backup Directory	no default	required	The directory where the workflow will back up the current (working) Sybase installation directory, important system tables backup, and server configuration backup.  Example: <code>opt/sybase/ase_155_backup_20120829</code>

## Additional Input Parameters for Gather Advanced Parameters for Sybase Rollback Home and Instance

Parameter Name	Default Value	Required	Description
Backup Server Name	no default	optional	The Backup Server name associated with the Adaptive Server (dataserver). Backup Server is responsible for performing backups (dumps) and restores (loads) on selected databases and transaction logs. If not specified, it will not be rebooted after rolling back the patch.
Clean on Failure	no default	optional	Flag that determines whether to clean up on workflow failure.  If yes, downloaded files will be cleaned up on failure of workflow.  Valid values are y, yes, true, n, no, or false. Default is yes.
Master Device Name	master.dat	optional	Name of the Sybase system device where the master database is mounted and running. If the default device for the master database is not master.dat, it is required. If using raw device provisioning and the master database is mounted on dev/raw/raw1, then the value can be raw1.  The default is master.
Monitor Server Name	no default	optional	The Monitor Server name associated with the Adaptive Server (dataserver). Monitor Server is responsible for monitoring and supervising of Adaptive Server. If not specified, it will not be rebooted after rolling back the patch.
Server Errorlog File Format	%s.log	optional	Adaptive Server errorlog file format. Used to allow a non-standard SAP server errorlog file name. Specify your own format that includes '%s'. The '%s' will be replaced with the Adaptive Server name. For example, if set to errorLog_%s and the server name is 'NY_DS', the workflow will create the errorlog file errorLog_NY_DS. The same convention also applies if any backupserver or monserver are being patched and rebooted.  The default is %s.log.
Sybase Installed Home	no default	required	The current Sybase installation directory with absolute path. If Discovery was run before executing the current workflow, the default is populated from the SA core. If user wants to specify installation directory other than the one that is discovered, then it can be specified.

## Additional Input Parameters for Gather Advanced Parameters for Sybase Rollback Home and Instance, continued

Parameter Name	Default Value	Required	Description
			Example: /opt/sybase/.
Sybase Instance Name	no default	required	The current Sybase ASE Server/instance name. If Discovery was run before executing the current workflow, the default is populated from the SA core. If user wants to specify Sybase ASE Instance/Server other than the one that is discovered, then it can be specified. Example: LN_SERVER.
Sybase Instance Password	no default	required	The current Sybase ASE Server/instance login password. If Discovery was run before executing the current workflow, the default is populated from the SA core. If user wants to specify Sybase ASE Instance/Server login password other than the one that is discovered, then it can be specified.  Example: PaS#%&Wor*
Sybase Instance User	no default	required	The current Sybase ASE Server/instance login user. If Discovery was run before executing the current workflow, the default is populated from the SA core. If user wants to specify Sybase ASE Instance/Server login user other than the one that is discovered, then it can be specified.  Example: sas.
Sybase Post Patch System Script List	installmaster, instmsgs.ebf, installcommit	optional	Comma-separated list of Sybase provided scripts to be run after rolling back the patch from the Sybase instance. These scripts make the appropriate changes to the system tables and procedures and update the Adaptive Server version.  The default is 'installmaster, instmsgs.ebf, or installcommit.



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