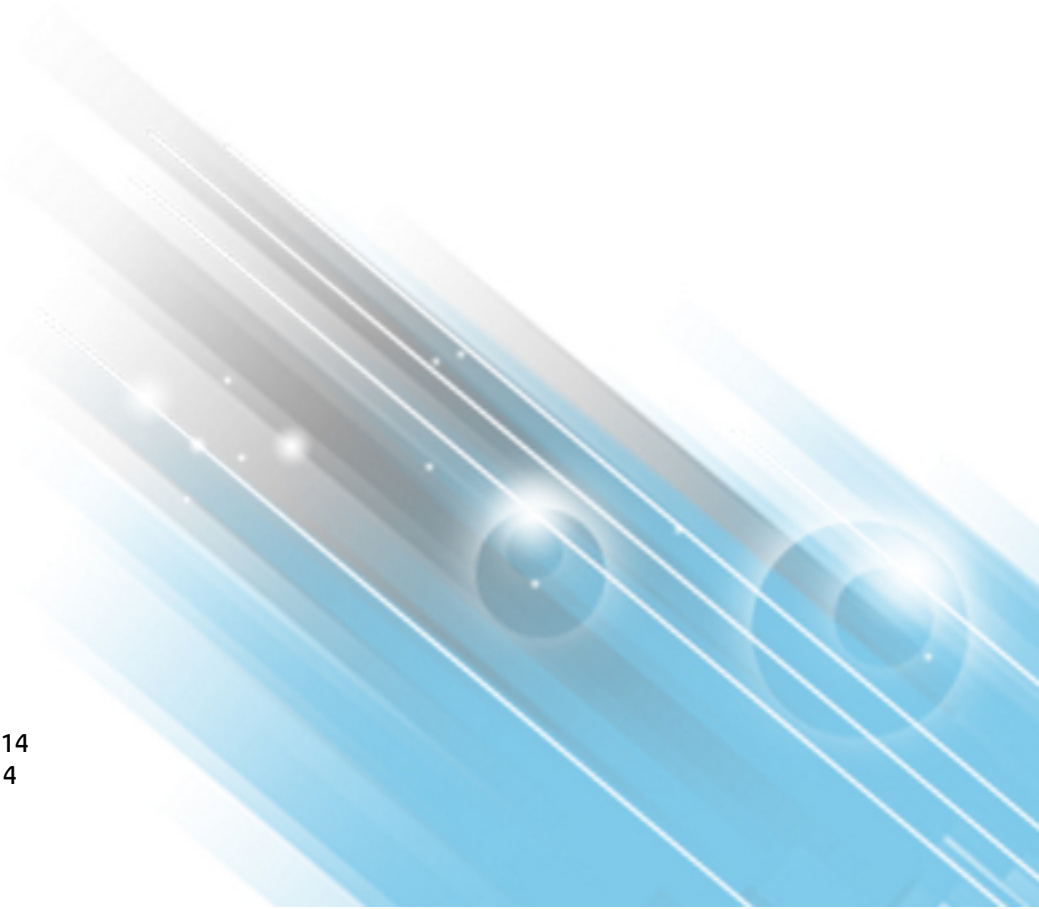
HP Anywhere

Software Version: 10.12
Windows

Installation, Configuration, and Upgrade Guide



Document Release Date: September 2014
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Contents

Part 1: Installing and Configuring HP Anywhere

Chapter 1: How to Install HP Anywhere Server 10.12

When you install a version of HP Anywhere later than version 10.10, first install HP Anywhere 10.10 as described in Part 1 of this guide, and then upgrade to version 10.12 as described in Part 2 of this guide.

Prerequisites:

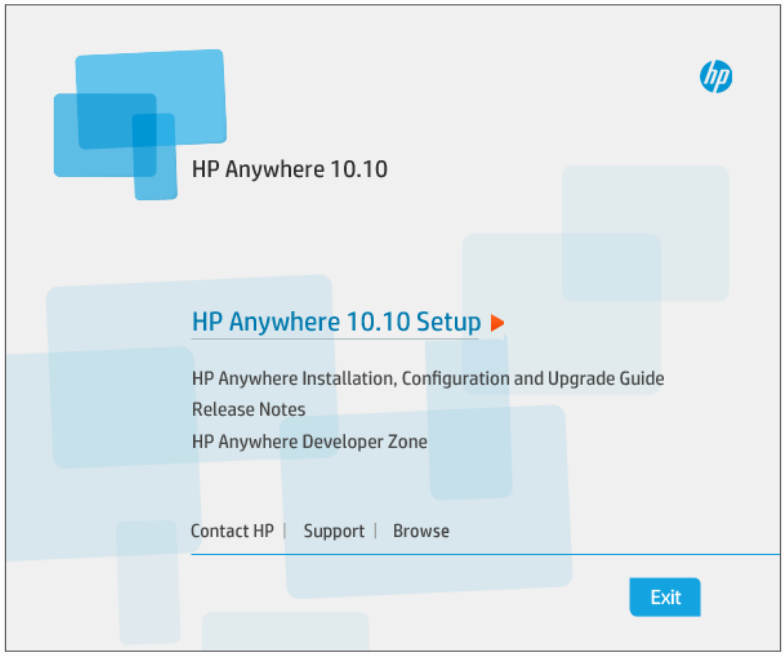
- Before installing the HP Anywhere server, make sure that your system meets the minimum system requirements as listed in the Support Matrix.
- Before beginning the installation, make sure you define an Oracle or SQL user with the appropriate permissions as described in "Create HP Anywhere Database—Oracle Database Server" on page 28 and "Create HP Anywhere Database—SQL Server" on page 11.

Note: You must have administrator privileges to install/uninstall the HP Anywhere Server.

To install the HP Anywhere Server:

1. Do one of the following:
   - If you downloaded HP Anywhere, extract the installation folder (**HP_Anywhere_10.10.zip**) locally and run **HP_Anywhere_10.10_setup.exe**.

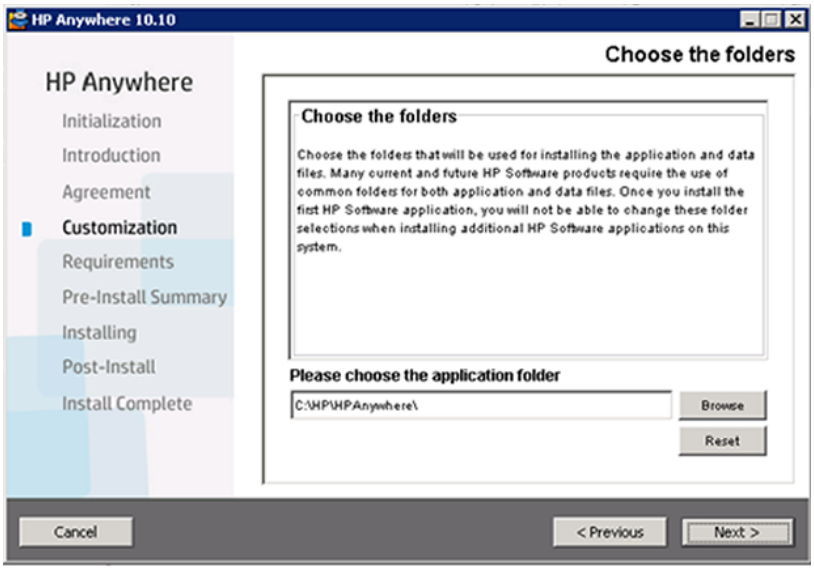
- If you are installing from the DVD, click **HP Anywhere 10.10 Setup**.



2. In the Introduction page, click **Next**.

3. In the License Agreement page, select **I accept the terms of the License Agreement**. Click **Next**.

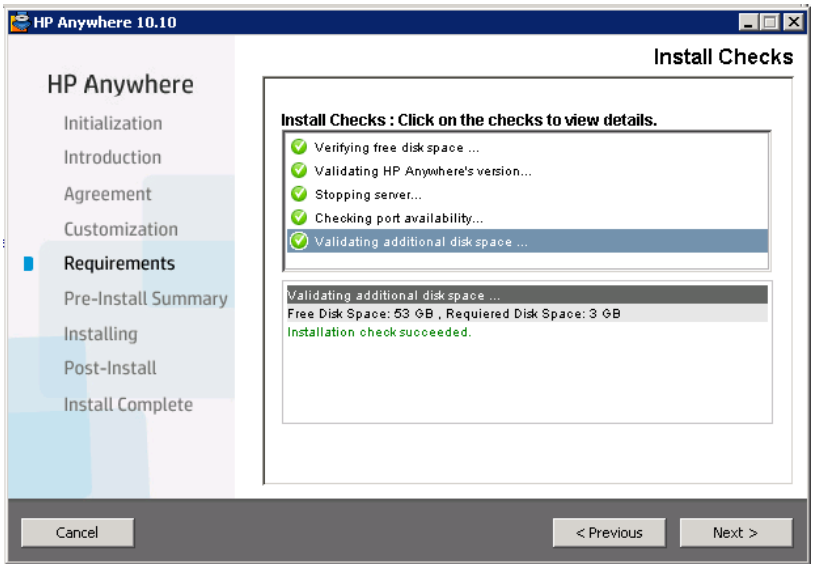
4. In the Choose the folders page, click **Browse** to select an installation folder or accept the default path.



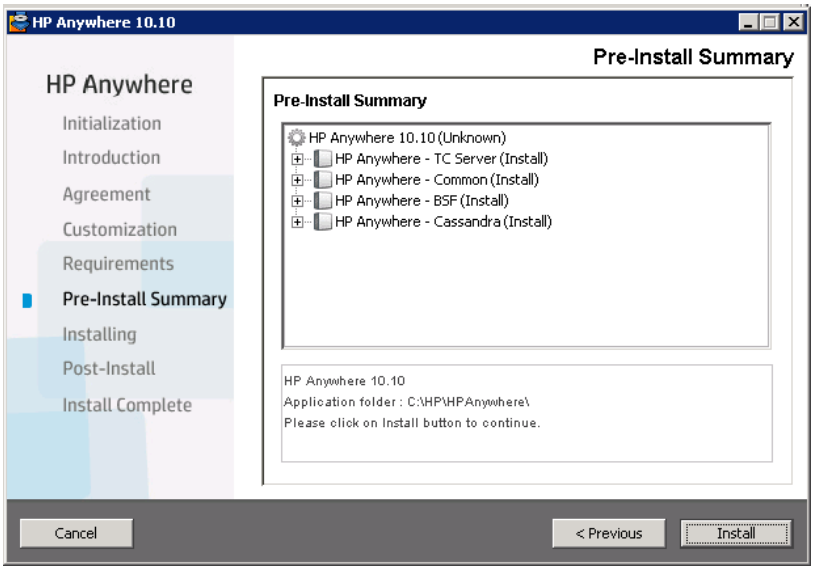
Note: You cannot install HP Anywhere in a folder that contain spaces.

Tip: If you enter a different folder and want to revert to the default folder, click **Reset**.

5. Click **Next**. In the Install Checks page,the system checks disk space and port availability. Click **Next**



6. In the Pre-Install Summary page, click **Install**.



After the installation is completed, the Configuration Wizard opens, enabling you to perform post-installation steps.

- If you are using an MS SQL database server, continue to "Create HP Anywhere Database—SQL Server" on page 11.
- If you are using an Oracle database server, skip to "Create HP Anywhere Database—Oracle Database Server" on page 28.

Note: If the installation fails for any reason, the installer enables you to roll back to the initial stage. This uninstalls all installed components, but requires you to manually delete the newly defined %BTOA_HOME% environment variable.

7. Upgrade the HP Anywhere server to 10.11 as described in "Part 2: Upgrading the HP Anywhere Server to 10.12" on page 83.

Chapter 2: Create HP Anywhere Database—SQL Server

This section describes how to create an HP Anywhere database using an SQL server. You can create a new database using the Configuration Wizard, or you can create an SQL server database manually, and then run the Configuration to complete the process.

This section includes:

For details on creating an Oracle database, see "Create HP Anywhere Database—Oracle Database Server" on page 28.

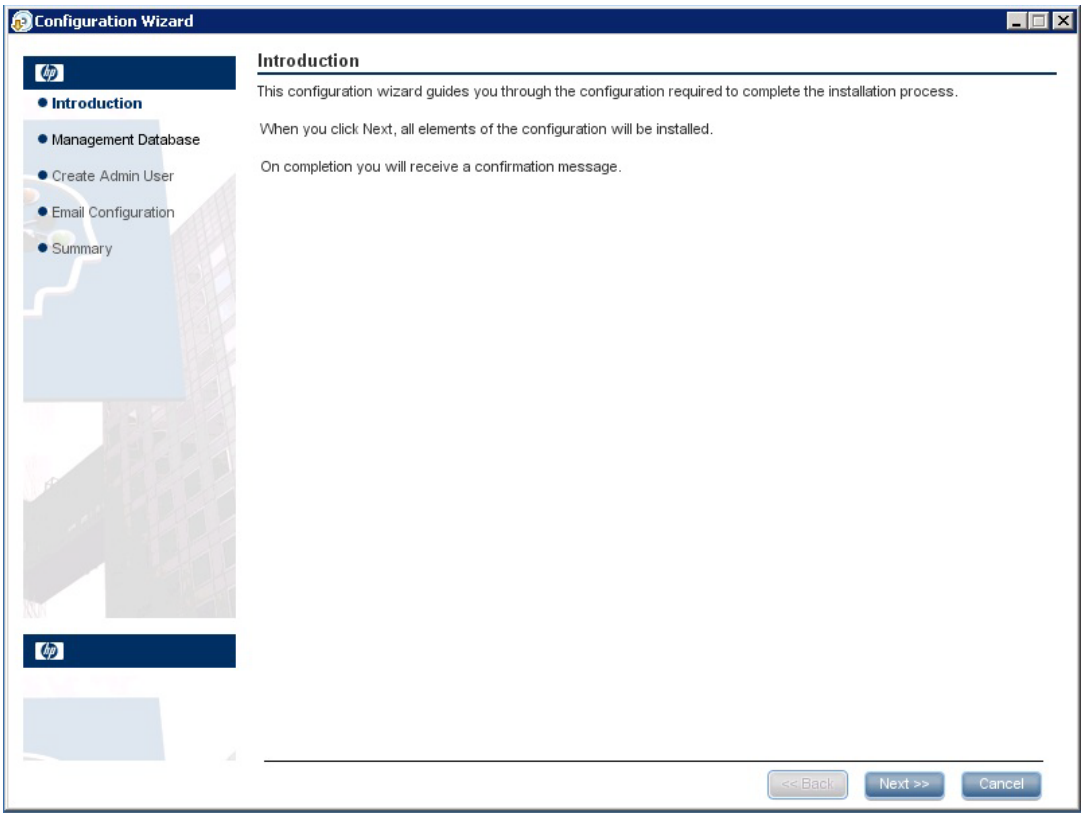
Microsoft SQL Server—Create New Database

This section describes how to create a new HP Anywhere database using an SQL server.

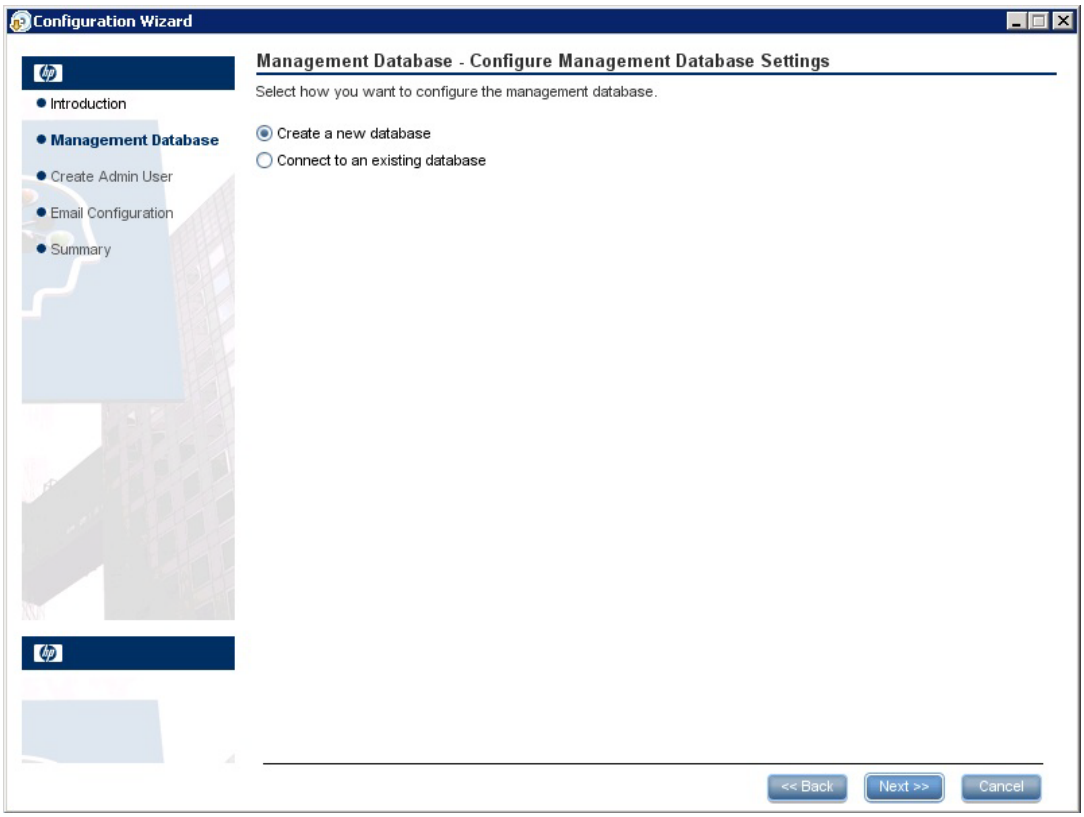
Note: To install and configure the database, log on as user **sa**. If you want to use a **non-sa user**, go to "You can create an SQL server database using either of the following types of users:" on page 21.

1. Open the Configuration Wizard (if it is not already open) from **Start > All Programs> HP > HP Anywhere > Run Configuration Wizard**.

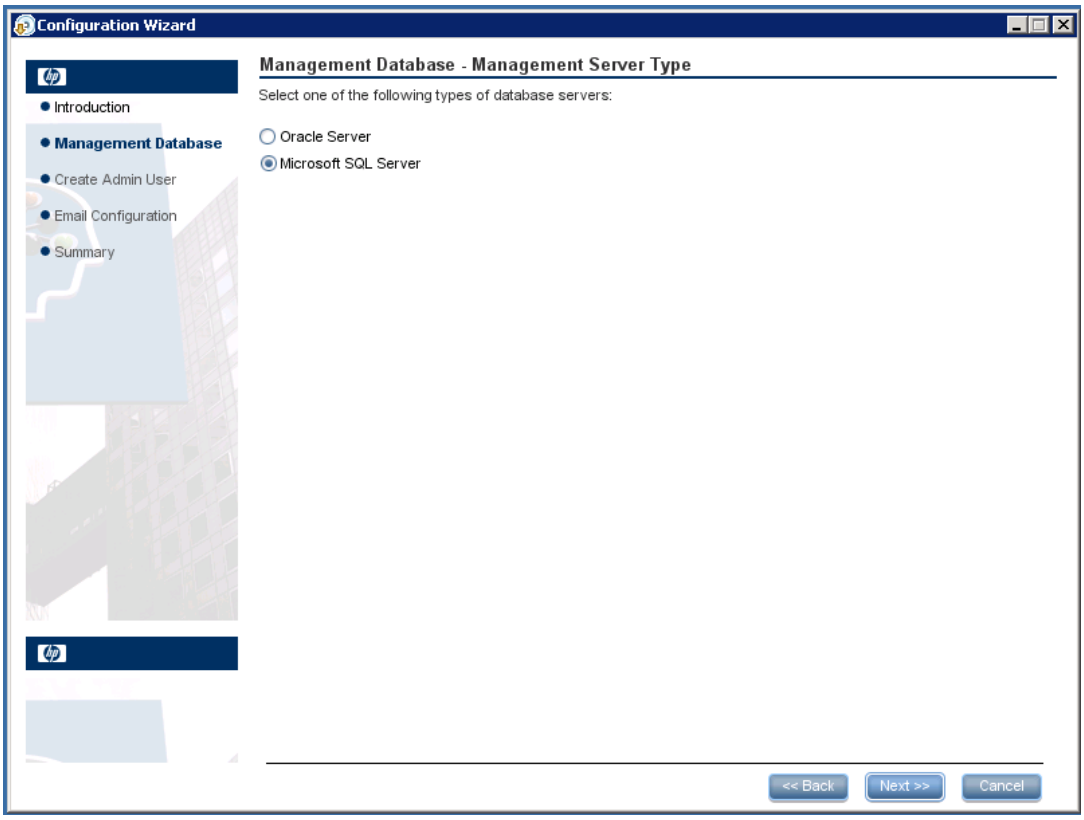
   In the Introduction page, click **Next**.



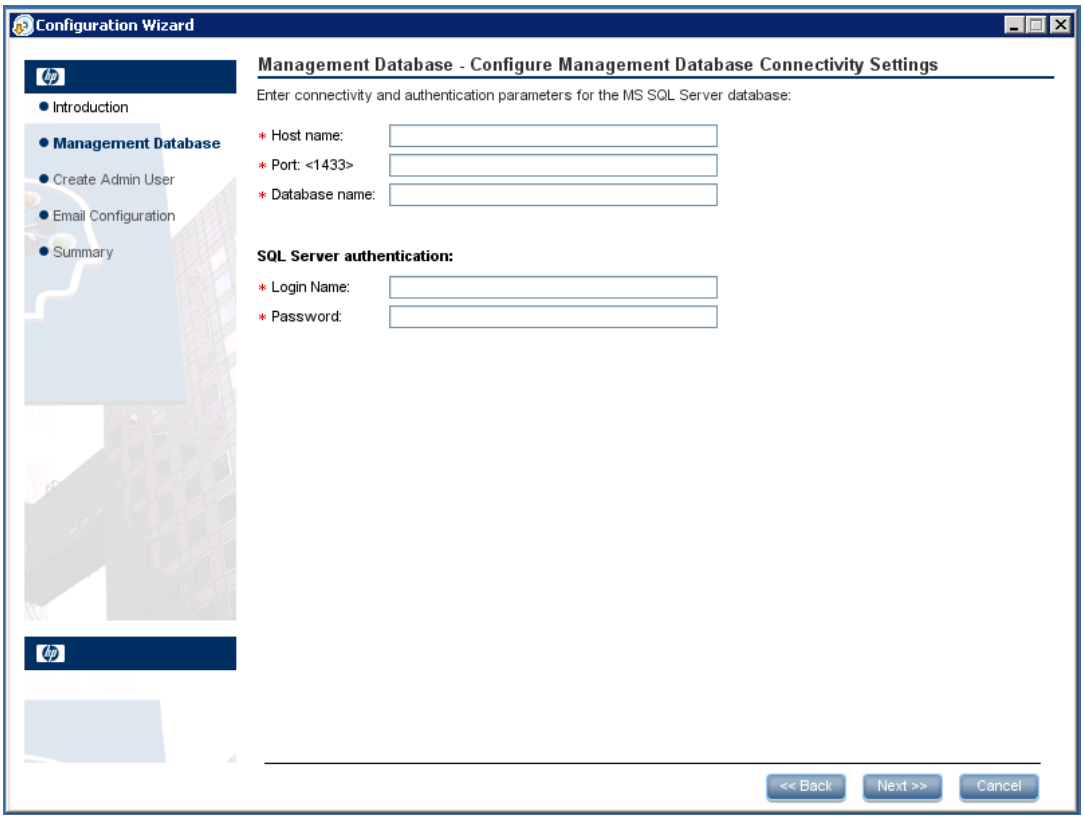
2. In the Management Database - Configure Management Database Settings page, select **Create a new database** and click **Next**.



3. In the Management Database - Management Server Type page, select **Microsoft SQL Server** and click **Next**.

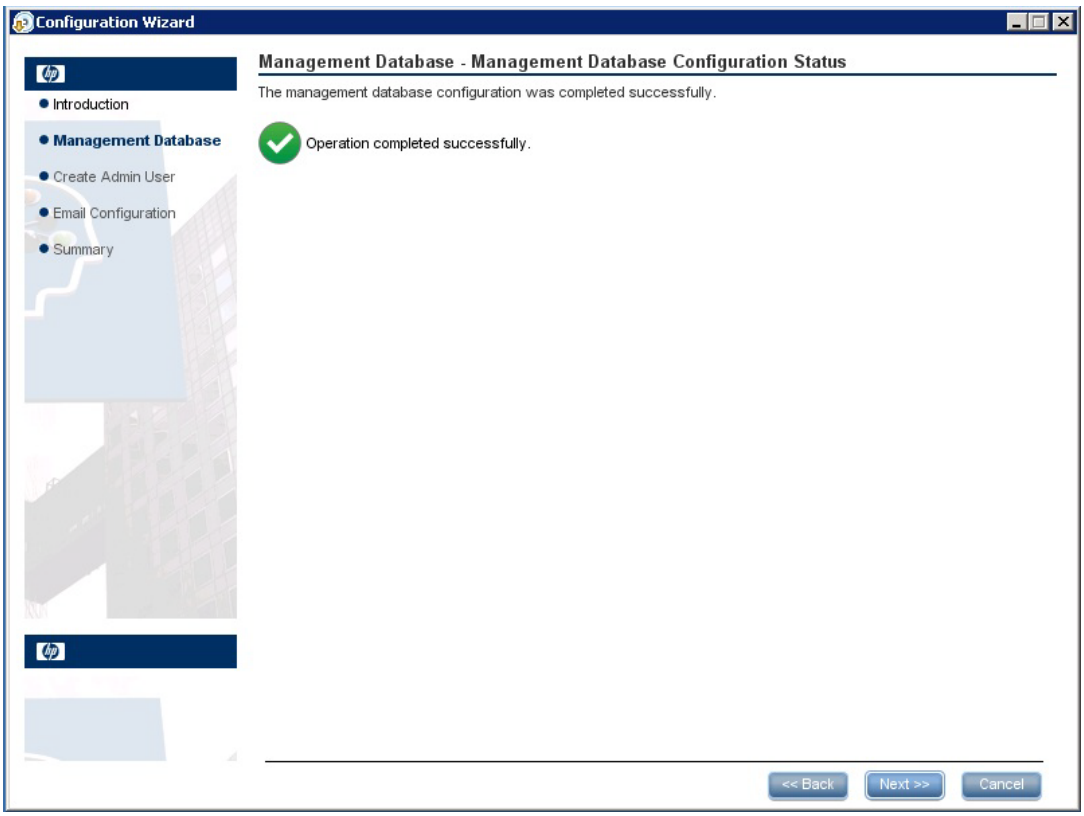


4. Enter information to configure the SQL server database as described in the table below and click **Next**.

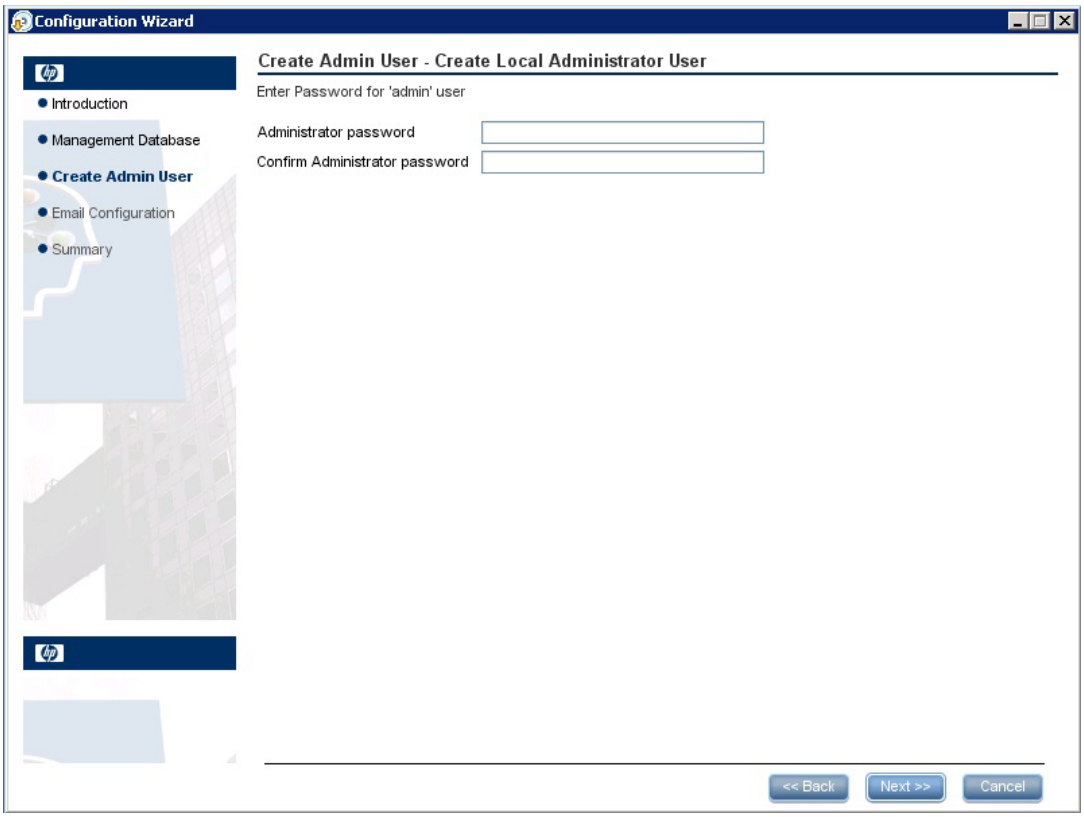


Parameter	Description
Host name	Enter the MS SQL host name or IP address. For a named instance, enter the host name in the format: <hostname/IP>\<instanceName>.
Port	The port of the MS SQL server listener. The default port is 1433. If the port is static, you can set the port to an instance port. If the port is dynamic, use the default port,1433.
Database Name	The internal name of the HP Anywhere database.
SQL Server authentication	
Login Name	The MS SQL login name used to create or connect to the database.
Password	The password for the specified user.

5. After the operation completes successfully, click **Next**.

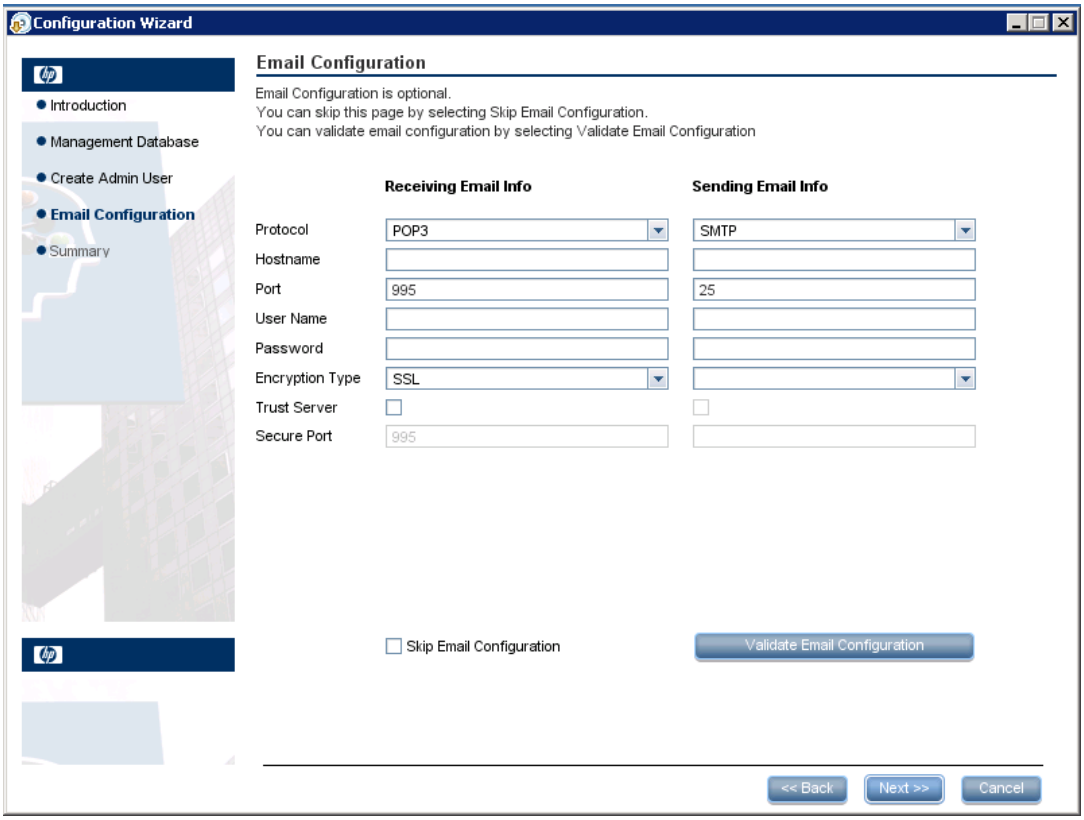


6. Set the password for a temporary HP Anywhere administrator user named **admin** and click **Next**.



With this user you can log in as an HP Anywhere administrator until you configure authentication using LDAP.

7. [Optional] In the Email Configuration page, configure the values, as needed, and click **Next**.



Note: You can skip email configuration by selecting the **Skip Email Configuration** checkbox. You can set the email configuration at a later stage in the Email settings section of the **Administrator Console > Settings** page.

Parameter	Description
Receiving Email Info	
Protocol	From the drop down list, select either **POP3** or **IMAP4**.
Hostname	The hostname of the incoming mail server.
User Name	The HP Anywhere mailbox username for receiving emails.
Port	The port for the incoming mail server.

Parameter	Description
Password	The password for the HP Anywhere mailbox.
Encryption Type	SSL or TLS.
Trust Server	To work with an encrypted mail server (SSL/TLS), select this checkbox, enter one of the server SSL ports, and click **Validate Email Configuration**. This allows HP Anywhere to trust the email server, creates the server certificate, and adds it to the HP Anywhere JRE keystore.
Secure Port	Enter the secure port number. If you selected SSL in the Encryption Type, this field is disabled as you do not need to enter a port number.
Sending Email Info	
Protocol	**SMTP** is displayed by default.
Hostname	The hostname of the outgoing mail server.
User Name	The HP Anywhere mailbox username for sending emails.
Port	The port for the outgoing mail server.
Password	The password for the HP Anywhere mailbox.
Encryption Type	SSL or TLS.
Trust Server	To work with an encrypted mail server (SSL/TLS), select this checkbox, enter one of the server SSL ports, and click **Validate Email Configuration**. This allows HP Anywhere to trust the email server, creates the server certificate, and adds it to the HP Anywhere JRE keystore.
Secure Port	Enter the secure port number. If you selected SSL in the Encryption Type, this field is disabled as you do not need to enter a port number.

8. In the **Successfully Installed** page, click **Done**.

After successful installation and configuration, the following shortcuts appear in the **Start > All Programs** menu, under the **HP > HP Anywhere** folder:

- Run Configuration Wizard. For details, see "Create HP Anywhere Database—SQL Server" on page 11.
- Start HP Anywhere (starts the HP Anywhere and Cassandra services)
- Stop HP Anywhere (stops the HP Anywhere and Cassandra services)
- Uninstall HP Anywhere. For details, see "Uninstall HP Anywhere Server" on page 79.

Microsoft SQL Server—Manually Create and Populate Database

This section describes how to manually create a database and database user, run the Configuration Wizard, and populate the database.

You can create an SQL server database using either of the following types of users:

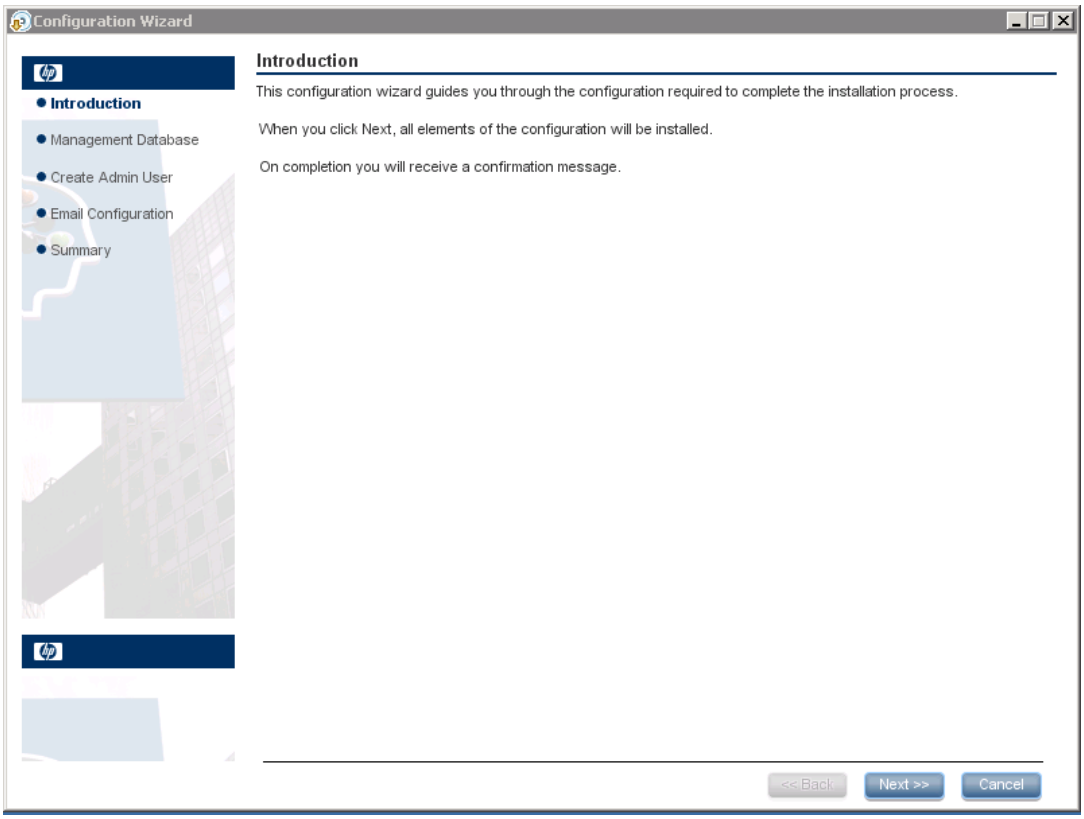
- **sa**. Run steps 1 to 6 below (skipping step 2).
- **non-sa**. Run all the steps below.

Stage 1: Create an SQL server database

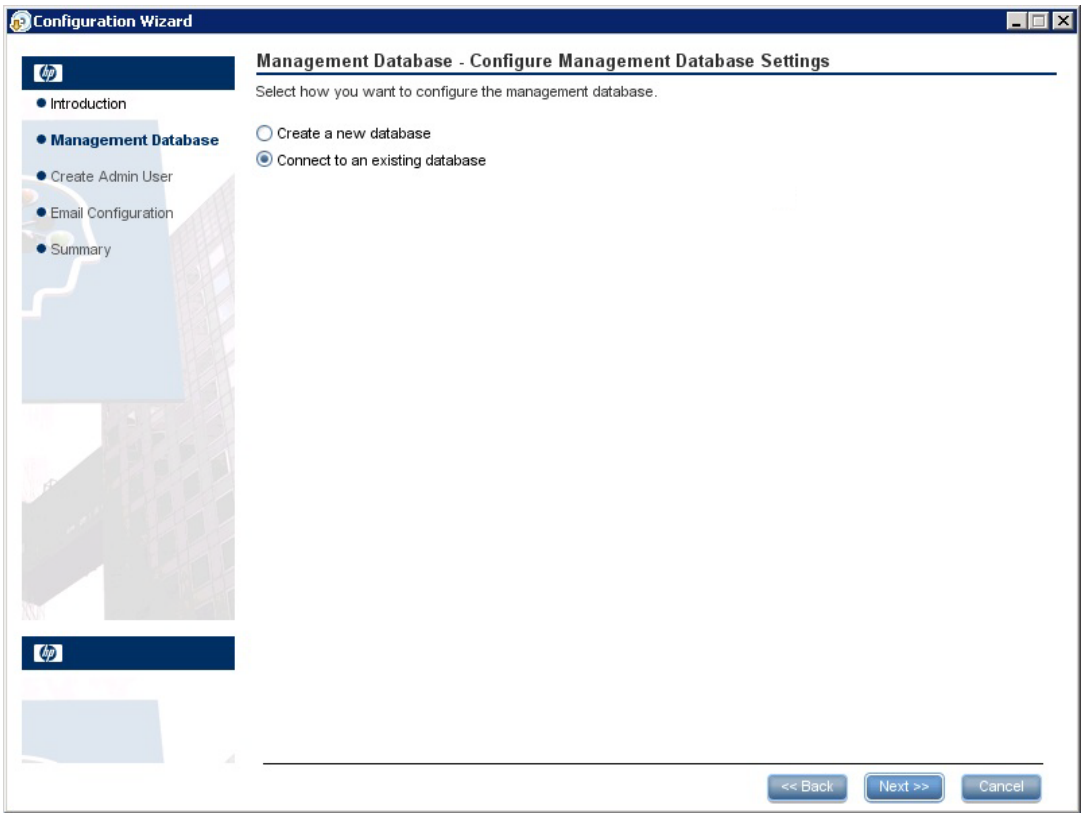
1. Browse to the MSSQL scripts folder:
   <HP_Anywhere_installation_directory>\confwizard\conf\scripts\database\mssql.
   a. Open the **mssql_create_tenant.sql** script in a text editor.
   b. Replace all occurrences of **${dbName}** with the database name, and run the script.
2. (For non-sa users only) Edit the **mssql-create-login-and-user.sql** script:
   a. Do the following:
      - Replace **${dbName}** with the created database name.
      - Replace **${mappedUsername}** with the MS SQL user name. This defines a new MS SQL user name.
      - Replace **${mappedUserPassword}** with the MSSQL password.This defines the password for the new MS SQL user.
   b. Run the script.
3. Run the **mssql_create_central_schema.sql** script.
4. Run the **mssql_create_bsf_schema.sql** scripts.
5. Edit the **mssql_create_diamond_schema.sql** script by replacing **${dbName**} with the created database name. Then run the script, ignoring the warnings about the key lengths.

Stage 2: Configuration Wizard Steps (Oracle)

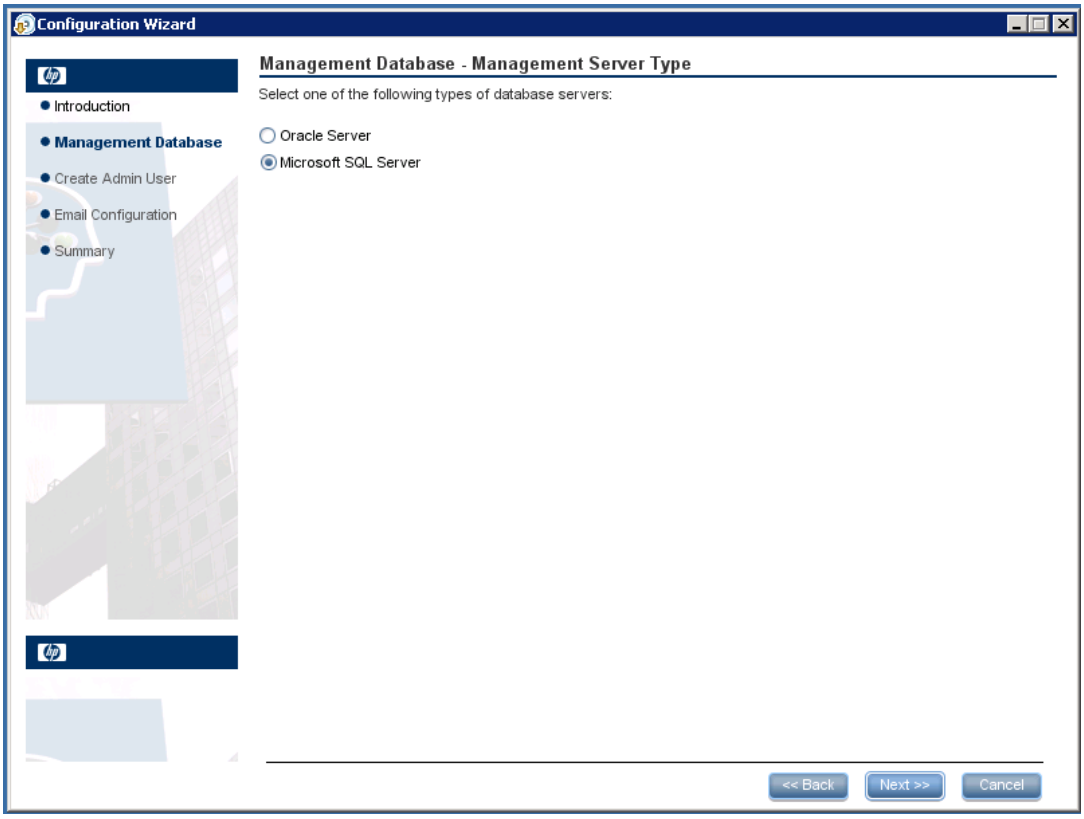
6. Open the Configuration Wizard (if it is not already open) from **Start > All Programs> HP > HP Anywhere > Run Configuration Wizard**. In the Introduction page, click **Next**.



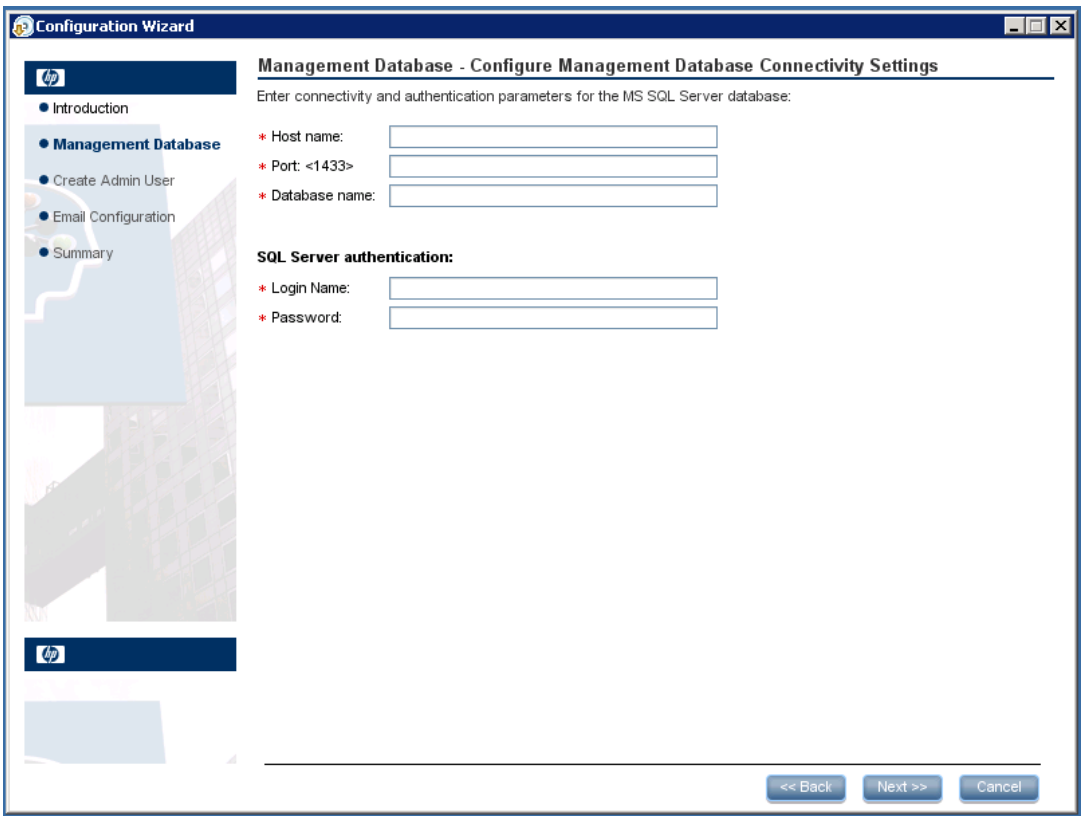
7. In the Management Database - Configure Management Database Settings page, select **Connect to an existing database** and click **Next**.



8. In the Management Database - Management Server Type page, select **Microsoft SQL Server** and click **Next**.



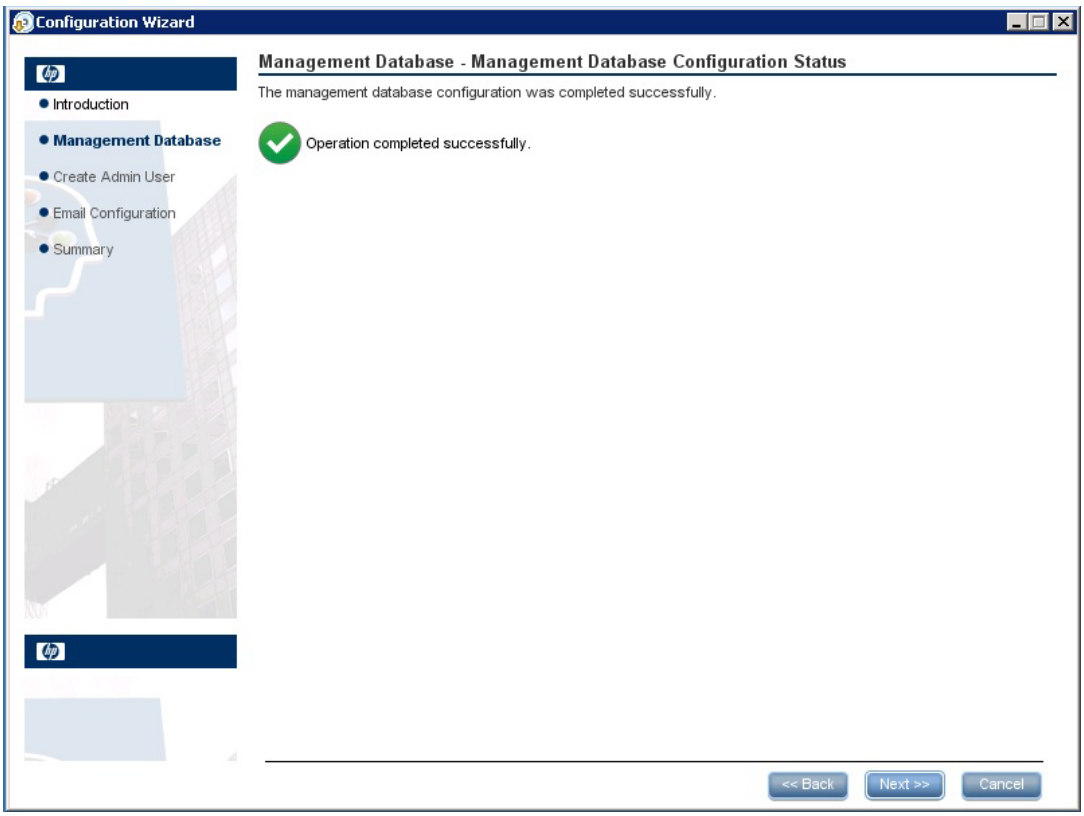
9. Enter information to configure the SQL server database as described in the table below:



Parameter	Description
Host name	Enter the MS SQL host name or IP address. For a named instance, enter the host name in the format: <hostname/IP>\<instanceName>
Port	The port of the MS SQL server listener. The default port is 1433. For a named instance, if the port is static, you can set the port to an instance port. If the port is dynamic, use the default port, 1433.
Database Name	The internal name of the management database.
SQL Server authentication	
Login Name	The MS SQL login name used to create or connect to the database.
Password	The password for the specified user.

10. Click **Next**.

11. After the operation completes successfully, click **Next**.



12. Click **Next**. In the **Successfully Installed** page, click **Done**.

Stage 3: Create an HP Anywhere administrator user

13. Browse to the population folder (**<*HP_Anywhere_installation_directory*>\conf\population**) and run the following scripts:

    a. **populate-db.bat**

    b. **populate-admin.bat** with the following two parameters (with a space between them):

    - Administrator user name
    - Administrator user password

    With this user, you can login as HP Anywhere administrator until you configure authentication using LDAP.

After successful installation and configuration, the following shortcuts are added in the **Start > All Programs** menu, under the **HP > HP Anywhere** folder:

- Run Configuration Wizard. For details, see "Create HP Anywhere Database—SQL Server" on page 11.
- Start HP Anywhere (starts the HP Anywhere and Cassandra services)
- Stop HP Anywhere (stops the HP Anywhere and Cassandra services)
- Uninstall HP Anywhere. For details, see "Uninstall HP Anywhere Server" on page 79.

Chapter 3: Create HP Anywhere Database—Oracle Database Server

This section describes how to create an HP Anywhere database using an Oracle server. You can create a new database using the Configuration Wizard, or you can create an Oracle server database manually, and then run the Configuration to complete the process.

This section includes:

For details on creating an SQL database, see "Create HP Anywhere Database—SQL Server" on page 11.

Oracle Server—Create New Database

This section describes how to create an Oracle server user will be used to create the HP Anywhere schema, and how to create an Oracle database.

Stage 1: Create an Oracle user with administrator privileges

1. Create a user in the Oracle server with the required privileges and assign the following permissions to that user:

```
CREATE USER <user_name>
IDENTIFIED BY <user_name>
DEFAULT TABLESPACE <tablespace name>
TEMPORARY TABLESPACE <temp tablespace name>;
GRANT "CONNECT" TO <user_name> WITH ADMIN OPTION;
GRANT UNLIMITED TABLESPACE TO <user_name>;
GRANT SELECT_CATALOG_ROLE TO <user_name> WITH ADMIN OPTION;
GRANT RESOURCE TO <user_name> WITH ADMIN OPTION;
GRANT CREATE USER TO <user_name> WITH ADMIN OPTION;
GRANT UNLIMITED TABLESPACE TO <user_name> WITH ADMIN OPTION;
GRANT CREATE VIEW TO <user_name> WITH ADMIN OPTION;
GRANT CREATE TYPE TO <user_name> WITH ADMIN OPTION;
GRANT CREATE TABLE TO <user_name> WITH ADMIN OPTION;
GRANT CREATE TRIGGER TO <user_name> WITH ADMIN OPTION;
GRANT CREATE SEQUENCE TO <user_name> WITH ADMIN OPTION;
```

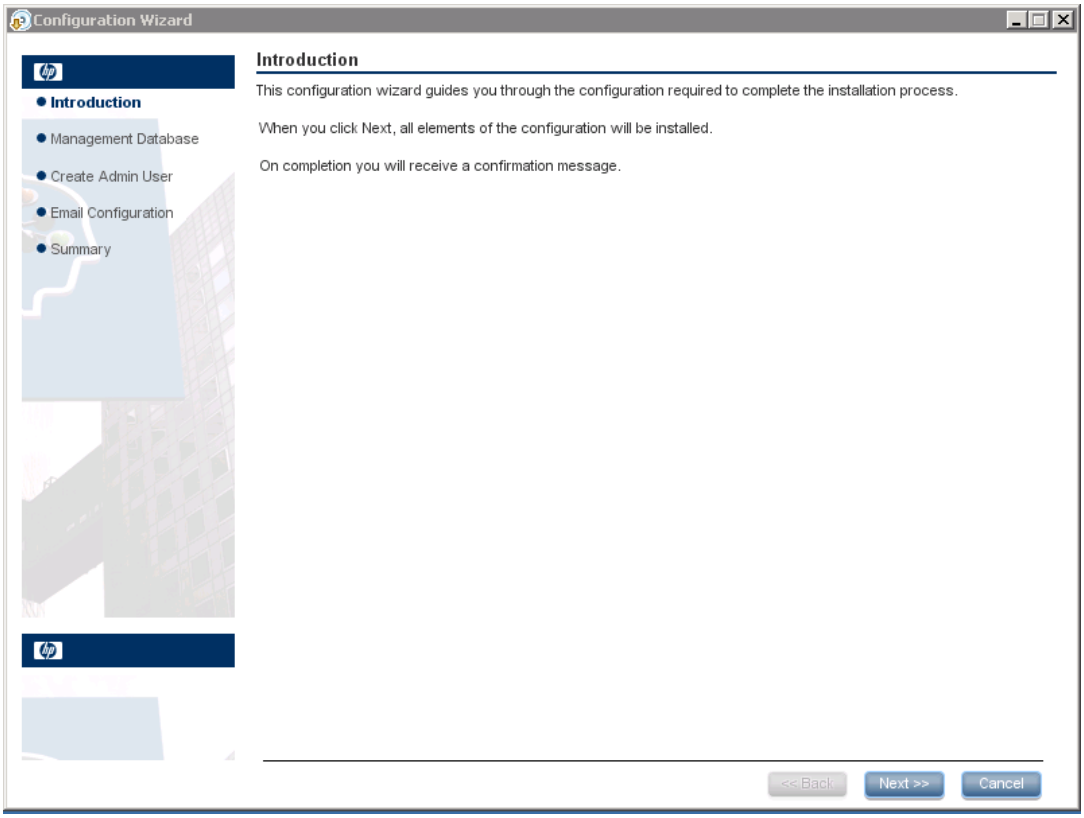
```
GRANT CREATE ANY TABLE TO <user_name> WITH ADMIN OPTION;
GRANT ALTER SESSION TO <user_name> WITH ADMIN OPTION;
GRANT CREATE SESSION TO <user_name> WITH ADMIN OPTION;
GRANT SELECT ANY DICTIONARY TO <user_name> WITH ADMIN OPTION;
GRANT CREATE JOB to <user_name> WITH ADMIN OPTION;
GRANT CREATE SYNONYM to <user_name> WITH ADMIN OPTION;
GRANT SELECT ON DBA_TABLESPACES TO <user_name>;
```

As the installation checks that the tablespace exists, the installer needs the following additional permissions:

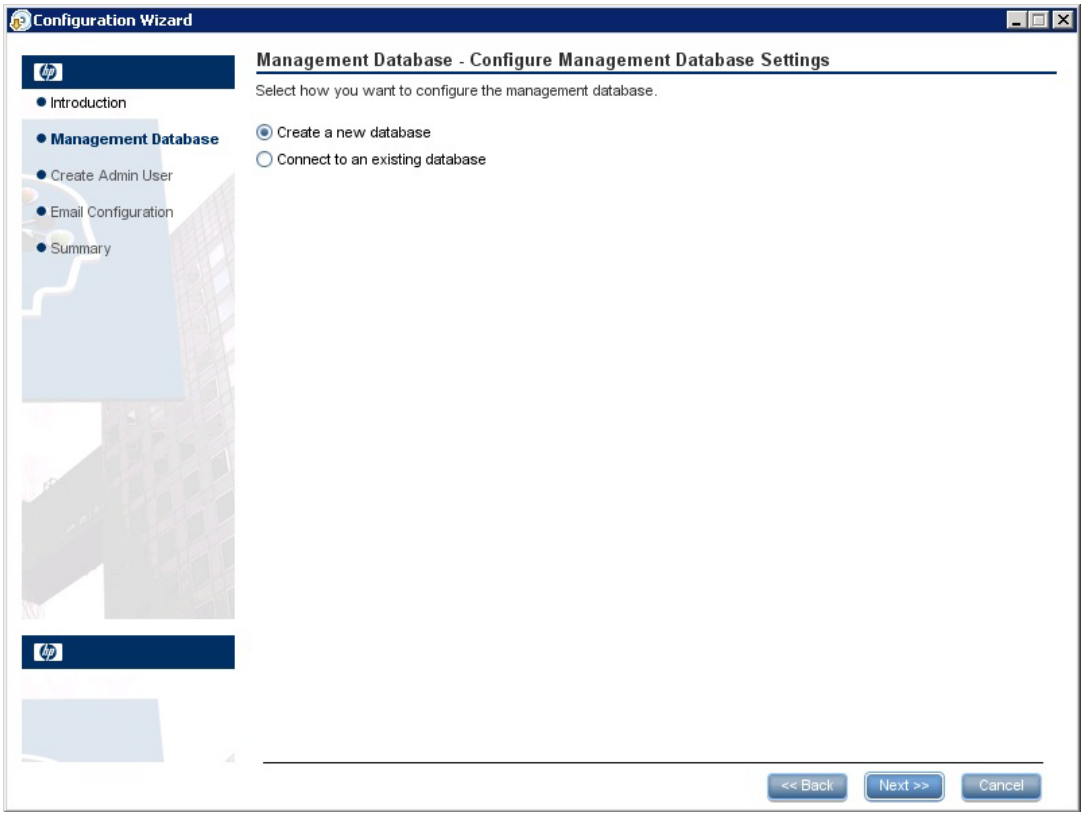
```
GRANT execute on DBMS_LOCK TO <user_name> WITH GRANT OPTION;
```

Stage 2: Configuration Wizard Steps (Oracle)

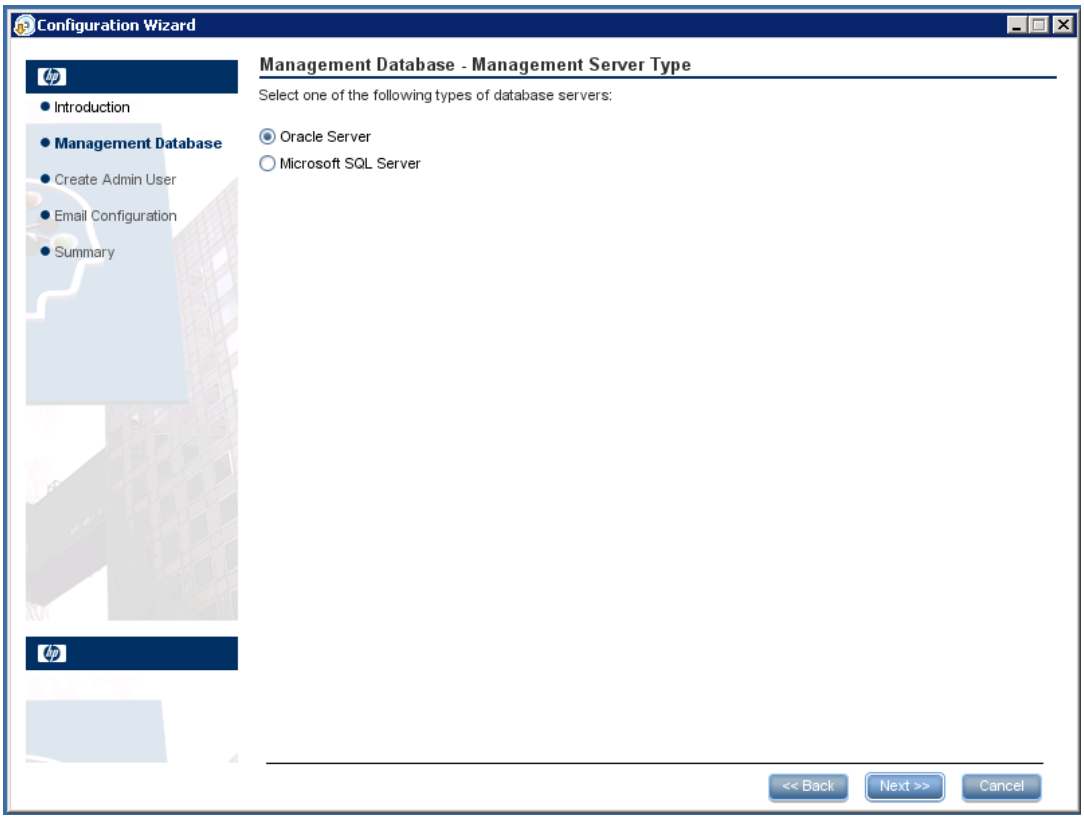
2. Open the Configuration Wizard (if it is not already open) from **Start > All Programs> HP > HP Anywhere > Run Configuration Wizard**. In the Introduction page, click **Next**.



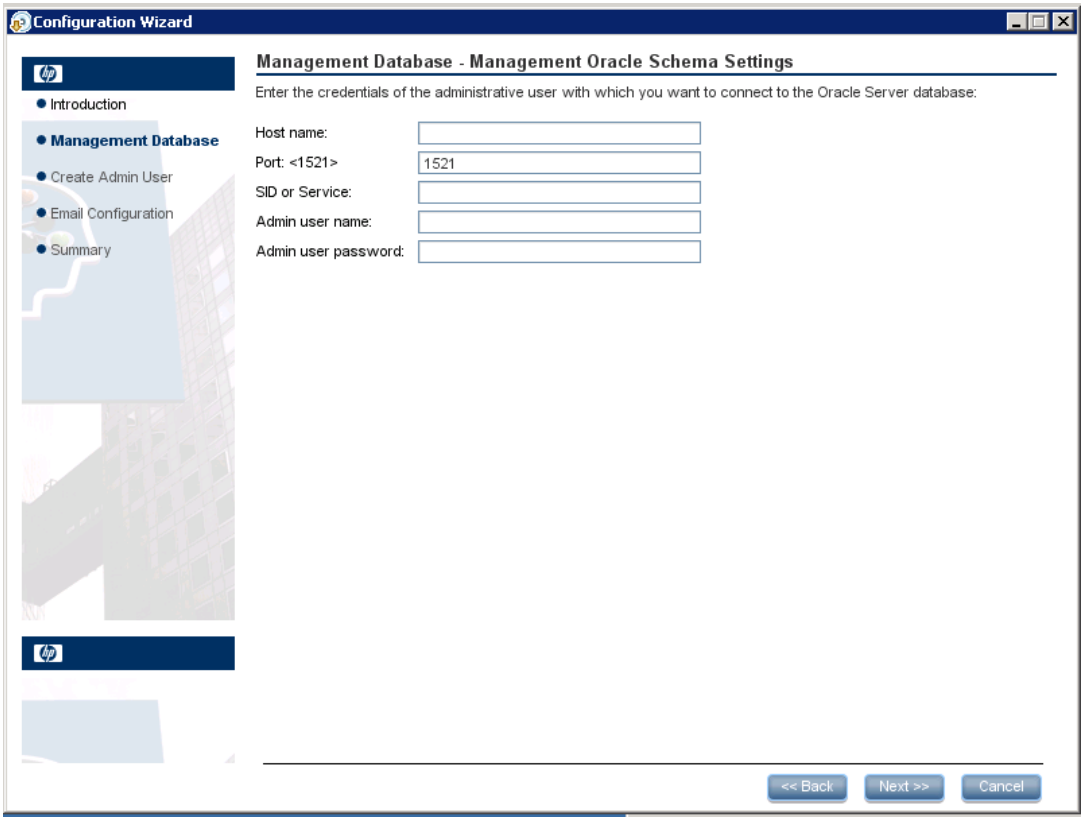
3. In the Management Database - Configure Management Database Settings page, select **Create a new database**.



4. In the Management Database - Management Server Type page, select **Oracle Server** and click **Next**.

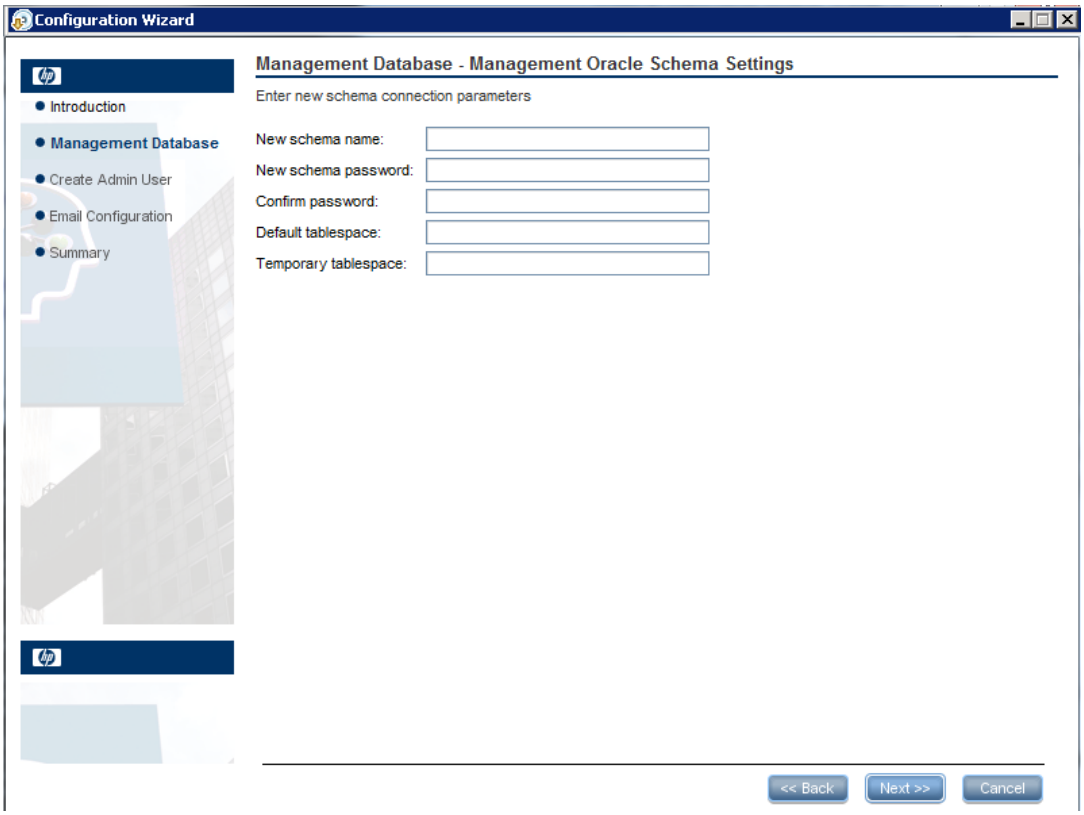


5. In the Management Database - Management Oracle Schema Settings, enter the following information to configure the Oracle database and click **Next**:



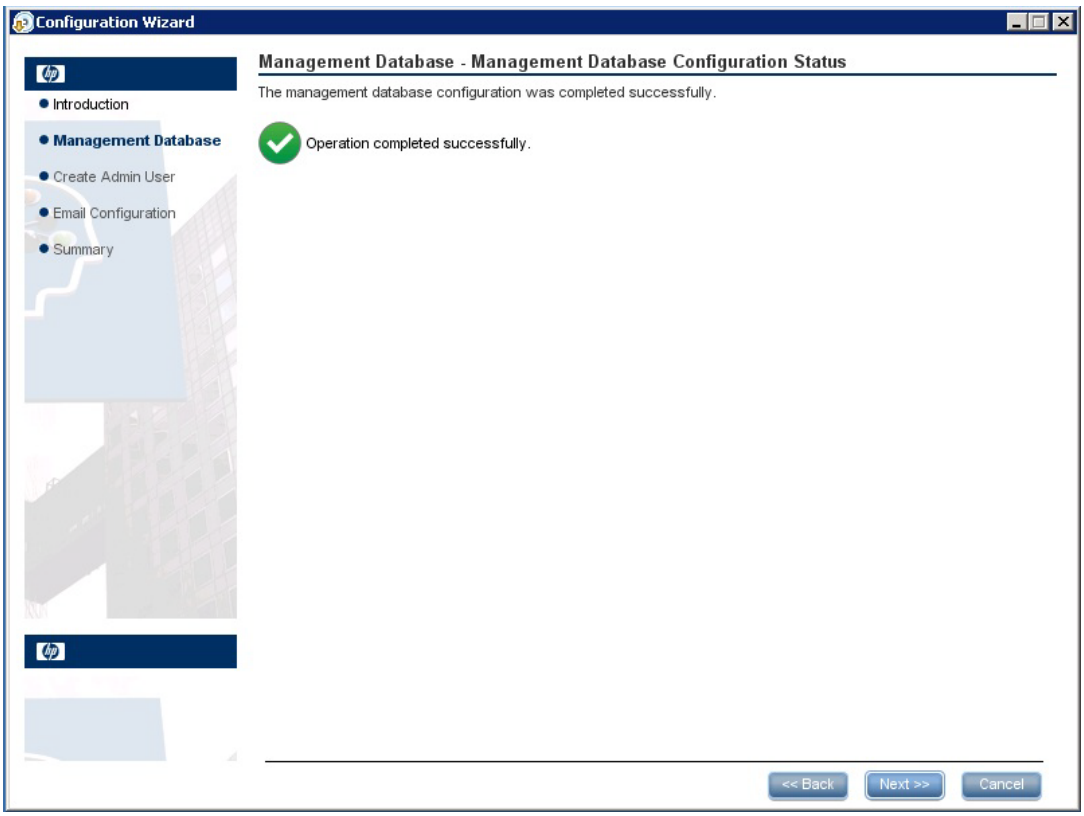
Parameter	Description
Host name	The name or IP address of the host computer on which the Oracle DB Server is located.
Port	The number of the port used to connect to the server. A default value of 1521 is shown.
SID or Service	The Oracle Service Name or System ID used to uniquely identify a particular database on a system.
Admin user name	The name of the administrator who will connect to the database.
Admin user password	The password of the administrator.

6. In the Management Database - Management Oracle Schema Settings, enter the following information to configure the Oracle database:



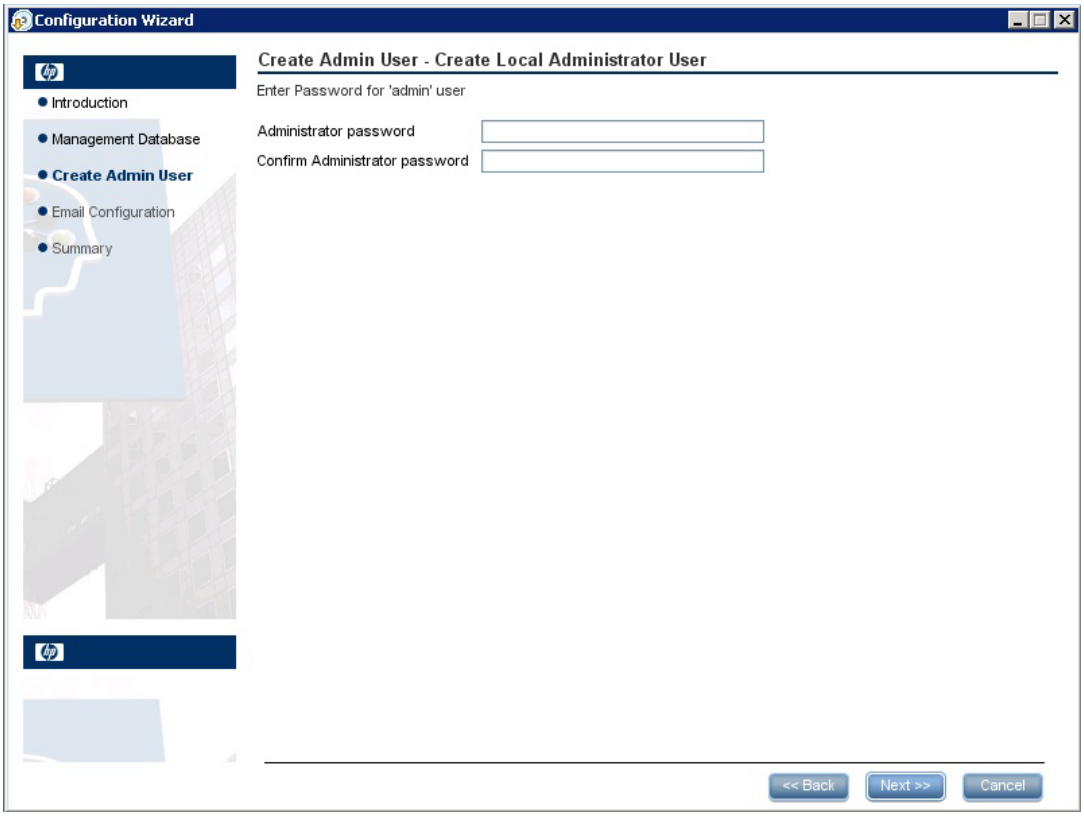
Parameter	Description
New schema name	Enter a name for the new Oracle database schema.
New schema password	Enter a password for the new Oracle database schema.
Confirm password	Re-enter the password.
Default tablespace	The default tablespace of the created user (central/tenants). All its tables (HP Anywhere tables) are placed in this tablespace.
Temporary tablespace	The default temporary tablespace of the created user (central/tenants). **Note:** HP Anywhere 10.12 does not create temporary tablespaces.

7. After the operation is successfully completed, click **Next**.

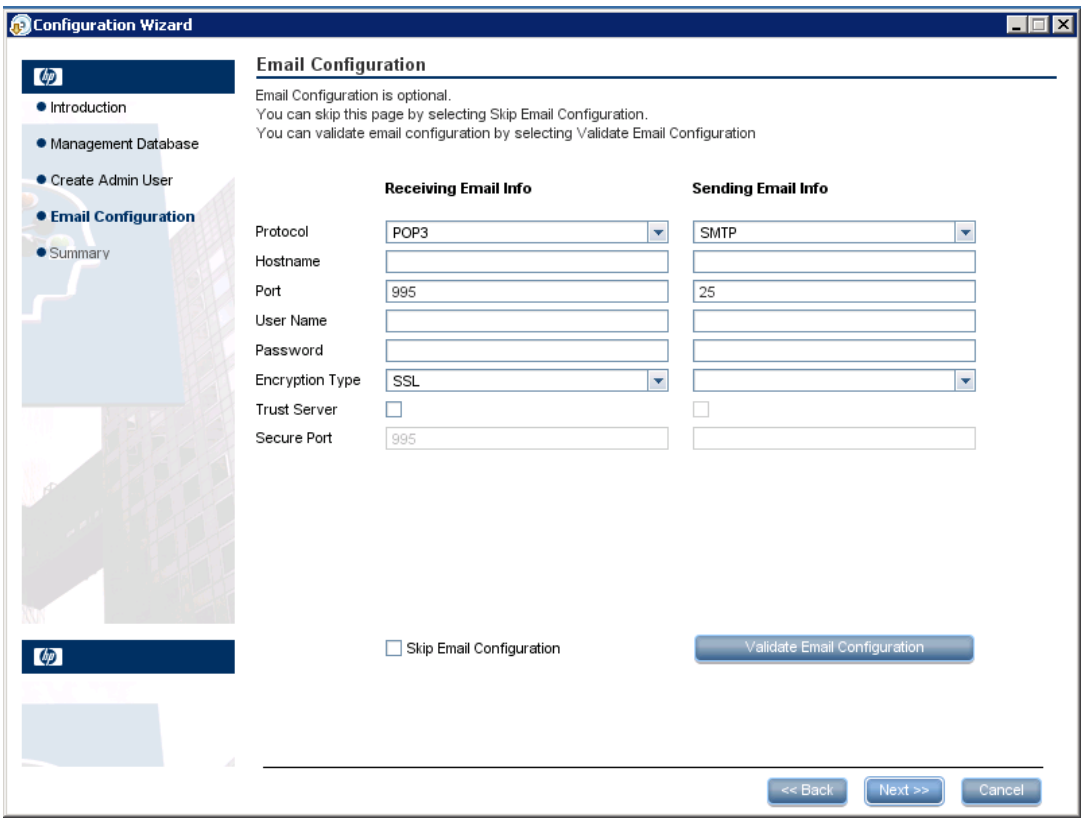


8. Click **Next**. Set the password for a temporary HP Anywhere administrator user named **admin**.

With this user you can login as HP Anywhere administrator until you configure authentication using LDAP.



9. [Optional] Email configuration



Note: You can skip email configuration by selecting the **Skip Email Configuration** checkbox. You can set the email configuration at a later stage in the Email settings section of the **Administrator Console > Settings** page.

Parameter	Description
Receiving Email Info	
Protocol	From the drop down list, select either **POP3** or **IMAP4**.
Hostname	The hostname of the incoming mail server.
User Name	The HP Anywhere mailbox username for receiving emails.
Port	The port for the incoming mail server.

Parameter	Description
Password	The password for the HP Anywhere mailbox.
Encryption Type	SSL or TLS.
Trust Server	To work with an encrypted mail server (SSL/TLS), select this checkbox, enter one of the server SSL ports, and click **Validate Email Configuration**. This allows HP Anywhere to trust the email server, creates the server certificate, and adds it to the HP Anywhere JRE keystore.
Secure Port	Enter the secure port number. If you selected SSL in the Encryption Type, this field is disabled as you do not need to enter a port number.
Sending Email Info	
Protocol	**SMTP** is displayed by default.
Hostname	The hostname of the outgoing mail server.
User Name	The HP Anywhere mailbox username for sending emails.
Port	The port for the outgoing mail server.
Password	The password for the HP Anywhere mailbox.
Encryption Type	SSL or TLS.
Trust Server	To work with an encrypted mail server (SSL/TLS), select this checkbox, enter one of the server SSL ports, and click **Validate Email Configuration**. This allows HP Anywhere to trust the email server, creates the server certificate, and adds it to the HP Anywhere JRE keystore.
Secure Port	Enter the secure port number. If you selected SSL in the Encryption Type, this field is disabled as you do not need to enter a port number.

10. Click **Next**. In the **Successfully Installed** page, click **Done**.

After successful installation and configuration, the following shortcuts are added in the **Start > All Programs** menu, under the **HP > HP Anywhere** folder:

- Run Configuration Wizard. For details, see "Create HP Anywhere Database—SQL Server" on page 11.
- Start HP Anywhere (starts the HP Anywhere and Cassandra services)
- Stop HP Anywhere (stops the HP Anywhere and Cassandra services)
- Uninstall HP Anywhere. For details, see "Uninstall HP Anywhere Server" on page 79.

Oracle Server—Manual Database and User Creation

In this section, you manually create a user and database. Then, in the Configuration Wizard, you enter the schema details that you created.

To create an Oracle schema without using the configuration wizard:

Stage 1: Create an Oracle Server Schema (User)

1. Create the schema (user):

```
CREATE USER ${user}
IDENTIFIED BY ${password}
DEFAULT TABLESPACE ${defaultTablespace}
TEMPORARY TABLESPACE ${temporaryTablespace};
```

2. Assign the following permissions to the created schema (user):

```
GRANT CONNECT TO ${user};
GRANT UNLIMITED TABLESPACE TO ${user};
GRANT CREATE VIEW TO ${user};
GRANT RESOURCE TO ${user};
GRANT CREATE JOB TO ${user};
GRANT CREATE synonym TO ${user};
GRANT execute on DBMS_LOCK TO ${user};
```

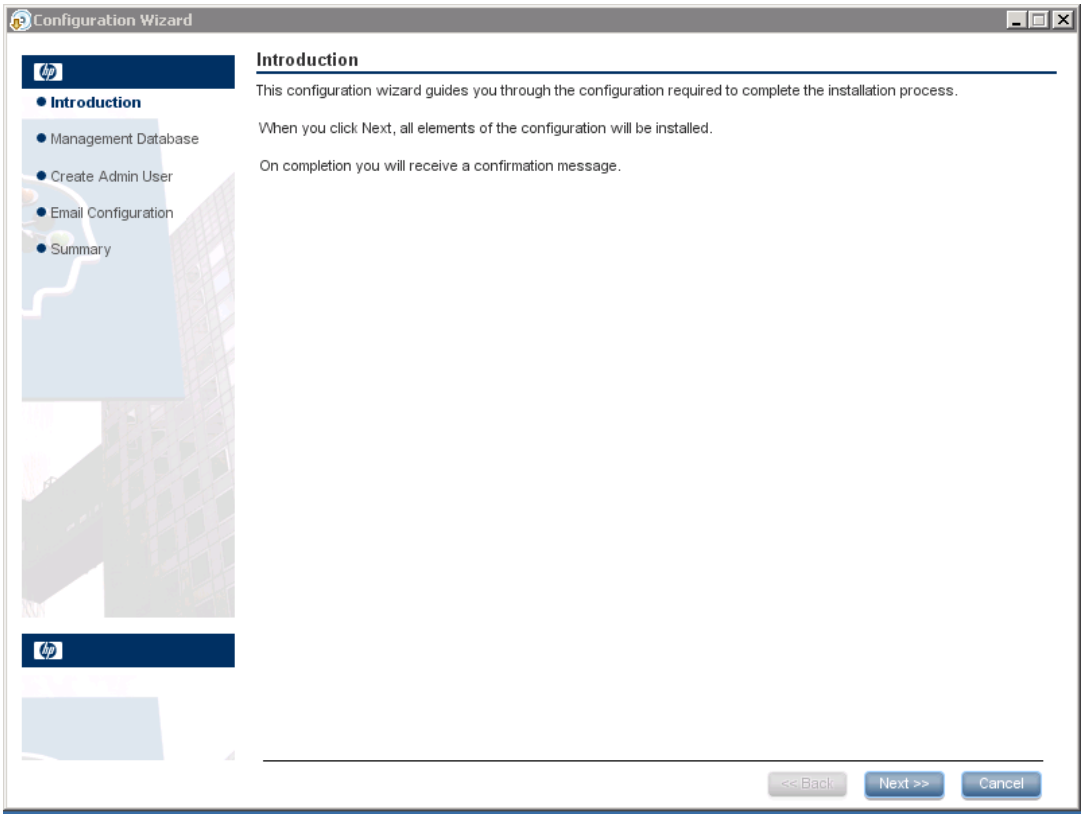
3. Go to the Oracle scripts folder ***<HP_Anywhere_installation_directory>*** **\confwizard\conf\scripts\database\oracle**.

4. Run the following scripts:

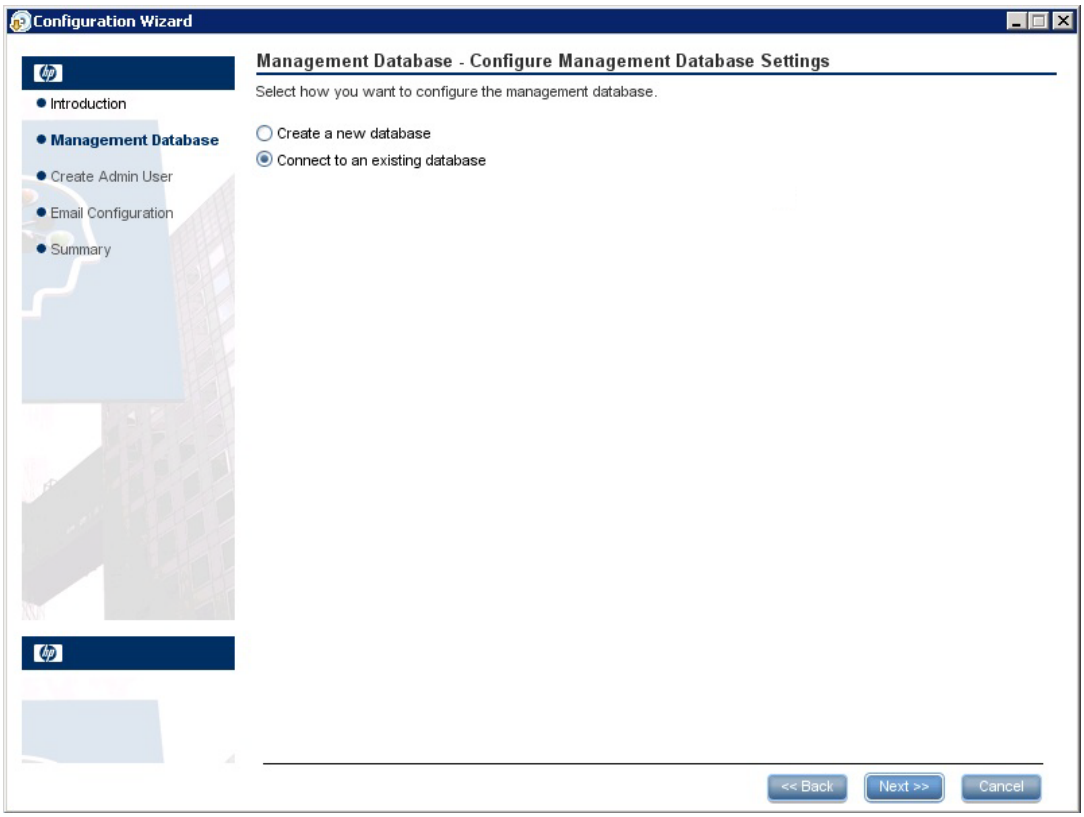
```
oracle_create_central_schema.sql
oracle_create_bsf_schema.sql
oracle_create_diamond_schema.sql
```

Stage 2: Configuration Wizard Steps (Oracle)

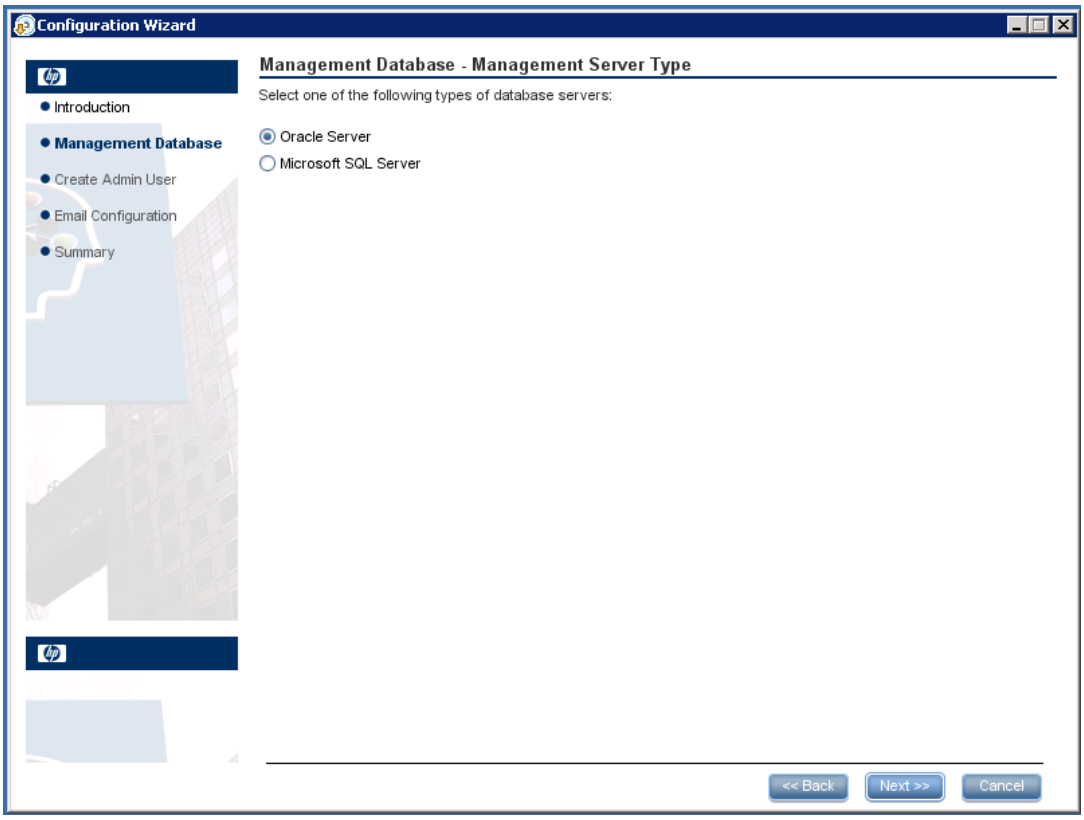
5. Open the Configuration Wizard (if it is not already open) from **Start > All Programs> HP > HP Anywhere > Run Configuration Wizard**. In the Introduction page, select **Next**.



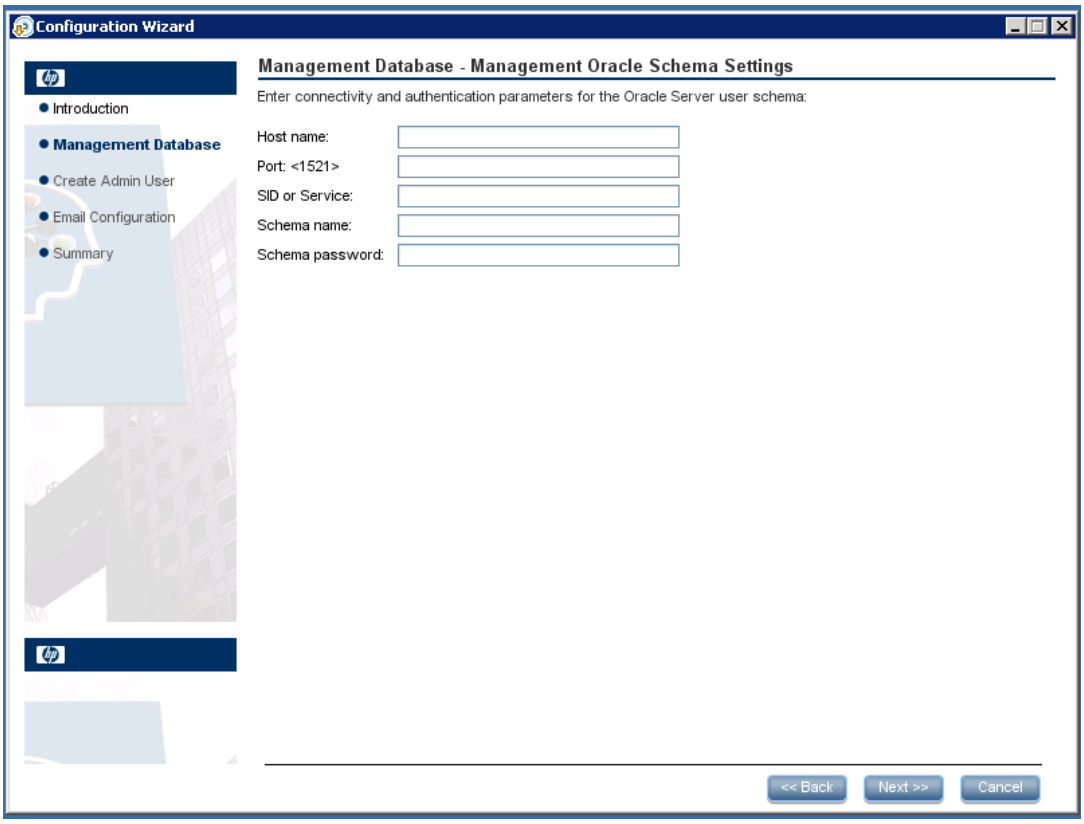
6. In the Management Database - Configure Management Database Settings page, select **Connect to an existing database** and click **Next**.



7. In the Management Database - Management Server Type page, select **Oracle Server** and click **Next**.

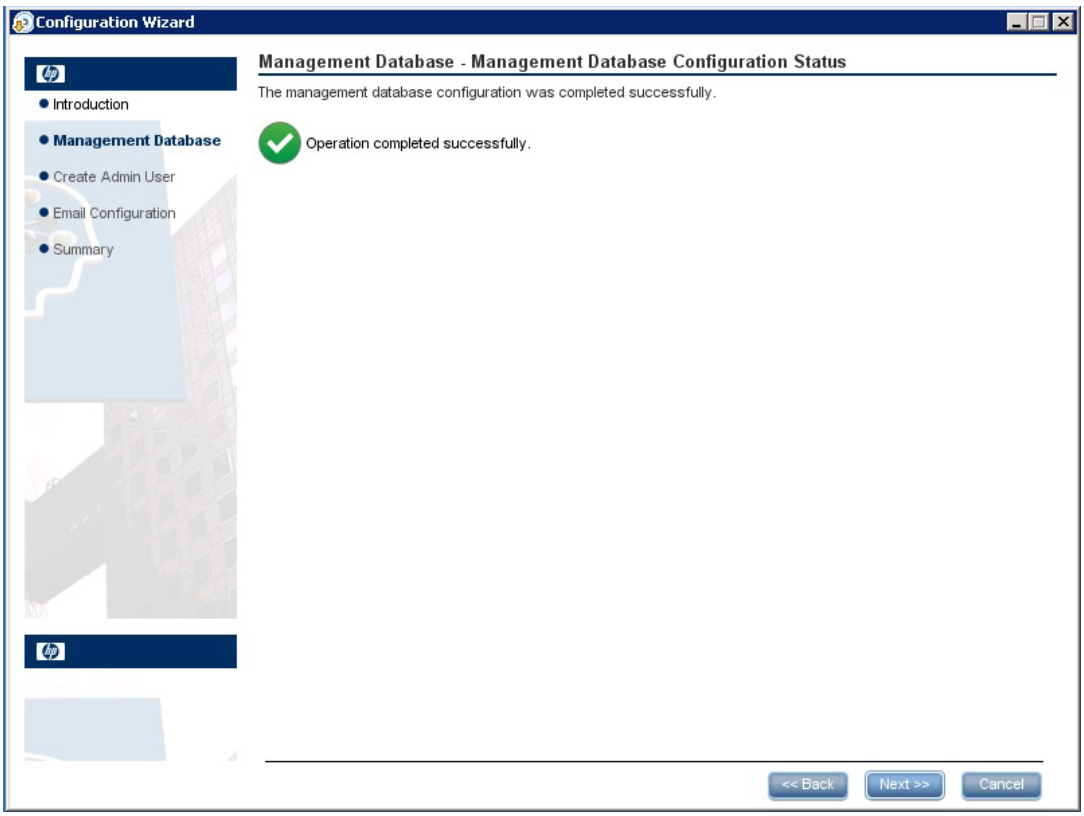


8. In the Management Database - Management Oracle Schema Settings page, enter/update the following information to configure the Oracle database.



Parameter	Description
Host name	The name or IP address of the host computer on which the Oracle DB Server is located.
Port	The number of the port used to connect to the server. A default value of 1521 is shown.
SID or Service	The Oracle Service Name or System ID used to uniquely identify a particular database on a system.
Schema Name	The name of the Oracle database schema.
Schema password	The password of the Oracle database schema.

9. After the operation completes successfully, click **Next**.



10. In the **Successfully Installed** page, click **Done**.

Stage 3: Create an HP Anywhere administrator user

11. Browse to the population folder (**<*HP_Anywhere_installation_directory*>\conf\population**) and run the following scripts:

    a. **populate-db.bat**

    b. **populate-admin.bat** with the following two parameters (with a space between them):

    - Administrator user name
    - Administrator user password

    With this user you can login as HP Anywhere administrator until you configure authentication using LDAP.

After successful installation and configuration, the following shortcuts are added in the **Start > All Programs** menu, under the **HP > HP Anywhere** folder:

- Run Configuration Wizard. For details, see "Create HP Anywhere Database—SQL Server" on page 11.
- Start HP Anywhere (starts the HP Anywhere and Cassandra services)
- Stop HP Anywhere (stops the HP Anywhere and Cassandra services)
- Uninstall HP Anywhere. For details, see "Uninstall HP Anywhere Server" on page 79.

Chapter 4: HP Anywhere Lightweight Single Sign-On (LWSSO) Configuration

You can configure lightweight single sign-on for all of the HP applications installed on your server.

Note: If your enterprise does not use SiteMinder. or if you do not have any HP applications on your computer, skip to "Security Server Integration (SSI)" on page 48 instead.

To configure the HP Anywhere LWSSO init string on both the HP Anywhere Server and the backend:

1. Go to the Administrator Console, and select **Settings > Init String**.
2. Set the LWSSO init string and save the settings.

   The init string should be the same in all other applications that integrate with HP Anywhere and use the HP LWSSO.
3. Open the **%HPA_HOME%/HP/Anywhere/conf/lwssofmconf.xml** file.
4. If there are other servers integrated with HP Anywhere that use LWSSO with different domains, add a <DNSDomain> element for each such domain as follows and perform the remaining steps below:

```
<multiDomain>
  <trustedHosts>
     <DNSDomain>xxx.mycompany.com</DNSDomain>
     <DNSDomain>xxxs.mycompanyqcorp.net</DNSDomain>
     <DNSDomain>dddd.mycompany.com</DNSDomain>
  </trustedHosts>
</multiDomain>
```

5. If you have configured a Web server to have a different domain than the HP Anywhere server's domain, in the **<domain>** line marked below, change the domain to the domain of the Web server:

```
<webui>
 <validation>
   <in-ui-lwsso>
    <lwssoValidation id="ID000001">
```

```
     <domain>mywebserver.com</domain>
     <crypto cipherType="symmetricBlockCipher"
       engineName="AES" paddingModeName="CBC" keySize="256"
       encodingMode="Base64Url"
       initString="This string should be replaced"></crypto>
    </lwssoValidation>
</validation>
```

Note: To initiate LWSSO on for all of the HP applications installed on your server, the init string must be identical in each application.

Security Server Integration (SSI)

Server Security Integration (SSI) is a framework that enables you to integrate HP Anywhere into your enterprise's SSO framework and to provide a unified sign-in experience from HP Anywhere to your enterprise's backend applications.

This section describes how to integrate your HP Anywhere server into your enterprise security infrastructure using the SSI interface. You do this by configuring your HP Anywhere server for IDM (identification management) and implementing the SSI interface.

To configure SSI:

1. Copy **idm-integration-api.jar** from **<HP Anywhere installation directory>/tomcat/lib** to your classpath.

2. Create a new class for the implementation. This class should implement the **IdentityManagementIntegration** interface. (You can optionally extend the **IdmIntegrationDefaultImpl** class in **idm-integration-api.jar**.)

3. Implement the required APIs. For details, see ***<HP_Anywhere_installation _ directory>*/Help/JavaDocs**.

4. If properties are required:

   - Add the necessary properties to **ssi-config.properties**, located in: **<HP Anywhereinstallation directory>/conf**

   - If your class extends the **IdmIntegrationDefaultImpl** class, this class already reads the properties file so you can just use these properties. Otherwise, it is your responsibility to read the properties file.

   - The first two properties in the **ssi-config.properties** file are mandatory. They determine how the token is stored in the request. Set the correct configuration for the cookie/header and the appropriate name.

5. Update the **lwssofmconf.xml**:

   Under the **webui validation** element, search for the **in-custom** element and verify that the following exists with your implementation (or add it):

```
<in-custom classname="com.hp.hpa.platform.security.integration.
```

```
                          handler.IdmIntegrationCustomHandler">
  <properties>
     <property>
        <name>idmIntegrationImplClassName</name>
         <value>add your IdentityManagementIntegration
              implementation full class name</value>
     </property>
  </properties>
</in-custom>
```

Example of validation element:

```
<validation>
  <in-ui-lwsso>
    <lwssoValidation id="ID000001">
        <domain/>
        <crypto cipherType="symmetricBlockCipher"
                    engineName="AES" paddingModeName="CBC"
                    keySize="256"
                    encodingMode="Base64Url"
                    initString="abc"/>
    </lwssoValidation>
  </in-ui-lwsso>
  <in-custom classname="com.hp.hpa.platform.security.
             integration.handler.IdmIntegrationCustomHandler">
    <properties>
        <property>
            <name>idmIntegrationImplClassName</name>
            <value>com.hp.hpa.platform.security.integration
                  .impl.IdmIntegrationSiteminderImpl
            </value>
        </property>
    </properties>
  </in-custom>
  <authenticationPoint refid="ID000002"/>
  <validationPoint refid="ID000002"
            validationPointID="validationPointID"
            authenicationPointServer="bsf.war"/>
</validation>
```

Example of Web Service inbound element:

```
<inbound>
```

```
  <restURLs>
       <url>.*/population.*</url>
       <url>.*/services/.*</url>
       <url>.*/rest/.*</url>
       <url>.*/populate/.*</url>
       <url>.*/api/tenant/.*</url>
       <url>.*/api/solution/.*</url>
  </restURLs>

  <default>
  </default>
  <service service-pattern=
   ".*/population.*" service-type="rest">
    <in-lwsso enabled="true" refid="ID000001"/>
    <remoteAuthentication
       classname="com.hp.sw.bto.ast.security.lwsso.ws.handlers.
        BSFBasicAuthenticationRemoteAuthenticationHandler">
        <properties>
           <property>
             <name>basicAuthenticationChallenge</name>
             <value>xBasic</value>
           </property>
        </properties>
     </remoteAuthentication>
                <in-lwssoAutoCreate enableAutoCookieCreation="true"
enableUserReplacement="true" refid="ID000002"/>
  </service>

  <service service-pattern=".*/services/.*"
           service-type="rest">
    <in-custom classname="com.hp.hpa.platform.security.
            integration.handler.IdmIntegrationCustomHandler">
        <properties>
           <property>
              <name>idmIntegrationImplClassName</name>
              <value>com.hp.hpa.platform.security.integration.
                      impl.IdmIntegrationSiteminderImpl</value>
           </property>
        </properties>
    </in-custom>
    <in-lwsso enabled="true" refid="ID000001"/>
    <remoteAuthentication
       classname="com.hp.sw.bto.ast.security.lwsso.ws.handlers.
        BSFBasicAuthenticationRemoteAuthenticationHandler">
        <properties>
```

```
         <property>
           <name>basicAuthenticationChallenge</name>
           <value>xBasic</value>
         </property>
       </properties>
   </remoteAuthentication>
   <in-lwssoAutoCreate enableAutoCookieCreation="true"
                       enableUserReplacement="true"
                       refid="ID000002"/>
</service>

<service service-pattern=".*/rest/.*" service-type="rest">
  <in-custom classname="com.hp.hpa.platform.security.
           integration.handler.IdmIntegrationCustomHandler">
      <properties>
         <property>
            <name>idmIntegrationImplClassName</name>
            <value>com.hp.hpa.platform.security.integration.
                   impl.IdmIntegrationSiteminderImpl</value>
            </property>
      </properties>
  </in-custom>
  <in-lwsso enabled="true" refid="ID000001"/>
  <remoteAuthentication classname=
       "com.hp.sw.bto.ast.security.lwsso.ws.handlers.
       BSFBasicAuthenticationRemoteAuthenticationHandler">
         <properties>
            <property>
               <name>basicAuthenticationChallenge</name>
               <value>xBasic</value>
            </property>
         </properties>
  </remoteAuthentication>
  <in-lwssoAutoCreate enableAutoCookieCreation="true"
                          enableUserReplacement="true"
                          refid="ID000002"/>
</service>

<service service-pattern=".*/populate/.*"
           service-type="rest">
  <in-custom classname="com.hp.hpa.platform.security.
           integration.handler.IdmIntegrationCustomHandler">
        <properties>
           <property>
              <name>idmIntegrationImplClassName</name>
```

```
                <value>com.hp.hpa.platform.security.integration.
                       impl.IdmIntegrationSiteminderImpl</value>
             </property>
          </properties>
    </in-custom>
    <in-lwsso enabled="true" refid="ID000001"/>
    <remoteAuthentication classname=
          "com.hp.sw.bto.ast.security.lwsso.ws.handlers.
          BSFBasicAuthenticationRemoteAuthenticationHandler">
    </remoteAuthentication>
    <in-lwssoAutoCreate enableAutoCookieCreation="true"
           enableUserReplacement="true" refid="ID000002"/>
  </service>

  <service service-pattern=
            ".*/api/tenant/.*" service-type="rest">
      <in-lwsso enabled="true" refid="ID000001"/>
      <in-validate/>
  </service>

  <service service-pattern=".*/api/solution/.*"
            service-type="rest">
     <in-lwsso enabled="true" refid="ID000001"/>
     <in-validate/>
  </service>
</inbound>
```

6. Create a .jar containing the implementation you created and any other resources you need.

7. Put this .jar in the **<*HP_Anywhere_installation_directory*>/tomcat/lib** directory.

8. Restart the HP Anywhere server for the changes to take effect.

Chapter 5: How to make HP Anywhere FIPS 140-2 compliant

If your organization uses cryptographic-based security systems to protect sensitive information, or if your organization does business with such an organization (for example, a US Government agency), you may be required to comply with FIPS 140-2 security standards.

To make HP Anywhere FIPS 140-2 compliant, you configure HP Anywhere to use the RSA BSAFE Crypto-J 6.1 Release library. (By default, HP Anywhere uses a Bouncy Castle library for encryption and decryption tasks.)

For a description of the files you need to modify, see "Appendix: Guide to Key Generation" on page 57.

Note: If you are working with high availability, make sure to perform the steps below on all HP Anywhere server nodes.

To make HP Anywhere FIPS 140-2 compliant:

Prerequisite: HP Anywhere must be upgraded to version 10.12.

1. Stop the HP Anywhere server. (From the Start menu, select **HP**, right-click **Stop HP Anywhere**, and select **Run as administrator**.)
2. Modify the required files and validate the new configuration:
   a. Browse to the **<HP_Anywhere_installation_directory>\jre\lib\ext** directory and validate the following RSA .jar files:

      cryptojce-6.1.jar

      jcmFIPS-6.1.jar

      cryptojcommon-6.1.jar

   b. Open **<HP_Anywhere_installation_directory>\jre\lib\security\java.security** and add the following properties to the end of the **List of providers and their preference orders**:

      ```
      security.provider.11=com.rsa.jsafe.provider.JsafeJCE
      com.rsa.cryptoj.kat.strategy=on.load
      ```

   c. Replace the **crypto** section in **<HP_Anywhere_installation_**

directory>\conf\lwssofmconf.xml with:

```
<crypto  cryptoSource="jce" jceProviderName="JsafeJCE"
cipherType="symmetricBlockCipher" engineName="AES"
paddingModeName="CBC" keySize="256"     encodingMode="Base64Url"
initString="<to be provided in a later step>"
algorithmPaddingName="PKCS5Padding" checkIntegrity="disabled"
directKeyEncoded="true" directKeyEncoding="Hex" />
```

d. Add the highlighted sections to the end of the following encryption files:

In this file...	Add the highlighted text
<HP_Anywhere_installation_ directory>\conf\encryption.properties	cipherType=symmetricBlockCipher encodingMode=Base64Url engineName=AES key=***<to be replaced in a later step>*** paddingModeName=CBC keySize=256 cryptoSource=jce algorithmPaddingName=PKCS5Padding **jceProvider=JsafeJCE**

In this file...	Add the highlighted text
<HP_Anywhere_installation_directory>\conf\seed.properties	cipherType=symmetricBlockCipher encodingMode=Base64Url engineName=AES key=***<to be replaced in a later step>*** paddingModeName=CBC keySize=256 cryptoSource=jce algorithmPaddingName=PKCS5Padding **jceProvider=JsafeJCE**
<HP_Anywhere_installation_directory>\scripts\encryption\tifon.properties	cipherType symmetricBlockCipher engineName AES paddingModeName CBC keySize 256 encodingMode Base64Url **jceProvider JsafeJCE** **cryptoSource jce** **algorithmPaddingName PKCS5Padding** **directKeyEncoded true** **directKeyEncoding Base64**

e. Run the Encryption Utility to generate the missing keys for the steps above, and replace the values as follows:

i. Run: **<HP_Anywhere_installation_directory>\scripts\encryptionUtility.bat**

ii. At the **Type the number of your selection:** prompt, enter **2**. Then enter your HP Anywhere database password when prompted. This step generates the required keys, encrypted database password, and encrypted init string that you need to add to the files in the previous steps.

iii. In the **crypto** section of **<HP_Anywhere_installation_directory>\conf\lwssofmconf.xml**, replace *<to be added in a later step>* with the **LWSSO encryption - initstring Hex random key** value.

iv. In **<HP_Anywhere_installation_directory>\conf\encryption.properties**, replace the key value with the generated key value displayed under **Database encryption - key for encryption.properties**.

v. In **<HP_Anywhere_installation_directory>\conf\seed.properties**, replace the key value with the generated key value displayed under **Database encryption - key for seeds.properties**.

vi. In **<HP_Anywhere_installation_directory>\conf\database.properties**, replace the database password with the encrypted database password displayed under **Database encryption - encrypted password for database.properties**.

vii. Run the following SQL query to update the init string in your database. (Make sure to replace the **SET VALUE** part of the query.)

```
UPDATE "SETTINGS_MANAGEMENT" SET VALUE = '<replace this with LWSSO
encryption - encrypted init string (for database update)>' WHERE
NAME = 'diamond/lwsso.init.string'
```

Note: If you are NOT using an LDAP user repository, skip to step 5 below.

3. (Required for LDAP) In the Encryption Utility tool, encrypt the LDAP administrator password as follows:

   a. Back up the following files:

   <HP_Anywhere_installation_directory>\scripts\encryption\cm.bin

   <HP_Anywhere_installation_directory>\conf\k1.txt

b. Delete the following files:

<HP_Anywhere_installation_directory>\scripts\encryption\cm.bin

<HP_Anywhere_installation_directory>\conf\k1.txt

c. At the **Type the number of your selection:** prompt, enter **3**. The required files are generated. (No additional steps are required.)

4. (Required for LDAP) In the Encryption Utility tool, encrypt the LDAP administrator password as follows:

a. At the **Type the number of your selection:** prompt, enter **4**.

b. Replace the encrypted password in **<HP_Anywhere_installation_directory>\conf\external-ldap.properties** with the generated value.

5. Restart the HP Anywhere server. (From the Start menu, select **HP**, right-click **Start HP Anywhere**, and select **Run as administrator**.)

6. Redeploy all of the HP Anywhere apps. This ensures that the new **lwssoImpl.jar** that supports FIPS configuration is included in each app. For details on redeploying an app, see the section on uploading apps in the online Help (http://developer.hpanywhere.com/).

Important note regarding the init string: If you later want to replace the FIPS-compliant init string via the Administrator Console, you must input the init

Appendix: Guide to Key Generation

When switching to FIPS 140-2 compliant .jar files, it is recommended to replace the server's encryption keys and encrypted passwords.

Encryption key file names and usages

Key file name	Description	Related files
Database encryption	encryption for secure data that is saved on database and database password	**<HP_Anywhere_installation_ directory>\conf\encryption.properties.** Contains the encrypted master key **<HP_Anywhere_installation_ directory>\conf\seed.properties.** Used to encrypt the master key
LDAP encryption	encryption for secure data in external-ldap.properties files, such as administrator password.	**<HP_Anywhere_installation_ directory>\scripts\encryption\tifon.properties.** Encryption configuration **<HP_Anywhere_installation_ directory>\scripts\encryption\cm.bin.** Contains the encrypted master key **<HP_Anywhere_installation_ directory>\conf\k1.txt.** Used to encrypt the master key
LWSSO encryption	encryption for LWSSO token	**<HP_Anywhere_installation_ directory>\conf\lwssofmconf.xml.** Contains crypto configuration and the initial init string. (This init string is used until the value is replaced in the database.)

Chapter 6: Configure the HTTPS Protocol

This section provides detailed information how to configure the HTTPS connection between:

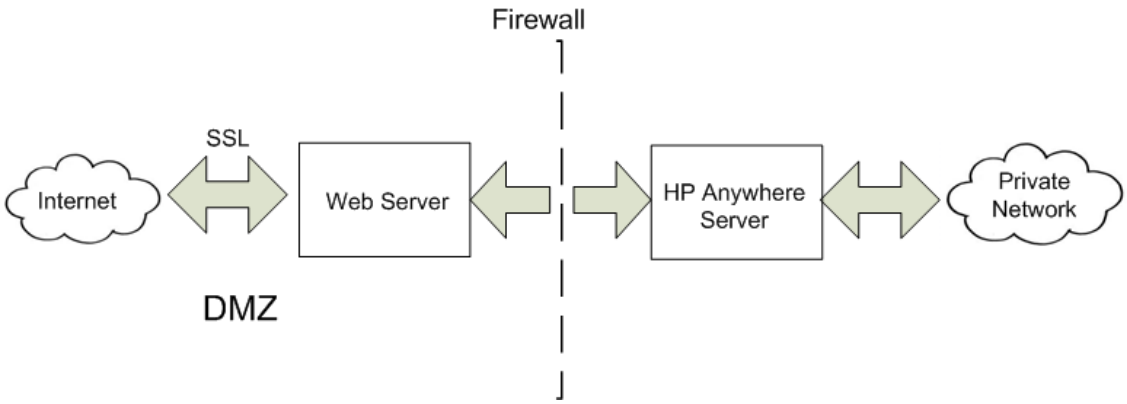
- The Client and Application server and the Web server
- The Web server and the HP Anywhere server

This section includes:

Set Up Web Server in Front of HP Anywhere Server (Optional)

To enable secure access from mobile devices in the internet to HP Anywhere, you need to install a Web Server that redirects all requests to the HP Anywhere server. This Web Server is located in the DMZ, and acts as a reverse proxy allowing SSL connections only in the direction from clients to the Web Server.

The following image displays a Web Server configured in front of the HP Anywhere Server:



Note: If you are using a domain that is different from that of HP Anywhere, make sure that you configure the Web Server correctly as described in "HP Anywhere Lightweight Single Sign-On (LWSSO) Configuration" on page 46.

URL Paths to Forward

If your Web Server serves other applications in addition to HP Anywhere, use the following requests to the HP Anywhere Server:

If you are using a Web Server that uses the AJP protocol, you need to configure the HP Anywhere **mod_jk** listening port on the server side. By default, this port is port 8009.

HP Anywhere Server-Side Operations

If you want to use the HTTPS protocol, first perform the following steps on the HP Anywhere server:

1. In the file **<HPA HOME>\tomcat\webapps\bsf\WEB-INF\applicationContext-security.xml**, set the forceHttps parameter to true:

```
<bean id="authenticationProcessingFilterEntryPoint"
 class="com.hp.sw.bto.security.springsecurity.
      BSFAuthenticationProcessingFilterEntryPoint">
<property name="loginFormUrl">
<value>/login.form</value>
</property>
<property name="forceHttps">
<value>true</value>
</property>
</bean>
```

2. In the file **<HPA HOME>\conf\lwssofmconf.xml**, webui section, add the lines marked:

```
<nonsecureURLs>
    <url>.*/images/.*</url>
    <url>.*/desktopClient/.*</url>
</nonsecureURLs>
<reverseProxy enabled="true">
    <fullServerURL>https://your.reverse.proxy.fqdn</fullServerURL>
    <reverseProxyIPs>
        <url>HPA server HOST IP</url>

    </reverseProxyIPs>
</reverseProxy>
```

3. Open the **<HPA HOME>\conf\client-config.properties** file and check that the authentication point is pointing to the reverseProxy - bsf.server.url should contain the reverseProxy FQDN.

For example:

```
bsf.server.url=https://your.reverse.proxy.fqdn:8443/bsf
```

4. In the **<HPA HOME>\tomcat\conf\server.xml** file, add the marked lines and validate that **redirectPort** is set to your reverse proxy/load balancer port:

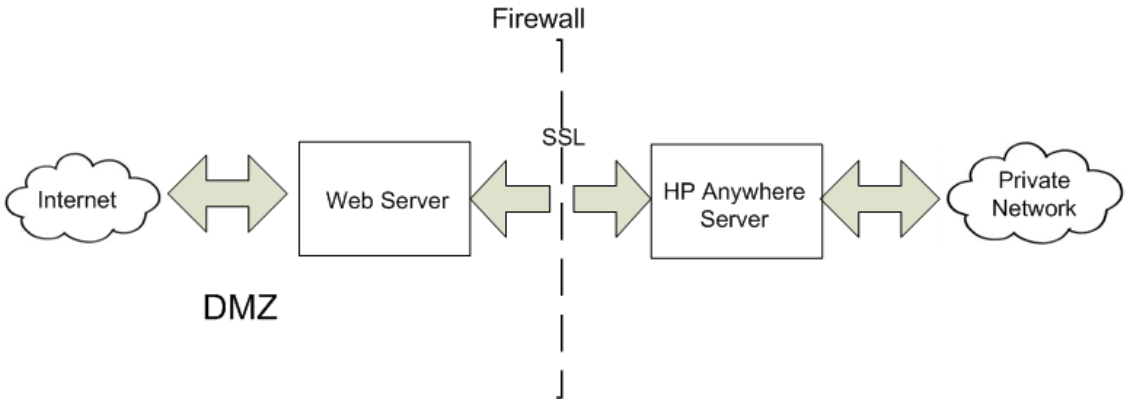
```
<Connector protocol="org.apache.coyote.http11.Http11Protocol"
     redirectPort="8443"
     compression="on"
     compressableMimeType="text/html,text/xml,text/plain,text/javascript,
       application/javascript,text/css"
     compressionMinSize="1024"
```

The following sections should be marked as comments:

```
<!-- Connector port="8080" protocol="org.apache.coyote.http11.
Http11NioProtocol" compressionMinSize="1024" /-->
<!--Connector port="8009" protocol="AJP/1.3" redirectPort="8443" /-->
<!-- start SSL -->
<!-- end SSL -->
```

Configure HTTPS Between the Web Server and HP Anywhere Server

If data traffic is not secured along the traffic path, you may need to configure the HTTPS protocol for the path between the Web Server and HP Anywhere server as shown in the diagram below:



To configure SSL between clients and a single Web Server/Load Balancer/Reverse Proxy:

Import your signed certificate to the Web Server/Load Balancer/Reverse Proxy. For mobile devices, the certificate must be a public key certificate signed by the root CA (not a self-signed certificate).

1. Save the certificate in the **<HPA_HOME>\jre\lib\security** folder.
2. Open a command line , and navigate to the **<HPA HOME>\jre\bin** directory.
3. Run the following Java keytool import command: **keytool -import -file <HPA_HOME>\jre\lib\security\<certificate_signed_by_root_CA> -alias <any_alias> -keystore <HPA>\jre\lib\security\cacerts -storepass changeit -noprompt**

   Note: You can use any tool to import the certificate, such as openSSL.

To configure the HTTPS protocol:

1. In the **conf\hpa-config.properties** file, change the protocol and port in the following lines:

```
hpa.server.protocol=https   instead of http
       hpa.server.port=8443 instead of 8080
```

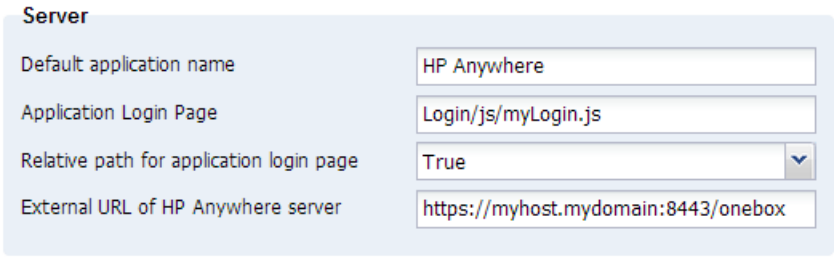
2. In the **conf\client-config.properties** file, change the protocol and port in the following lines:

```
bsf.server.url=https://localhost:8443/bsf   instead of http and 8080
```

```
bsf.server.services.url = https://localhost:8443/bsf     instead of http
and 8080
```

3. In the **Administrator Console > Settings tab > General Settings > Server section > External URL of HP Anywhere server**, set the URL using the following syntax:**https://<host>.<domain>:<port>/onebox**

Example:



4. In **tomcat\conf\server.xml**, do the following:

   a. Check that you have the following lines:

```
<!--APR library loader. Documentation at /docs/apr.html -->
   <Listener className="org.apache.catalina.core.AprLifecycleListener"
      SSLEngine="on" />
```

   b. Change the protocol and port as follows:

```
<Connector port="8080" protocol="HTTP/1.1"
   connectionTimeout="20000"
   redirectPort="8443"
   compression="on"
   compressableMimeType="text/html,text/xml,text/plain,text/javascript,
   application/javascript,text/css"
   compressionMinSize="128000"/>

<Connector protocol="org.apache.coyote.http11.Http11Protocol"
port="8443"
   maxThreads="600" scheme="https"
   secure="true" SSLEnabled="true" keystoreFile="${diamond.home}
   /jre/lib/security/cacerts"
   keystorePass="changeit" clientAuth="false" sslProtocol="TLS"
   URIEncoding="UTF-8"/>

   <!-- Define an AJP 1.3 Connector on port 8009 -->
   <!--<Connector port="8009" protocol="AJP/1.3" redirectPort="8443"
/>-->
```

Chapter 7: Change to Non-Default Port in HP Anywhere

By default, the HP Anywhere service (Tomcat) is installed on port 8080.

If you want to change the default port, for example, if another application (such as HP SiteScope) is already using the same port, you must manually update the relevant sections in the following files and then modify the HP Anywhere server URL via the Administrator Console:

- "In the <HP_Anywhere_installation_directory>\conf\hpa-config.properties file:" below
- "In the <HP_Anywhere_installation_directory>\conf\client-config.properties file:" below
- "In the <HP_Anywhere_installation_directory>\tomcat\conf\server.xml file: " below

To change the port used by HP Anywhere:

1. Stop the HP Anywhere and Cassandra services if they are running (**Start > HP > HP Anywhere > Stop HP Anywhere Server**
2. In the **<*HP_Anywhere_installation_directory*>\conf\hpa-config.properties** file:
   a. Find the `hpa.server.port` line.
   b. Change the port number, for example: `hpa.server.port=8181`
3. In the **<*HP_Anywhere_installation_directory*>\conf\client-config.properties** file:
   a. Find the `bsf.server.url` and `bsf.server.services.url` lines.
   b. Change the port number to the port number you entered in **hpa-config.properties**, for example:

   ```
   bsf.server.url=http://localhost:8181/bsf
   bsf.server.services.url=http://localhost:8181/bsf
   ```

4. In the **<*HP_Anywhere_installation_directory*>\tomcat\conf\server.xml** file:
   a. Find the section that begins with `<connector port="8080" protocol="org.apache.coyote.http11.Http11NioProtocol`.
   b. Change the port to the port number you entered in **hpa-config.properties**. For example:

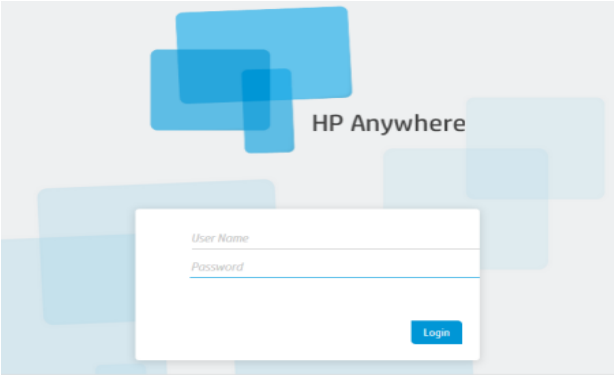
```
<!-- A "Connector" represents an endpoint by which requests are
received
       and responses are returned. Documentation at:
       Java HTTP Connector: /docs/config/http.html (blocking & non-
blocking)
       Java AJP Connector: /docs/config/ajp.html
       APR (HTTP/AJP) Connector: /docs/apr.html
       Define a non-SSL HTTP/1.1 Connector on port 8080
    -->
    <!-- start HTTP -->
   <Connector port="8181" protocol=
                  "org.apache.coyote.http11.Http11NioProtocol"
            connectionTimeout="20000"
            maxThreads="1200"
            compression="on"
            compressableMimeType="text/html,text/xml,text/plain,text/

javascript,application/javascript,text/css"
            compressionMinSize="1024" />
```

5. Restart the HP Anywhere and Cassandra services (**Start > HP > HP Anywhere > Start HP Anywhere Server**.

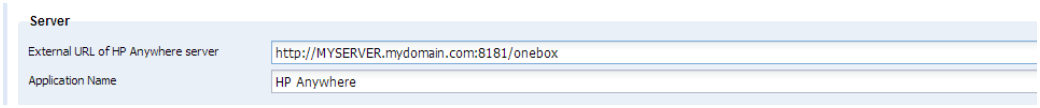
6. Change the HP Anywhere server URL:

   a. Open the Administrator Console by browsing to **http(s)://<hostname>:<port>/admin/** , logging on with your administrator login credentials (user name and password), and clicking **Logon**.



   b. In the Administrator Console, select the **Settings** tab. In the left pane, select **General Settings**. In the right pane, navigate to the **External URL of HP Anywhere server** field and change the port to the port number you entered in **hpa-config.properties**. For

example:


Server
External URL of HP Anywhere server
http://MYSERVER.mydomain.com:8181/onebox
Application Name
HP Anywhere

Chapter 8: High Availability

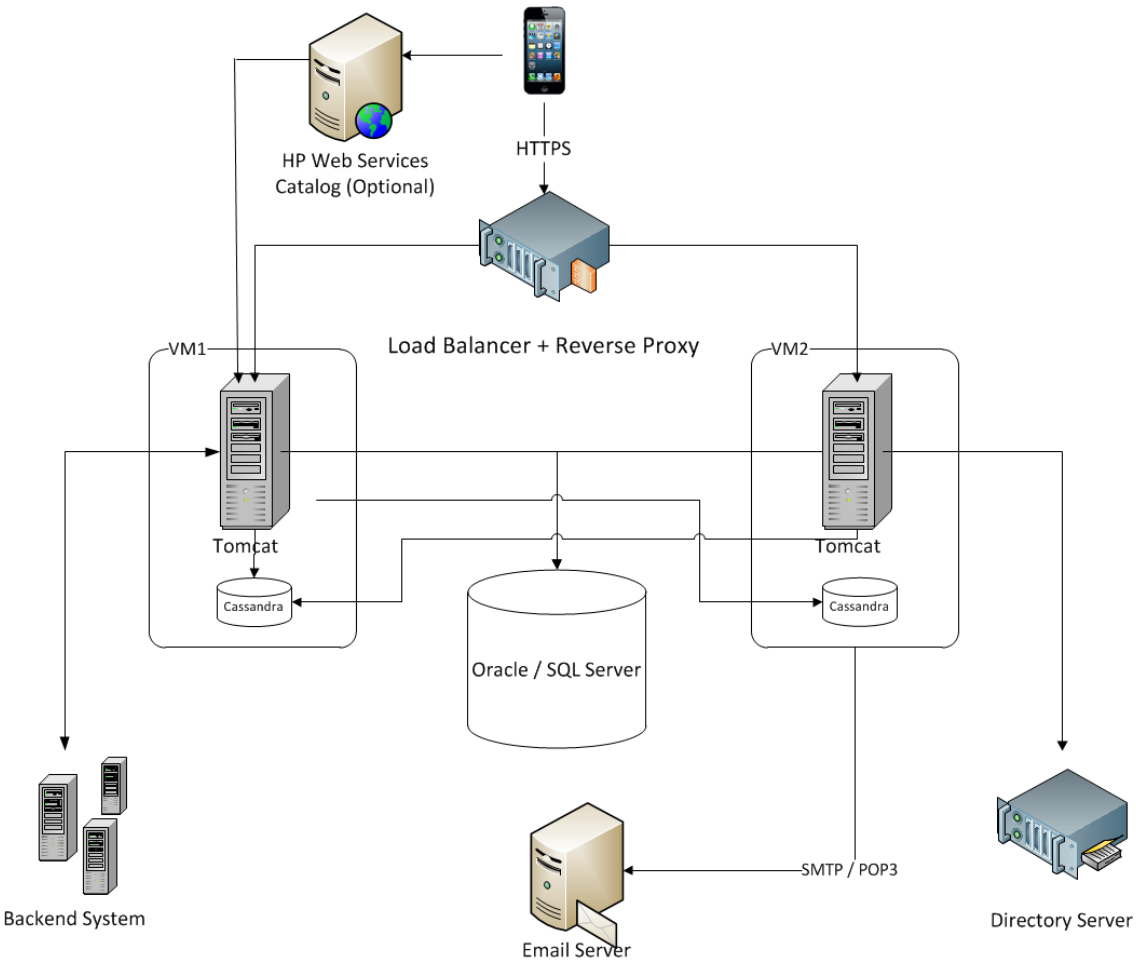
HP Anywhere implements high availability using Active - Active, Symmetric Mode. This means that all the nodes in the High Availability setup must be active, and all components must be installed on all the nodes (horizontal scaling).

For details on the HP Anywhere Architecture, see "HP Anywhere Architecture" in the *HP Anywhere Administrator Guide*.

You must configure high availability mode on each machine, and all the server machines must be active.

Cassandra is a highly scalable, distributed, structured key-value store. HP Anywhere 10.12 uses this store as a high-speed distributed caching layer.

The High Availability setup in HP Anywhere is represented in the following diagram:



Note: If you are using a Load Balancer, see Load Balancer and Reverse Proxy Configurations

in the HP Anywhere online Help for details.

This section includes the following topics:

Install HP Anywhere with High Availability

Note: Before setting up a cluster, make sure the clocks on all the nodes are synchronized (using NTP).

To install High Availability, perform the following steps:

1. Install HP Anywhere10.12 on the first machine as described in "How to Install HP Anywhere Server 10.12" on page 6 and select **Create New Database**. For details, see "Oracle Server—Create New Database" on page 28 and "Microsoft SQL Server—Create New Database" on page 12.
2. Run the configuration wizard as described in "Create HP Anywhere Database—Oracle Database Server" on page 28 and "Create HP Anywhere Database—SQL Server" on page 11.
3. Install HP Anywhere 10.12 on all of the other machines as described in "How to Install HP Anywhere Server 10.12" on page 6, select **Connect to an existing database**, and run the Configuration Wizard only. For details, see "Microsoft SQL Server—Manually Create and Populate Database" on page 21 and "Oracle Server—Manual Database and User Creation" on page 39.
4. Create the environment variables as described in "Create the Environment Variables " on page 72.

5. Prepare for High Availability configuration: Go to Windows Services and **stop the following services** on all nodes:

   - HP Anywhere
   - HP Anywhere Cassandra Daemon

6. Delete all the folders under the Cassandra var directory (e.g. **<*HP_Anywhere_installation_directory*>/Cassandra/apache-cassandra-1.1.6/var**)

7. On each node, run the following script (from the command line in **<*HP_Anywhere_installation_directory*>\scripts)** to set up the cluster for Cassandra, JMS (Java Message Service) and Elastic Search:

   configureHPACluster.bat

   > **Note:** To save the results of the set up cluster operation in a log file, run **configureHPACluster.bat > *cluster_logfile.***

8. On one of the machines, populate the Cassandra schema as follows:

   - Start the Cassandra service on that machine.
   - Run **<HP_Anywhere_Installation_Directory>\scripts\createCassandraSchema.bat**

   > **Note:** To save the results of the populate operation in a log file, run **scripts/createCassandraSchema.bat > *cassandra_logfile.***

9. Verify that the Cassandra database was set up correctly as described in "Verify the Cassandra Database" on page 75.

10. Start all services (both HP Anywhere and HP Anywhere Cassandra Daemon) on all nodes. After completing this step, High Availability is installed.

11. (Optional) On each node, configure a Windows task for the process watchdog. For details, see "Process Watchdog" on page 72.

12. Configure your Load Balancer to work with HP Anywhere nodes. For details on the Load Balancers certified for HP Anywhere, see "Load Balancer and Reverse Proxy Configurations" on page 1 in the *HP Anywhere Administrator Guide*.

13. (Optional) If there are machines that use trusted secure email server connectivity, you need to

import certificates on each machine. To do this, follow the procedure described in "Install Certificates on All Server Machines" on page 73.

Create the Environment Variables

Create the following environment variables on each node:

- HPA_SERVER_IP - The accessible server IP on the local machine (To determine the IP address, you can run **ipconfig** from the command line.)
- HPA_CLUSTER_IP_LIST - A comma-delimited list comprising IPs of all the nodes on which HP Anywhere will be installed.

  Note: The IP list must be in the same order in all nodes, as the HPA_SERVER_INDEX variable uses this order.

- HPA_CLUSTER_NAME - A unique string to name your cluster. This helps to protect your cluster from different Cassandra instances inadvertently joining it.
- HPA_CASSANDRA_PORT - (Optional) The Cassandra port (if you want to override the default 9160 Cassandra port). For details, see "High Availability" on page 67.
- HPA_SERVER_INDEX - Set 1 for node 1, 2 for node 2, etc.

Process Watchdog

The process watchdog automatically starts relevant Windows services if they go down.

Before installing the process watchdog, in HP Anywhere 10.12, there are two installed Windows services:

- HP Anywhere
- HP Anywhere Cassandra Daemon

To set up the process watchdog:

1. If not already installed, install powershell on a Windows 2008 server. For details, see http://en.wikipedia.org/wiki/Windows_PowerShell.
2. Use the watchdog scheduled tasks to register (install), run or stop the watchdog as defined in "High Availability" on page 67.

Define Scheduled Tasks for HP Anywhere Services

The Start batch file (**<HP_Anywhere_Installation_Directory>\scripts\startAnywhereService.bat**) and the Stop batch file (**<HP_Anywhere_Installation_Directory>\scripts\stopAnywhereService.bat**) handle all HP Anywhere services, including Cassandra.

To register the watchdog to run whenever Windows is started, install the watchdog as scheduled task:

```
<HP_Anywhere_Installation_Directory>/scripts/watchdog/createWatchdogTask.bat
```

To run the watchdog:

```
<HP_Anywhere_Installation_Directory>/scripts/watchdog/startWatchdogTask.bat
```

To stop the watchdog:

```
<HP_Anywhere_Installation_Directory>/scripts/watchdog/stopWatchdogTask.bat
```

Note: The watchdog task should be defined and started manually only once. After that, it is automatically started every time Windows is started. Once the watchdog is defined, you cannot use the standard Stop script.

Note: To ensure that old tomcat access.log files are deleted periodically:

1. Open Powershell.
2. Run **Set-ExecutionPolicy RemoteSigned** in the **Powershell** window.
3. Run **createWatchdogTask.bat** from the scripts dir.
4. Run **startWatchdogTask.bat** from the scripts dir.

Install Certificates on All Server Machines

Note: This procedure is only relevant for machines that use secured email server connectivity.

When a certificate is required, use CertificateJMX to install it on all machines. If the email was configured during the post install, the certificate is created on the specific server. A certificate is created only when creating a new schema/database.

To import the certificates to other server machines, use JMX on each node.

If the email was not configured during post-install, you also need to import the JMX to the first server. To access the JMX Console, from your web browser, go to **Host/diamond/jmx-console > diamond > CertificateJMX service.**

Note: After running JMX, you must restart the HP Anywhere service.

Stop Tomcat and Watchdog

If you need to stop the Tomcat process for maintenance purposes, you must first stop the watchdog script as it tries to rerun Tomcat.

To do this, use the StopWatchdog script.

Limitations

- The process watchdog handles processes that are down, but not "hung" processes.
- There are basic watchdog capabilities.You can use SiteScope for advanced monitoring capabilities.

Verify the Cassandra Database

You can use the **cassandra-cli.bat** file to verify that the Cassandra database was set up correctly.

Note: Before running cassandra-cli.bat, set the JAVA_HOME environment variable to **<*HP_Anywhere_installation_directory*>\jre**.

To verify that the Cassandra database was set up correctly:

1. Start cassandra cli:

   ```
   <HP_Anywhere_installation_directory>\cassandra\apache-cassandra-1.1.6\bin\
   cassandra-cli.bat -h<IP_ADDRESS> -p<PORT>
   ```

   where `<IP_ADDRESS>` is the configured server address, and `<port>` is needed only if not using the default port 9160.

2. Run the following commands:

   ```
   use diamond;
   show schema;
   ```

3. You should see the following output:

   ```
   create keyspace diamond
   with placement_strategy = 'SimpleStrategy'
   and strategy_options = {replication_factor : 2}
   and durable_writes = true;
   ```

Note: If the Cassandra service fails to start, this means that the High Availability installation did not complete correctly. In this case, you see the following message in the log file:

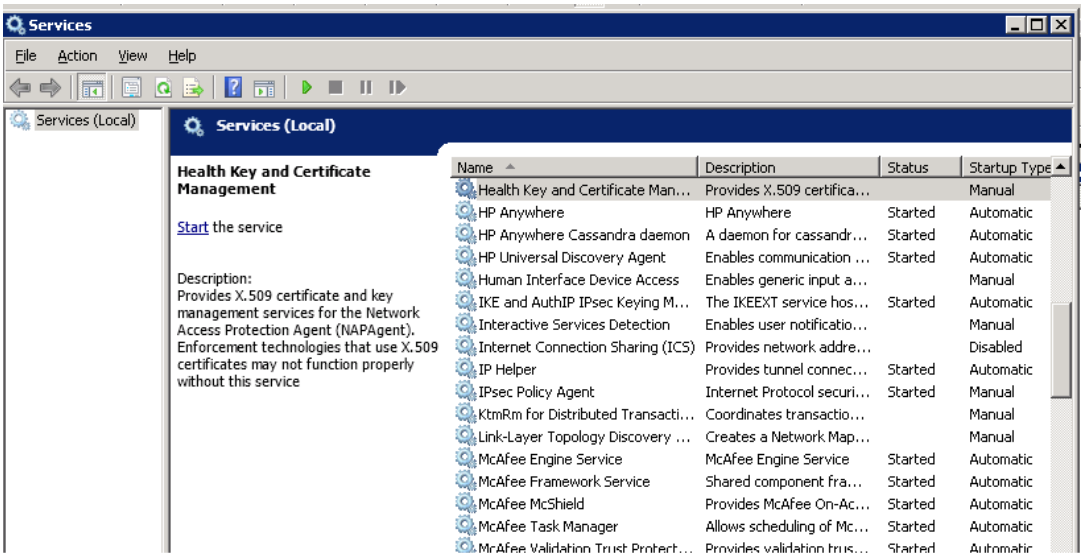
```
Saved cluster name XXXX != configured name YYYY
```

To solve this, repeat steps 6 and 7 in "Install HP Anywhere with High Availability" on page 69. Then repeat step 9. These steps stop the Cassandra and Tomcat services on all nodes, and delete the Cassandra data directory.

Verify the Watchdog Script

To verify that the watchdog script works correctly:

1. Open the Windows Services to see all the Windows services installed.



2. Stop either one of the HP Anywhere services.

   The service starts automatically after several seconds.

Uninstall/Reinstall High Availability

The scripts must be stopped on each node.

1. Stop the watchdog script.
2. Remove the watchdog task.
3. Uninstall HP Anywhere. For details, see "Uninstall HP Anywhere Server" on page 79.

Chapter 9: Open Ports in a Firewall

For push notifications, open the following ports:

- For Google's GCM notifications, open port 443 (HTTPS protocol) for outgoing connections.
- For Apple's APNS notifications, open ports 2195 and 2196 (SOCKS protocol) for outgoing connections.

Chapter 10: Transferring Data Through a Firewall

To allow HP Anywhere to transfer data/communicate through a firewall:

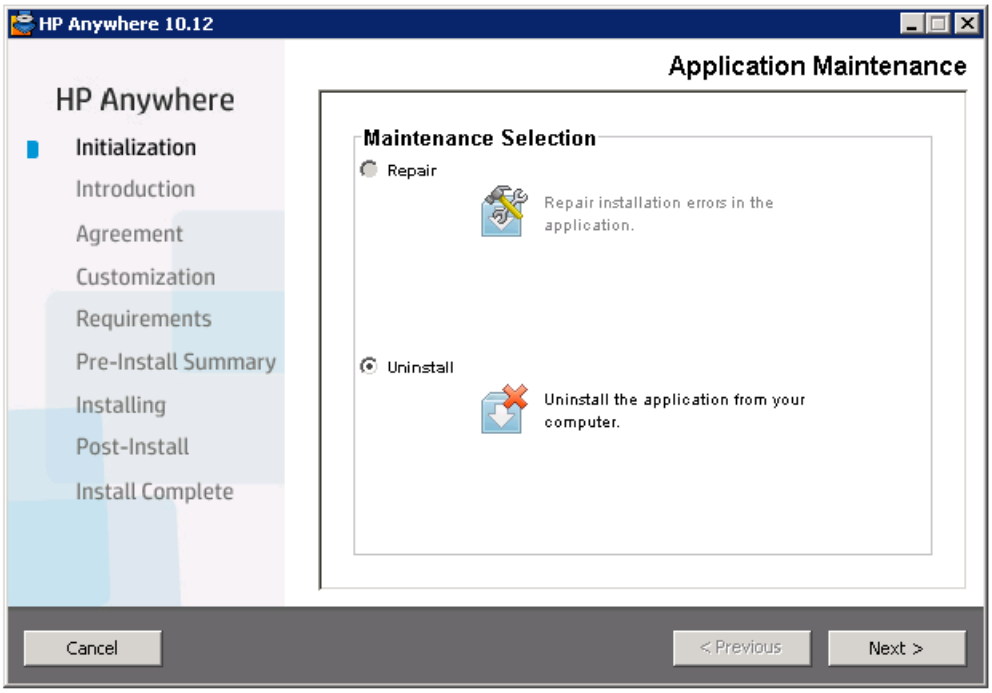
- For an internal firewall (for connections from web server to Tomcat), open the HTTP port for incoming connections (port 8080 if you did not change it).
- For an external firewall (for connections from clients to web server in DMZ), open port 80 for incoming connections.

Chapter 11: Uninstall HP Anywhere Server

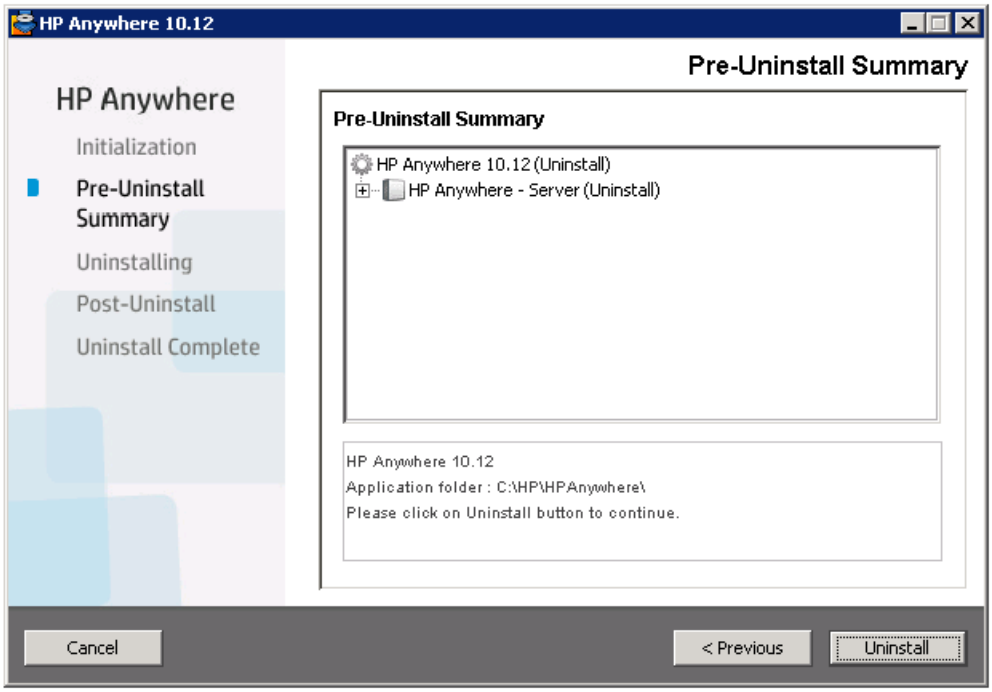
This section describes how to uninstall the HP Anywhere server automatically or manually.

To uninstall the HP Anywhere server automatically

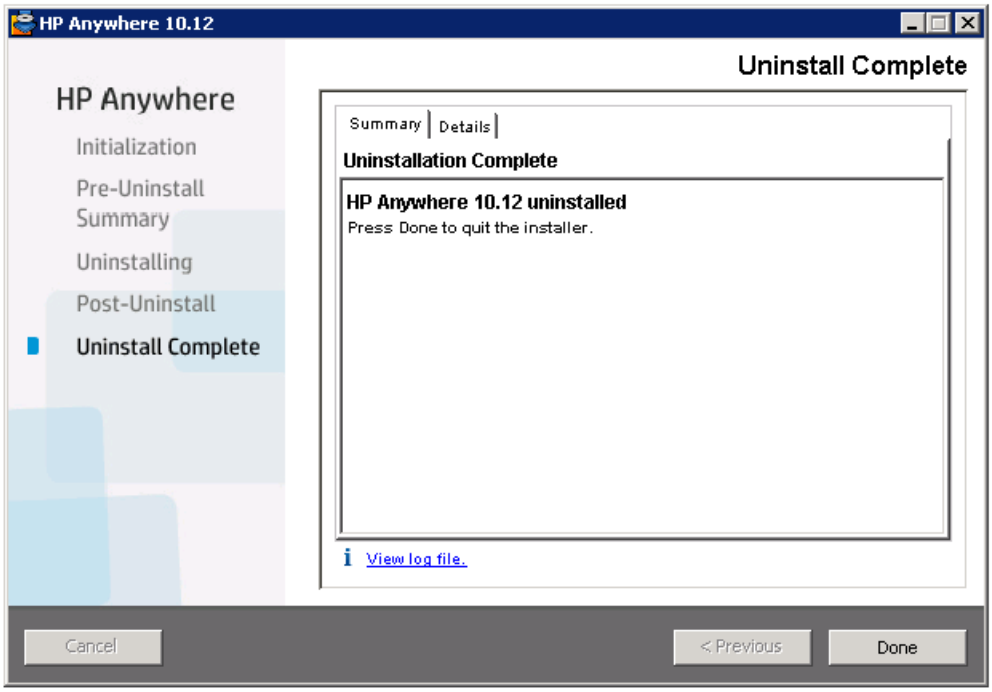
1. Select **Start > All Programs > HP > HP Anywhere > Uninstall HP Anywhere**. After the silent uninstall process finishes, the Application Maintenance window opens.



2. Select **Uninstall** and click **Next**. The wizard shows a summary of the components that will be uninstalled.



3. Click **Uninstall**. When the uninstall process is complete, a confirmation message is displayed.



4. Click **Done** to complete the uninstall process.

To uninstall the HP Anywhere server manually

1. Delete the %BTOA_HOME% environment variable.
2. Run the following to delete the HP Anywhere service:
   <*HP_Anywhere_installation_folder*>\scripts\uninstallAnywhereService.bat

Chapter 12: Troubleshooting and Limitations

This section describes known issues.

Client Login Issues

Problem: Cannot log into HP Anywhere from a mobile device with a valid connection. The message “Wrong user and pass” is shown even though the user name and password are correct.

Solution: Verify that full server name (machine name) is used in the server field (and not the IP address). For example, if the HP Anywhere server runs on a machine named “server01 in the mycompany.com domain, you must use “server01.mycompany.com:8080” in the server field.

Part 2: Upgrading the HP Anywhere Server to 10.12

Notes:

- You must upgrade directly from HP Anywhere 10.10 or 10.11. For details, see "How to Install HP Anywhere Server 10.12" on page 6.
- You must have administrator privileges on the server machine to upgrade the HP Anywhere Server.
- If you installed a patch over HP Anywhere 10.10 or 10.11, you cannot uninstall the patch after upgrading to 10.12. To uninstall a patch after upgrading, you must first uninstall the upgrade to 10.12 (**Start > All Programs > HP > HP Anywhere > Uninstall HP Anywhere 10.12**).
- **Important:** It is recommended to make a backup copy of your HPA_HOME (HP Anywhere installation) directory and save it to a different location before starting the upgrade.

To upgrade the HP Anywhere server, do the following on every server node:

1. **Prerequisites:**

   a. **RestBeans.xml** is overwritten during the upgrade. If your earlier HP Anywhere 10.0x version used a customized RestBeans.xml, save a copy of **<HPA_HOME>\tomcat\webapps\diamond\WEB-INF\classes\META-INF\cxf\RestBeans.xml**. (You will apply the customized configurations to the new **RestBeans.xml** file after the upgrade.)

   b. If you customized your **Log4j** settings (for example, by editing the log level for an appender), you may want to back up the **<HP_Anywhere_installation_directory>/conf/log/ee-log4j.xml** prior to upgrading.

2. Run the installation wizard:

   a. Do one of the following:

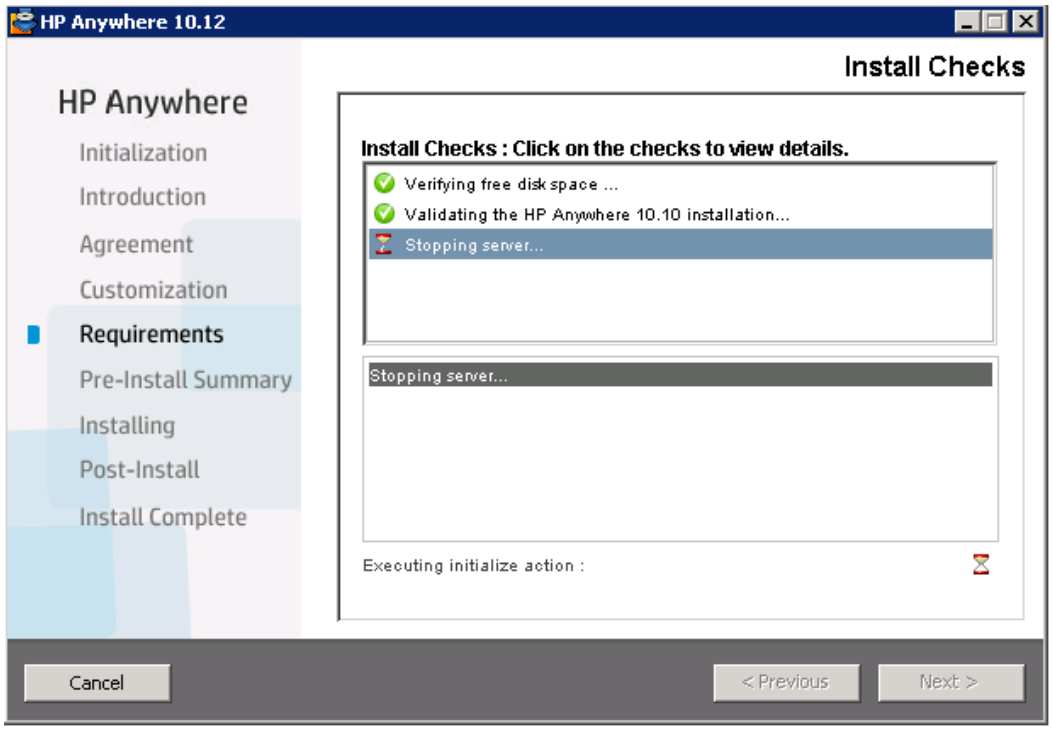
      - If you are upgrading from the download, extract the installation folder (**HP_Anywhere_10.12.zip**) and run **HP_Anywhere_10.12_setup.exe**.

- If you are upgrading from the DVD, click **HP Anywhere10.12 Setup**.

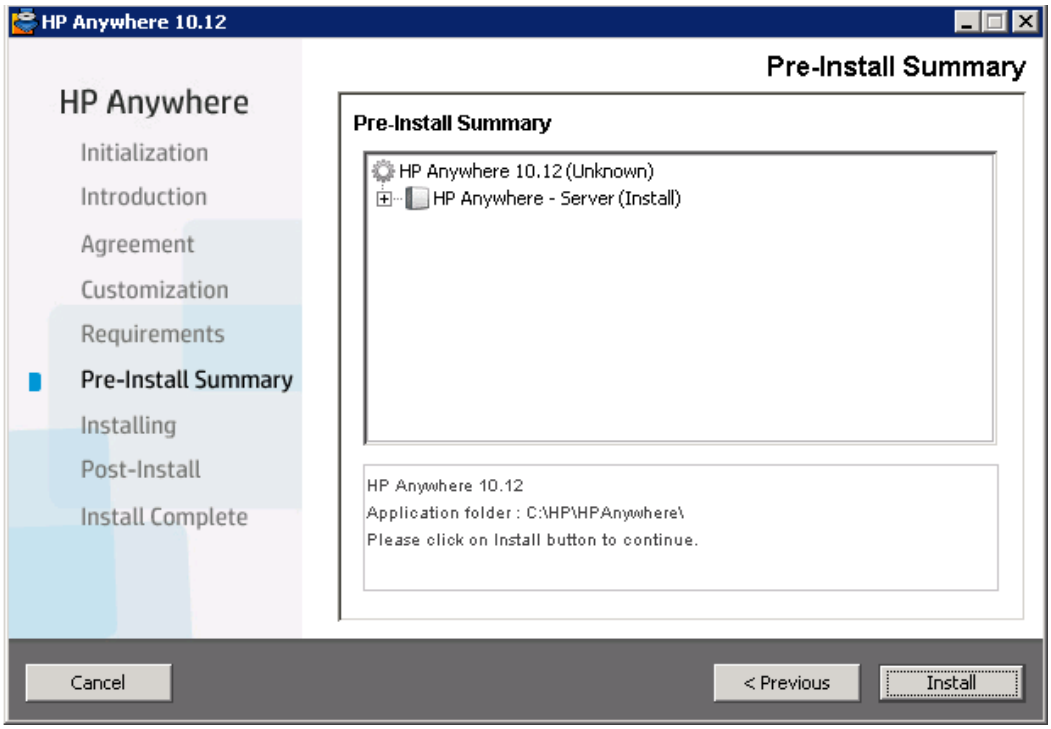
b. In the Introduction page, click **Next**.

c. In the License Agreement page, select **I accept the terms of the License Agreement**.

d. Click **Next**. The system checks disk space and verifies that HP Anywhere 10.10 or 10.11 is installed. Click **Next**.



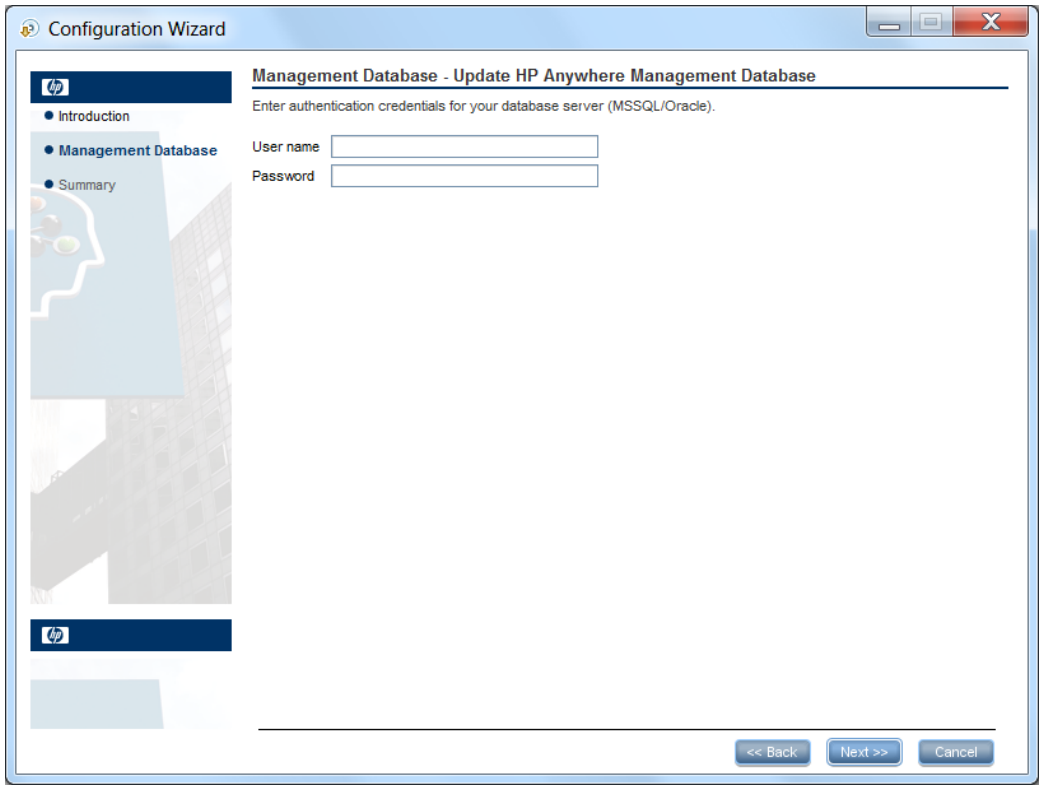
e. In the Pre-Install Summary page, click **Install**.



3. In the Configuration Wizard that opens:

   a. In the Introduction screen, click **Next**.

   b. In the Update HP Anywhere Management Database screen, enter the administrator user name and password that you use to access your HP Anywhere database server. (For Oracle, the user name is your **Schema** name.)
   Click **Next**. The database is updated to support the current version.



c. In the Summary screen, click **Finish** to close the wizard.

4. If you performed the prerequisites in step 1:

   - If you saved a copy of the **RestBeans.xml** file, apply your customizations to the newly created **<HPA_HOME>\tomcat\webapps\diamond\WEB-INF\classes\META-INF\cxf\RestBeans.xml** file.
   - If you backed up customized **Log4j** settings, apply your customizations to the **<HP_Anywhere_installation_directory>/conf/log/ee-log4j.xml** file.

5. (Optional) Open **<HP_Anywhere_installation_folder>\conf\database.properties**, and verify that the following optional parameters exist. This is relevant only if you plan to modify the database connection pool parameters in the future.

Parameter with Default Value	Description
db.pool.maxAbandonedTime=300	Timeout in seconds before an abandoned connection can be removed.

Parameter with Default Value	Description
db.pool.maxWaitTime=30	The maximum number of seconds that the pool will wait (when there are no available connections) for a connection to be returned before throwing an exception.
db.pool.minIdle=5	The minimum number of connections that can remain idle in the pool without creating additional connections. **Default: 5** (Enter **0** to prevent additional connections from being created.)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