Tivoli Composite Application Manager for Application Diagnostics V7.1

Custom installation of Managing Server with remote DB2 database

- Managing Server is a Deep Dive Diagnostics provider for the Tivoli® Composite Application Manager for Application Diagnostics V7.1.

- This module shows steps to install Managing Server with a DB2® database running on a remote host.

- In a "Typical" installation of Managing Server, the DB2 database must be installed locally during Managing Server installation.

- If you use an existing DB2 database instance on a local or remote host, a "Custom" installation path is used by the installer.

- Special steps are required to install Managing Server if you use a remote DB database.

Assumptions

- Familiarity with Managing Server (MS) architecture

- On the remote host, DB2 installation exists

- On the MS host
  - WebSphere® application server is installed
  - DB2 client is installed
  - MS 7.1 CD is downloaded
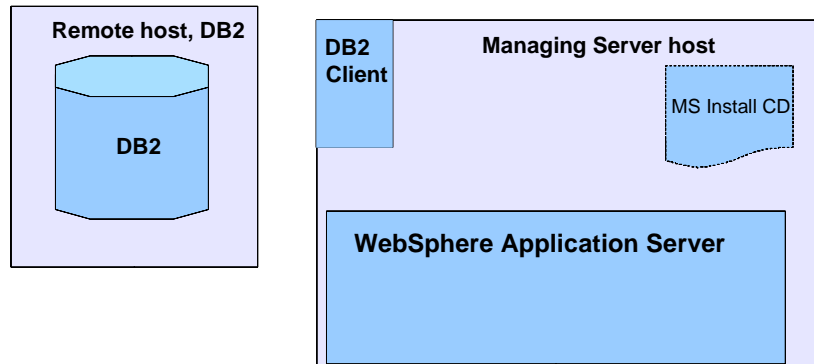
Remote host, DB2

DB2

DB2 Client

Managing Server host

MS Install CD

WebSphere Application Server

The module developer assumes that you are familiar with the basic architecture of Managing Server and have these environments established before you start the installation.

1. Both DB2 and Managing Server hosts are on Linux OS.

2. On the Managing Server host, the WebSphere Application Server and DB2 client are installed. Additionally the Managing Server CD image is downloaded and extracted to a temporary directory.

3. On the Remote DB2 host, a DB2 instance has been identified to be used by the Managing Server.

Objectives

When you complete this module, you can install Managing Server which is configured to use an existing DB2 instance on a remote host

When you complete this module you can install Managing Server which is configured to use an existing DB2 instance on a remote host.

Overview

- Collect information that is required during installation
- Create Tivoli Composite Application Manager database on DB2 instance on the remote host
- Establish connection between MS host and Tivoli Composite Application Manager database
- Install Managing Server (MS) and Visualization Engine (VE)

Custom installation of Managing Server with remote DB2 database

Overview.

These are the installation process steps in this module:

- Collect information which is required during installation

- Create Tivoli Composite Application Manager database on DB2 instance on the remote host using a script provided in the product CD

- Establish connection between Managing Server host and Tivoli Composite Application Manager database

- Install Managing Server (MS) and Visualization Engine (VE)

Collect required information

- WebSphere **admin** user and password
- SOAP port of WebSphere Application Server or Deployment Manager
- DB2 instance user and password
- DB2 schema user and password
- Visualization Engine user

Custom installation of Managing Server with remote DB2 database

Collect this information before starting installation:

A. WebSphere admin user and password. This requires that administrative security is enabled for the WebSphere.

B. SOAP port of WebSphere Application Server or Deployment Manager if using Network Deployment environment.

C. DB2 instance user and password.

D. DB2 schema user and password, where a schema user can be the same as or different from the DB2 instance user. Managing Server uses this user to connect to the database.

E. Visualization Engine user that is used for logging into Tivoli Composite Application Manager console. During installation of Managing Server this user is the same as WebSphere administrative user.

WebSphere security settings

Select **Enable administrative security**.

Enter Primary administrative user name, **admin**.

Click **Configure**.

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The Visualization Engine application uses WebSphere administrative security to authenticate users.

To enable WebSphere administrative security, use the **Global security** page from administrative console.

> Select a **User account repository**.
>
> Click **Configure** to specify **Primary administrative user name**.
>
> Type the password on the subsequent panel.
>
> Save changes and restart the WebSphere application server.

Schema user

- Schema user is an Operating System user on the remote DB2 host

 This user is created with the OS command

- Modify the shell startup script to source **db2profile**

 In this example, schema user is **amuser**

 [amuser]:~>**echo $SHELL**

 /bin/bash

 [amuser]:~>**vi .bashrc**

 Add this line to this file; include the dot at the beginning

 . ~db2inst1/sqllib/db2profile

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The schema user is an operating system user defined on the remote DB2 host. You create this user with the OS command.

The Tivoli Composite Application Manager database install script requires that db2profile is sourced for the schema user. To ensure this, modify the startup script, **.bashrc for bash shell** to source **db2profile**.

Log in as schema user. Use the **echo $SHELL** command to display the default shell in use.

> Edit the corresponding startup non-login shell script to source db2profile of the instance.

> For example edit the **.bashrc** file if the user login shell is **bash**.

> Add this line to this file and include the dot at the beginning:

> > **. ~db2inst1/sqllib/db2profile**

Create Tivoli Composite Application Manager database (1 of 3)

```
Managing Server host
[root]:MS>ls
autorun.inf              itcam_ms_install.opt      scripts
base                     jars                      setup_MS.jar
cynlogging.properties    java                      setup_MS_lin.bin
DCPrereqs.xml            launchpad.bat             setup.sp
deleteTmtpInst.bat       launchpad.sh              silent
deleteTmtpInst.sh        launchpad..sh.orig        tv_install_arrow.ico
fuserCmdAS.sh            lib                       upgrade_ms.bat
fuserCmdLin.sh           media.inf                 upgrade_ms.jar
getCurDirAS.sh           MS_3phases_install.README upgrade_ms.sh
getCurDirLin.sh          MS_3Phases_Upgrade.README w32util.dll
images                   non_IBM_license           WsamMsPrereqs.xml
installer                notices
insttmp                  prereqs.dtd
[root]:MS>cd base/etc
[root]:etc>ls *remote-scripts.tar
db2-remote-scripts.tar  oracle-remote-scripts.tar
[root]:etc>
```

From the Managing Server CD, use FTP commands to copy the file **base/etc/db2-remote-scripts.tar** to a temporary directory on the remote DB2 host.

The next step is to create Tivoli Composite Application Manager database on the remote DB2 host. Locate the **db2-remote-scripts.tar** file on the Managing Server host. This file is located in the **base/etc** directory of Managing Server CD directory. Use an FTP command to copy this tar file to the remote DB2 host.

Create Tivoli Composite Application Manager database (2 of 3)

```
Remote host - DB2                                    [_][□][✕]

[db2inst1]:remote_db>tar xvf db2-remote-scripts.tar
db2/
db2/bin/
db2/etc/
db2/logs/
db2/bin/db2configuration.s
db2/bin/db2createschema.sh
db2/bin/db2install.bat
db2/bin/db2install.sh
db2/bin/db2install_remote_
db2/bin/db2uninstall.bat
db2/bin/db2uninstall.sh
db2/bin/db2uninstall_int.b
db2/etc/DB2-readme.txt
db2/etc/alterservers-db2.s
db2/etc/am-db2.sql
db2/etc/dbsettings.sql
db2/etc/dbsettings_v9.sql
db2/etc/droptables.sql
db2/etc/migratepolling.sql
db2/etc/migratetables-211.
db2/etc/migratetables-22.s
db2/etc/migratetables.sql
db2/etc/migratetables211.sql
```

Extract the **db2-remote-scripts.tar** file.

```
Remote host - DB2

[db2inst1]:remote_db>db2level
DB21085I  Instance "db2inst1" uses "64" bits and DB2 code rele
ase "SQL09059"
with level identifier "060A0107".
Informational tokens are "DB2 v9.5.0.9", "s120228", "IP23311",
 and Fix Pack
"9".
Product is installed at "/opt/ibm/db2/v9_5".

[db2inst1]:remote_db>db2start
06/05/2012 15:31:59    0   0   SQL1026N  The database manager
 is already active.
SQL1026N  The database manager is already active.
[db2inst1]:remote_db>
```

Run the **db2level** command.

Run the **db2start** command.

9   Custom installation of Managing Server with remote DB2 database   © 2012 IBM Corporation
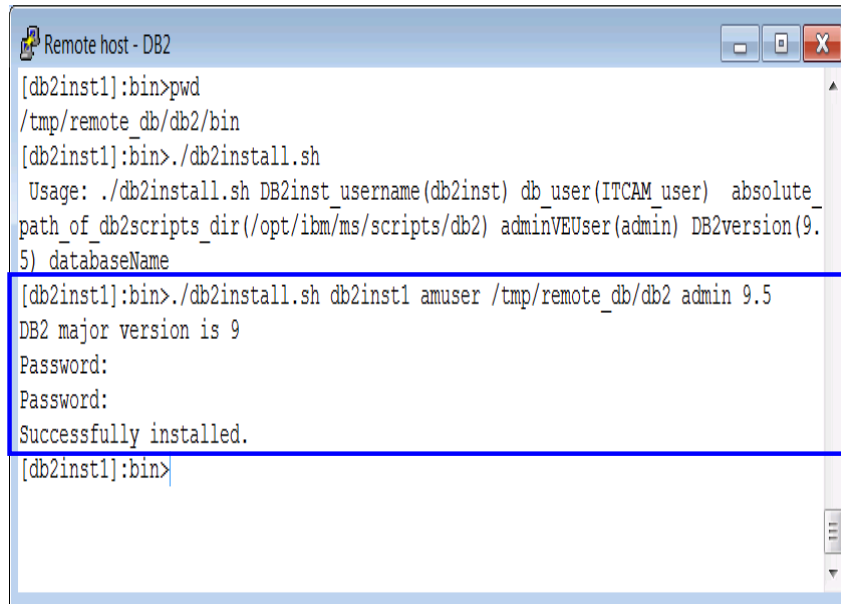
Log in to remote host as the **DB2 instance** user. Change directory to where the scripts tar file was transferred. Ensure that the **DB2 instance** user account has full permissions to this directory.

Extract the **db2-remote-scripts.tar** file. This extracts to a subdirectory named **db2**.

Run the **db2level** command to get the level of DB2, which, in this example, is **9.5**.

Run the **db2start** command to ensure that the DB2 instance starts. You might see that the database manager is already active as shown here.

IBM

```
Remote host - DB2                                    [_] [口] [X]
[db2inst1]:bin>pwd
/tmp/remote_db/db2/bin
[db2inst1]:bin>./db2install.sh
 Usage: ./db2install.sh DB2inst_username(db2inst) db_user(ITCAM_user)  absolute_
path_of_db2scripts_dir(/opt/ibm/ms/scripts/db2) adminVEUser(admin) DB2version(9.
5) databaseName
[db2inst1]:bin>./db2install.sh db2inst1 amuser /tmp/remote_db/db2 admin 9.5
DB2 major version is 9
Password:
Password:
Successfully installed.
[db2inst1]:bin>
```

Custom installation of Managing Server with remote DB2 database
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The **db2install.sh** script is located in the extracted **db2/bin** directory. This script creates the IBM Tivoli Composite Application Manager database and its tables.

The **db2install.sh** script takes five mandatory and one optional input parameters.

> #1 is the DB2 instance user, for example **db2inst1**.

> #2 is the schema user, for example **amuser** or **db2inst1**.

> #3 is the absolute path of the db2 directory where the script tar was extracted.

> #4 is the Web Sphere admin user.

> #5 is the DB2 version, for example **9.5**.

> #6 is optional. It can be used to specify a non-default name of Tivoli Composite Application Manager database. If this argument is omitted, the script uses the default name **octigate**.
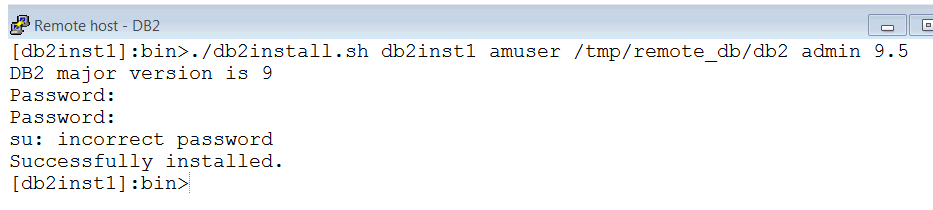
Example:

> **./db2install.sh db2inst1 amuser /tmp/remote_db/db2 admin 9.5** where *db2inst1* is the **instance user**, *amuser* is the **schema user**, /tmp/remote_db/db2 is where the **remote-db2-scripts.tar** was extracted, *admin* is the **Web Sphere admin user**, and *9.5* is the **level of DB2 database**.

The script prompts for password twice. The schema user password is expected for both prompts. If no errors are encountered and a "Successfully installed." message displays, then the script completed successfully.

msinstallremotedb.ppt

Create Tivoli Composite Application Manager database, troubleshooting

- If errors occur, rerun the db2install.sh script even if the final result says "Successfully installed"

```
Remote host - DB2
[db2inst1]:bin>./db2install.sh db2inst1 amuser /tmp/remote_db/db2 admin 9.5
DB2 major version is 9
Password:
Password:
su: incorrect password
Successfully installed.
[db2inst1]:bin>
```

- The script generates logs in db2/logs directory
- If any problems occur during db2install script execution, rerun the script

 The script deletes and re-creates previously created database.

Custom installation of Managing Server with remote DB2 database

Here are some troubleshooting tips for the Tivoli Composite Application Manager database creation script.

If errors occur, rerun the **db2install.sh** script. For example, if an **Incorrect password** message is displayed, rerun the script even if the final result reads **Successfully installed**.

The script generates logs in **db2/logs** directory under extracted scripts directory. Evaluate these logs to determine cause of errors.

If any problems occur during **db2install.sh** script execution, rerun the script. The script deletes previously created database and re-creates it.

Create Tivoli Composite Application Manager database, verification

Run the command
`db2 connect to <database> user <schema user>`

```
Remote host - DB2                                                    [ _ ][ □ ][ X ]
[db2inst1]:bin>db2 connect to octigate user amuser
Enter current password for amuser:

   Database Connection Information

 Database server       = DB2/LINUXX8664 9.5.9
 SQL authorization ID  = AMUSER
 Local database alias  = OCTIGATE

[db2inst1]:bin>db2 list tables

Table/View                    Schema          Type  Creation time
----------------------------- --------------- ----- --------------------------
CONFIG                        AMUSER          T     2012-06-05-15.51.22.782
CTG_SR_GATEWAY                AMUSER          T     2012-06-05-15.51.24.394
CTG_SR_OVERVIEW               AMUSER          T     2012-06-05-15.51.24.366
DC_IDENTITY_INFO              AMUSER          T     2012-06-05-15.51.25.342
DUAL                          AMUSER          T     2012-06-05-15.51.22.305
FGROUPS                       AMUSER          T     2012-06-05-15.51.18.935
FUNCTIONS                     AMUSER          T     2012-06-05-15.51.19.070
GC_DATA                       AMUSER          T     2012-06-05-15.51.23.402
GPSMASK                       AMUSER          T     2012-06-05-15.51.24.738
```

Run the command `db2 list tables`

To confirm that the script ran successfully, run these two commands:

1. To connect to Tivoli Composite Application Manager database,
db2 connect to <database> user <schema user>.

2. To list tables run the command **db2 list tables**.

The list of tables created by the **db2install.sh** script displays and shows CONFIG, CTG_SR_GATEWAY, and so on. This information confirms that the database is created as expected.

DB2 TCP/IP service setup

On the remote DB2 host

- Verify that TCP/IP communication is configured
  1. `db2 get dbm cfg | grep SVCENAME`
  2. Check the service name entry in /etc/services
  3. `db2set -all | grep DB2COMM`
- If service is not configured, perform these steps
  1. In the **/etc/services** file, create an entry
     <a unique service name> <unique port>/tcp
     Example: `db2c_db2inst1 60000/tcp`
  2. Associate the service name to the DB2 instance:
     `db2 update dbm cfg using svcename db2c_db2inst1`
  3. Set DB2 communication
     `db2set DB2COMM=tcpip`
  4. Restart the instance to start the TCP/IP service

Now that the Tivoli Composite Application Manager database is created on the remote host, the next step is to configure TCP/IP service for communication with the IBM Tivoli Composite Application Manager database.
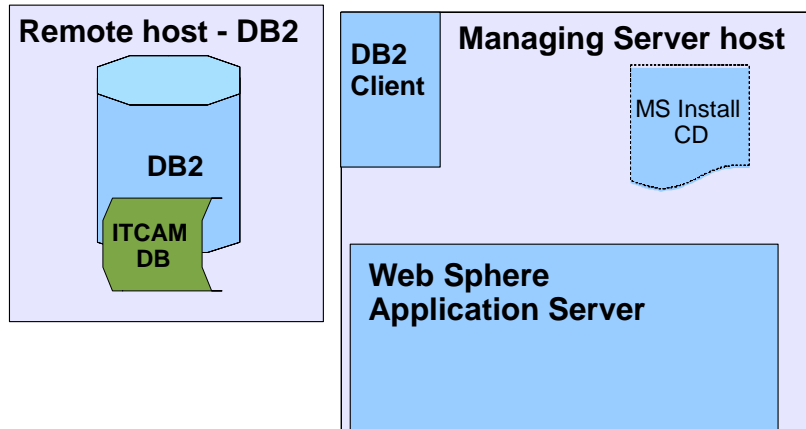
To verify TCP/IP service configuration for the DB2 instance perform steps one to three.

1. To get the service name from database manager configuration, run the command **db2 get dbm cfg | grep SVCENAME**. This shows a service name if the service has been configured.

2. Look up the port number used by this service in **/etc/services** file.

3. To ensure that DB2COMM is set to **tcpip**, run the command **db2set -all | grep DB2COMM**.

If TCP/IP service is not configured for the instance, then configure it with these steps.

1. Add an entry in the **/etc/services** file for the server to associate it with a unique service name and port number. The entry format is *<a unique service name> <unique port>*/**tcp**. For example, **db2c_db2inst1 60000/tcp**.

2. To update the Database Manager configuration setting with the service name run the command **db2 update dbm cfg using svcename db2c_db2inst1**.

3. Set DB2COMM setting to tcpip with the command **db2set DB2COMM=tcpip**.

4. Restart the Database Instance by running the two commands **db2stop** and **db2start**. These actions start the TCP/IP service listening on the specified port for the DB2 instance.

msinstallremotedb.ppt

Tivoli Composite Application Manager database is created

Remote host - DB2

DB2

ITCAM DB

DB2 Client

Managing Server host

MS Install CD

Web Sphere Application Server

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The Tivoli Composite Application Manager database is now created on the remote host and remote DB2 instance is configured for TCP/IP communication.

DB2 client connection, create instance

On MS host, create DB2 client instance
- Create DB2 user group
  ```
  groupadd db2iadm
  ```
- Create client instance user, assign it DB2 user group
  ```
  useradd -g db2iadm -d /home/db2inst2 db2inst2
  ```
- Create client DB2 instance
  ```
  cd /opt/ibm/db2/V9.5/instance
  ./db2icrt -a SERVER -s client db2inst2
  ```

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Next establish connection between the Managing Server host and the remote IBM Tivoli Composite Application Manager database. This is accomplished through DB2 client.

Step one is to create a DB2 instance on the client.

A. Log in to Managing Server host as a **root** user.

B. Create a non-default user group using operating system command. For example, **groupadd db2iadm**.

Step two is to create an instance user which belongs to the group just created. For example, **useradd -g db2iadm -d /home/db2inst2 db2inst2**.

Step three is to create a DB2 instance on the client with these two commands:

A. **cd /opt/ibm/db2/v9.5/instance**.

B. **./db2icrt -a SERVER -s client db2inst2**.

Remember the dot at the start of the second command.

DB2 client connection - Catalog remote database

1. Log in to Managing Server host as the client instance user
2. Catalog remote DB2 instance
3. Catalog IBM Tivoli Composite Application Manager database
4. Verify connection to the remote database

```
Managing Server host
[db2inst2]:~>db2 catalog tcpip node itcamnd remote nc9053114248.tivlab.austin.ibm.
com server 60000
DB20000I  The CATALOG TCPIP NODE command completed successfully.
DB21056W  Directory changes may not be effective until the directory cache is
refreshed.
[db2inst2]:~>db2 catalog database octigate as octigate at node itcamnd
DB20000I  The CATALOG DATABASE command completed successfully.
DB21056W  Directory changes may not be effective until the directory cache is
refreshed.
[db2inst2]:~>db2 terminate
DB20000I  The TERMINATE command completed successfully.
[db2inst2]:~>db2 connect to octigate user amuser
Enter current password for amuser:

   Database Connection Information

 Database server        = DB2/LINUXX8664 9.5.9
 SQL authorization ID   = AMUSER
 Local database alias   = OCTIGATE

[db2inst2]:~>db2 list tables

Table/View                      Schema        Type  Creation time
------------------------------- ------------- ----- -------------------------
```

Custom installation of Managing Server with remote DB2 database   © 2012 IBM Corporation

Create catalog entries for the remote DB2 node and Tivoli Composite Application Manager database in the DB2 client instance with these steps:

1. Log in to Managing Server host as the DB2 client instance user with **su - db2inst2**.

2. To catalog the remote DB2 node, run **db2 catalog tcpip node *<nodename>* remote *<remote host>* server *<tcpip port>***.

3. To catalog the IBM Tivoli Composite Application Manager database, run **db2 catalog database octigate as octigate at node *<nodename>***.

4. To refresh directory cache, run **db2 terminate**. Connectivity to the remote Tivoli Composite Application Manager database is established.

5. Verify remote connectivity, from Managing Server host, connect to IBM Tivoli Composite Application Manager database using schema user and password. Run **db2 connect to octigate user amuser**. If connection is successful then TCP/IP communication is correctly configured.

6. To list tables to confirm that the tables from Tivoli Composite Application Manager database are listed, run **db2 list tables**.

Note: If you need to recatalog the remote node or database for any reason, you can uncatalog the node and the database using these commands, and then run the catalog commands again.

A. **db2 uncatalog node itcamnd**

B. **db2 uncatalog database octigate**

C. **db2 terminate**
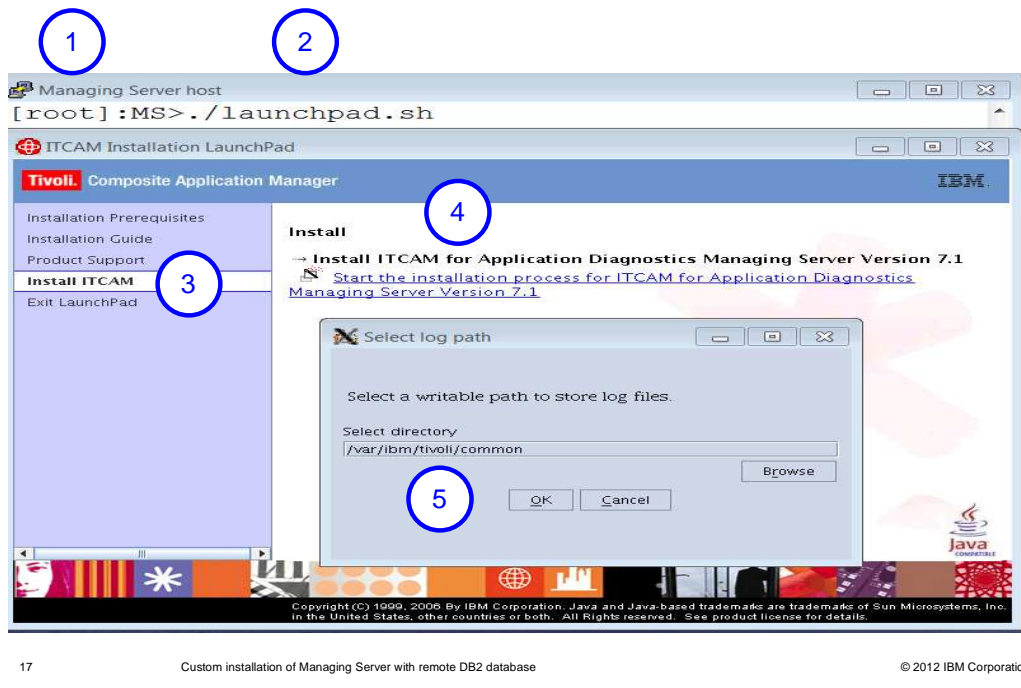
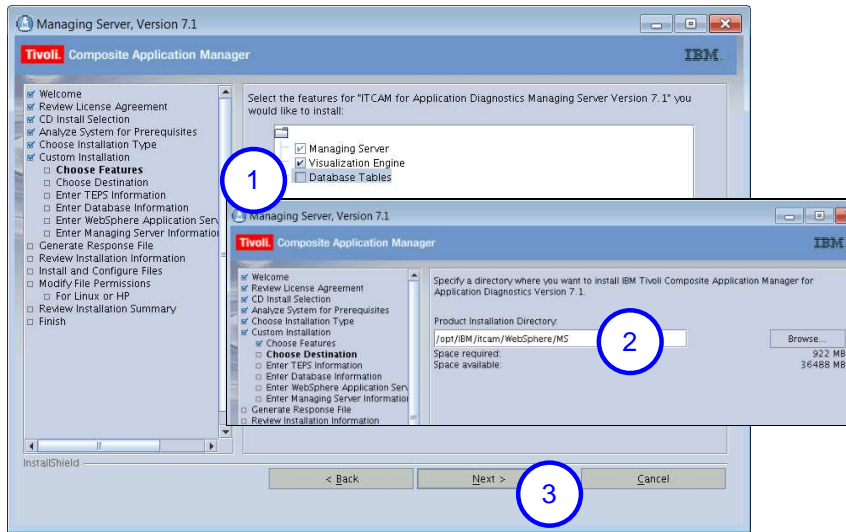17   Custom installation of Managing Server with remote DB2 database   © 2012 IBM Corporation

Now you are ready to install the Managing Server.

1. Start a graphic session on Managing Server host and log in as the **root** user.

2. From the **install CD** directory, run **launchpad.sh**.

3. Select **Install ITCAM** option.

4. Select the link to **start the installation process**.

5. The Select log path screen opens; enter the path where **Managing Server** and **Visualization Engine** logs are created.

The user of Web Sphere Application Server process and user starting the Managing Server must both have write access to this path. The **Custom** installation option is automatically selected when the DB2 client installation is found. Click **Next**, until the screen to **select features** displays.
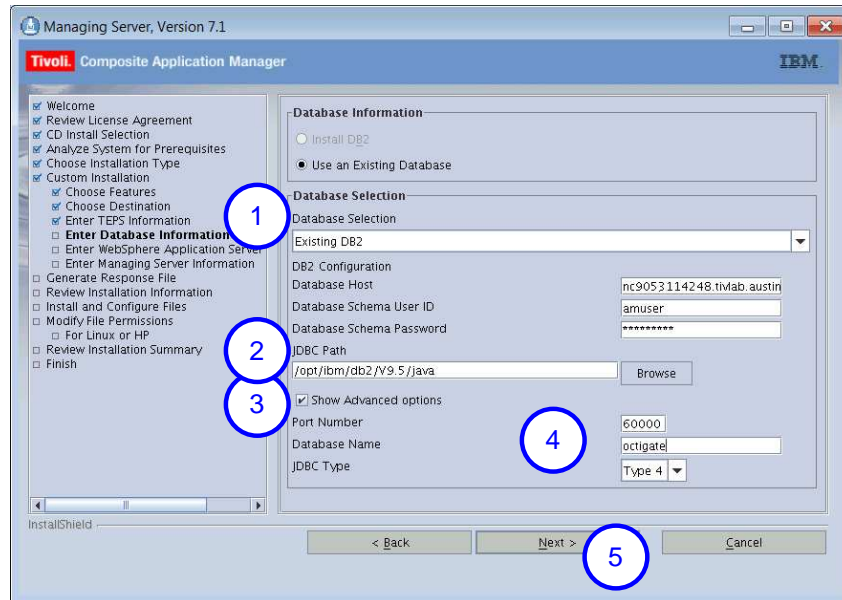
1. On the **Select the features** screen, clear the **Database tables** check box. The database tables are already created.

2. Click **Next** and specify the **Managing Server** home directory path in the prompt for **Product Installation Directory**.

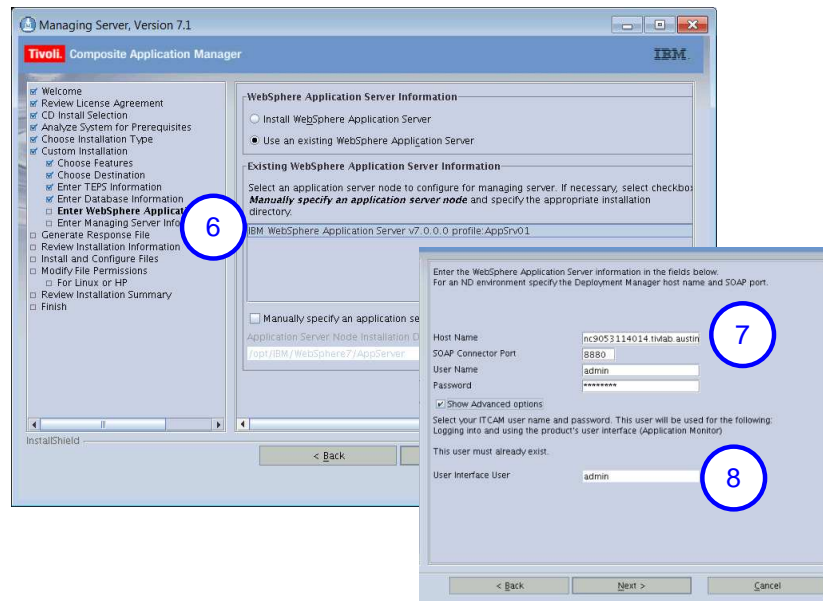3. Click **Next** until the **Database Information** screen displays.

On the **Database Information** screen, perform these steps:

1. In the **Database Host** field, enter the host name of remote DB2 host where Tivoli Composite Application Manager database was created.

2. In the **JDBC path** field enter or browse to the java install directory, for example **/opt/ibm/db2/v9.5/java**.

3. To display TCP/IP port number and the database name, select the **Show advanced options** check box.

4. Enter the TCP/IP port of the remote DB2 instance service.

5. Click **Next**.

Installing Managing Server (4 of 6)

Managing Server, Version 7.1

Tivoli. Composite Application Manager   IBM.

☑ Welcome
☑ Review License Agreement
☑ CD Install Selection
☑ Analyze System for Prerequisites
☑ Choose Installation Type
☑ Custom Installation
    ☑ Choose Features
    ☑ Choose Destination
    ☑ Enter TEPS Information
    ☑ Enter Database Information
    ☐ **Enter WebSphere Applicat**
    ☐ Enter Managing Server Info
☐ Generate Response File
☐ Review Installation Information
☐ Install and Configure Files
☐ Modify File Permissions
    ☐ For Linux or HP
☐ Review Installation Summary
☐ Finish

WebSphere Application Server Information
○ Install WebSphere Application Server
⦿ Use an existing WebSphere Application Server

Existing WebSphere Application Server Information
Select an application server node to configure for managing server. If necessary, select checkbox *Manually specify an application server node* and specify the appropriate installation directory.

IBM WebSphere Application Server v7.0.0.0 profile:AppSrv01

☐ Manually specify an application se
Application Server Node Installation D
/opt/IBM/WebSphere7/AppServer

InstallShield

< Back

Enter the WebSphere Application Server information in the fields below.
For an ND environment specify the Deployment Manager host name and SOAP port.

Host Name   nc9053114014.tivlab.austin   ⑦
SOAP Connector Port   8880
User Name   admin
Password   ********
☑ Show Advanced options
Select your ITCAM user name and password. This user will be used for the following:
Logging into and using the product's user interface (Application Monitor)

This user must already exist.

User Interface User   admin   ⑧

< Back   Next >   Cancel

6. On the **Web Sphere Application Server Information** screen, select WebSphere Application Profile for VE application server, and click **Next**.

7. Enter host name and SOAP port of the WebSphere Application Server, or that of the Deployment Manager if using Network Deployment environment.

8. Enter WebSphere **admin** user in the **User Interface User** field and click **Next**.

Installing Managing Server (5 of 6)
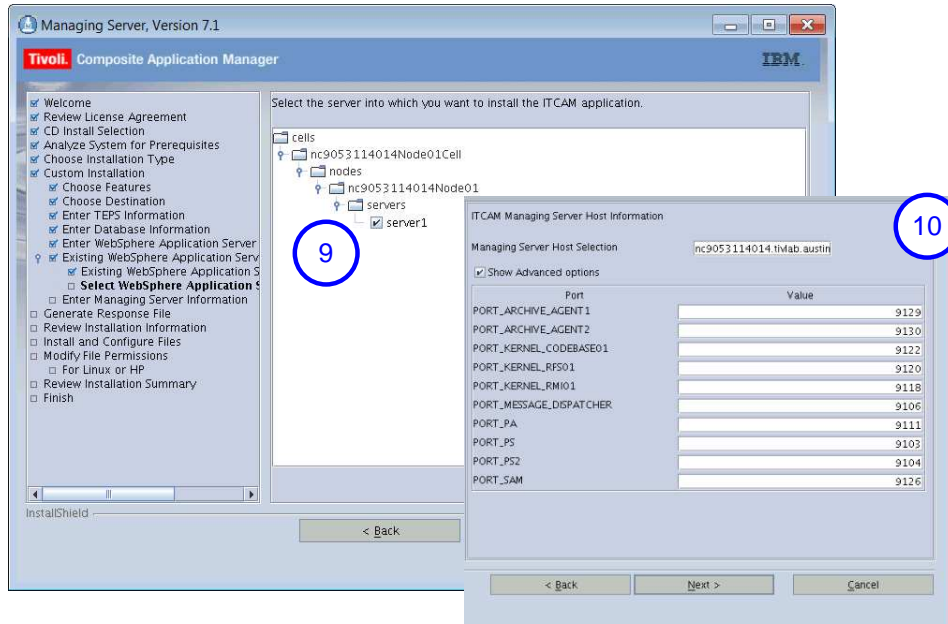
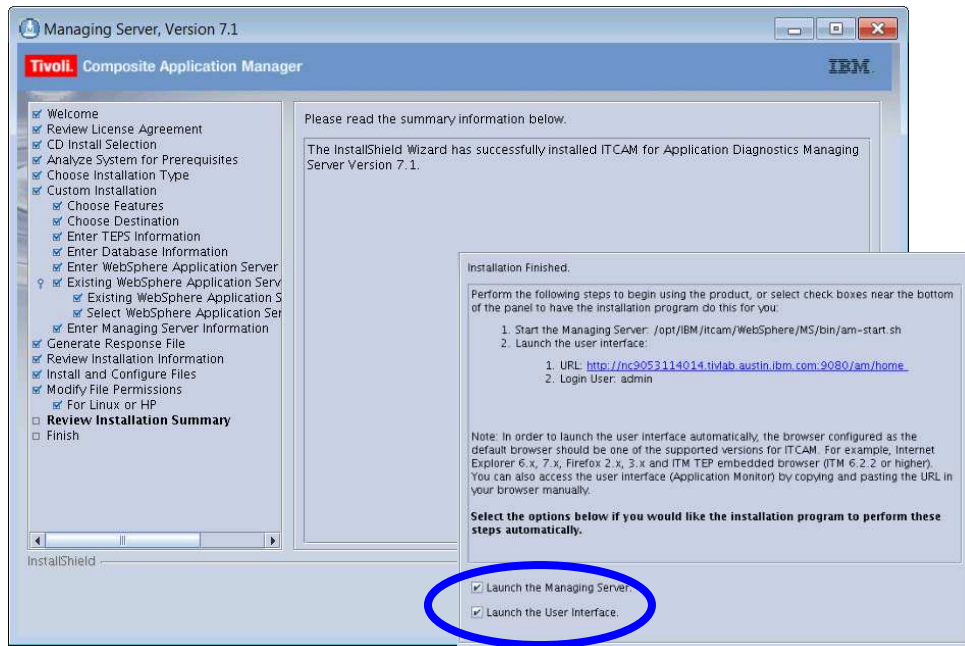21   Custom installation of Managing Server with remote DB2 database   © 2012 IBM Corporation

A list of Application Servers defined in the WebSphere profile displays.

9. Select the server for Visualization Engine application and click **Next**.

10. Review ports on Tivoli Composite Application Manager **Managing Server Host information** screen, make changes if required and click **Next**.

11. Click **Next**.

Installing Managing Server (6 of 6)

Custom installation of Managing Server with remote DB2 database © 2012 IBM Corporation

You entered all the data for the installation. Follow instructions on next few screens. Review summary information and click **Install**.

When the installation is complete, the **Installation Finished** screen displays.

By default, the check boxes to launch Managing Server and User Interface are both selected.

To start Managing Server, click **Finish**. The software launches the Tivoli Composite Application Manager user interface web address in the browser.

Managing Server user interface

WELCOME TO THE APPLICATION MONITOR
Please type in your user name and password to begin a session.

Login

User Name   admin

Password   ●●●●●●●●

Login

Custom installation of Managing Server with remote DB2 database   © 2012 IBM Corporation

Log in to Tivoli Composite Application Manager console as the Web Sphere **admin** user. After you log into the Tivoli Composite Application Manager console, you can create new Tivoli Composite Application Manager user accounts.
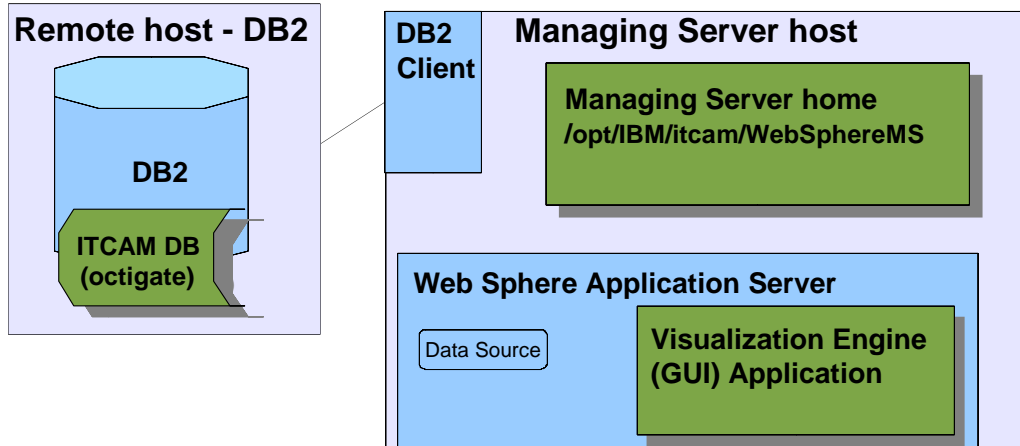
You have completed the Managing Server installation. The Visualization Engine is installed on the Web Sphere Application Server. Managing Server Processes are started from Managing Server Home directory. Managing Server and VE application are connected to remote DB2 database.

Summary

Now that you completed this module, you can install Managing Server to use an existing DB2 instance on a remote host

Custom installation of Managing Server with remote DB2 database   © 2012 IBM Corporation

Now that you completed this module, you can install the Managing Server component of Tivoli Composite Application Manager for Application Diagnostics V7.1 configured to use an existing DB2 instance on a remote host.

References

- Consult DB2 documentation for the name of DB2 Client product.

  http://www-01.ibm.com/support/docview.wss?uid=swg27023554

- For more information about installation, see the "ITCAM for Application Diagnostics - Managing Server Installation and Customization Guide"

Custom installation of Managing Server with remote DB2 database

The listed reference information is available if you need it.

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