© Copyright IBM Corporation 2011 All rights reserved

IBM Business Monitor V7.5

Configuring a remote CEI server

What this exercise is about 2
Lab requirements 2
What you should be able to do 2
Introduction 3
Part 1: Install Monitor server on machine 1 4
Part 2: Create IBM Business Monitor stand-alone profile 5
Part 3: Install process server on machine 2 7
Part 4: Configure single sign-on and SSL on monitor server on machine 1 8
Part 5: Configure single sign-on and SSL on process server on machine 2 12
Part 6: Run the queue bypass script on the remote server on machine 2 15
Part 7: Install the Clips And Tacks BAM monitor model on the monitor server on machine 1 17
Part 8: Run events on the remote CEI server on machine 2 19
What you did in this exercise 21

© Copyright IBM Corporation 2011. All rights reserved

What this exercise is about

The objective of this lab is to provide instructions for installing IBM Business Monitor V7.5 as a stand-alone server, then configuring it to use a remote CEI server which is installed on a second machine. If the CEI server is in a different cell than the IBM Business Monitor server, these tasks guide you through the configuration to enable the remote system to send events to IBM Business Monitor.

Lab requirements

List of system and software required for the student to complete the lab:

- IBM Business Monitor V7.5 which includes
    - WebSphere Application Server
- IBM Business Process Manager Advanced V7.5
- You should have a supported version of DB2 installed. In this lab it is installed on both machine 1 and machine 2.
- You should have two machines, or you can use just one machine if it has sufficient memory to allow starting two stand-alone servers simultaneously.

What you should be able to do

At the end of this lab you should be able to do the following:

- Install IBM Business Monitor on machine 1.
- Install IBM Process Server on machine 2.
- Configure single sign-on and SSL on both machines.
- Run the queue bypass script on the remote server and test the JDBC connection.
- Deploy a monitor model to the monitor server.
- Submit events on the remote server.
- Verify that monitoring context instances are created.

© Copyright IBM Corporation 2011. All rights reserved

Introduction

To enable the WebSphere® Business Monitor server to manage a remote CEI event server, if the CEI server is in a different cell than the IBM Business Monitor server, then you must change the configuration to enable the remote system to send events to IBM Business Monitor. The remote server can be WebSphere Application Server, IBM Process Center or IBM Process Server.

In IBM Business Monitor, you can choose to receive events from the inbound common event infrastructure (CEI) server using two different transport types: JMS (queue-based) and table-based (also known as queue bypass). Queue-based event delivery uses Java Messaging Service (JMS) to deliver events from CEI to the monitor model. Table-based event delivery (formerly known as queue bypass) uses a database table to deliver events from CEI to the monitor model. With table-based event delivery, the work can be distributed among multiple cluster members. For most environments, this method improves performance and simplifies the system configuration.

This lab will show you how to install a stand-alone monitor server onto machine 1. Then you will install a stand-alone process server on machine 2. Then you will configure the table-based connection.

You will not need an LDAP server since you will use the built-in VMM file based repositories.

© Copyright IBM Corporation 2011. All rights reserved

Part 1: Install Monitor server on machine 1

Install a stand-alone Monitor server on machine 1.

____ 1. Unzip the IBM Business Monitor files to your disk, to a folder such as \MonitorImage.

____ 2. Run launchpad.exe in \MonitorImage.

____ 3. On the left navigation pane of the launchpad, make sure that **IBM Business Monitor** is selected, then click the **Install** button.

____ 4. Review the list of installation packages, then click **Next**.

____ 5. Click to accept the license agreement and click **Next**.

____ 6. Review the shared resources directory and installation manager directory, then click **Next**.

____ 7. Review the package group name and installation directory, then click **Next**.

____ 8. In the next panel, click the **Expand All** button to see all the features. You should take the default selections. Do not select any of the profile options, since you will use the profile management tool to create the profile later. Click **Next**.

____ 9. Review the DB2 credentials, then click **Next**.

____ 10. In the next panel, verify the installation summary. Click **Install** to continue with the installation. The **IBM Business Monitor V7.5** installation progresses.

____ 11. When the installation is complete, select the radio button for **Profile Management Tool** and click **Finish**.

© Copyright IBM Corporation 2011. All rights reserved

Part 2: Create IBM Business Monitor stand-alone profile

In this part of the lab, you will create a IBM Business Monitor stand-alone profile.

____ 1. If not already started, launch the Profile Management Tool

__ a. You may have started it from the launch pad. If not, then from the start menu, select **IBM → Business Monitor 7.5 → Profile Management Tool**

____ 2. Click the **Launch Profile Management Tool** button

____ 3. Click the **Create…** button.

____ 4. In the **Environment Selection** panel, expand **IBM Business Monitor** and select **Stand-alone monitor server**

____ 5. Click **Next**

____ 6. In the Profile Creation Options panel, select the radio button for **Advanced profile creation**

____ 7. Click **Next**

____ 8. In the **Optional Application Deployment** panel, take the defaults.

____ 9. Click **Next**

____ 10. In the **Profile Name and Location** panel, specify the profile name, profile directory path. You can take the defaults for all options on this page.

____ 11. Click **Next**

____ 12. In the **Node and Host Names** panel, you should be able to take the defaults.

____ 13. Click **Next**

____ 14. In the **Administrative Security** panel, select the check box for **Enable administrative security** and then enter the administrative user name and password. Use **admin** for the user name and use **admin** for the password. For remote CEI to work, these must match the administrative user name and password for the remote CEI server. Later you will perform a typical BPM install which will automatically set the user name and password to 'admin'.

____ 15. Click **Next**

____ 16. In the **Security Certificate (Part 1)** panel, accept the defaults

____ 17. Click **Next**

____ 18. In the **Security Certificate (Part 2)** panel, accept the defaults

____ 19. Click **Next**

____ 20. In the **Port Values Assignment** panel, review the ports assigned. Normally you can take the defaults. If you change them, ensure that the port numbers do not conflict with other services running on this machine.

____ 21. Click **Next**

© Copyright IBM Corporation 2011. All rights reserved

____ 22. In the **Windows Service Definition** panel, clear the check box for **Run the business monitor process as a Windows service**

____ 23. Click **Next**

____ 24. In the Web Server Definition panel, clear the check box for Create a Web server definition

____ 25. Click **Next**

____ 26. In the **IBM Business Process Manager Monitor Models** panel, you should select to deploy the global process monitor model and the human task monitor model only if you have already installed IBM Process Server.

____ 27. Click **Next**

____ 28. In the **Database Design** panel, take the defaults

____ 29. Click **Next**

____ 30. In the **Database Configuration** panel, enter the information below:

__ a. Database product: DB2 Universal Database

__ b. Database name : MONITOR

__ c. Schema name : MONITOR

__ d. Optionally select the check box for Delay execution of database scripts (if using a remote database)

__ e. Click **Next**

____ 31. In the **Database Configuration (Part 2) panel**, enter the additional database configuration information:

__ a. Enter the user name and password for the database

__ b. For the remainder you can take the defaults

__ c. Click **Next**.

____ 32. In the **Cognos Configuration** panel, you can take the defaults

____ 33. Click **Next**

____ 34. In the **Profile Creation Summary** panel, verify the information

____ 35. Click **Create**

____ 36. After the profile creation is complete, click **Finish** then close the profile management tool.

____ 37. Start the monitor server.

__ a. Programs > IBM > Business Monitor 7.5 > Profiles > WBMon01 > Start the server.

© Copyright IBM Corporation 2011. All rights reserved

Part 3: Install process server on machine 2

Install a stand-alone process server on machine 2.

____ 1. Unzip the IBM Business Process Manager Advanced files to your disk, to a folder such as \BPMImage.

____ 2. Run launchpad.exe in \BPMImage.

____ 3. On the welcome page, click **Install using typical installer**

____ 4. Select **Install Process Center**

____ 5. Click **Next**

____ 6. Verify the name of the host and the installation location.

____ 7. Click **Next**

____ 8. Select to install DB2 Express

____ 9. Click **Next**

____ 10. Accept the license agreement then click **Install Software**

____ 11. On the progress screen you can verify the server and database users and passwords. For remote CEI to work, the administrative user name and password must match the administrative user name and password for the monitor server. You setup the monitor server with ‘admin’ for the user name and password and now the BPM server will be setup with the same.

____ 12. When prompted to start the first steps, you can reply **No**.

____ 13. Click **Exit** to end the launchpad.

____ 14. Start the server.

__ a. Programs > IBM > BPM Advanced 7.5 > Profiles > ProcCtr01 > Start the server.

© Copyright IBM Corporation 2011. All rights reserved

Part 4: Configure single sign-on and SSL on monitor server on machine 1

____ 1. Configure ‘Single Sign-on’ on monitor server on machine 1.

__ a. In the administrative console, navigate to Security > Global security > Authentication section > Web and SIP security > click the ‘Single sign-on (SSO)’ link

__ b. In the 'Single sign-on (SSO)’ panel, do the following:

1) Select the check box for ‘Enabled’

2) Ensure the check box for ‘Requires SSL’ is NOT selected

3) Enter your domain name, for example, ibm.com

4) Select the check box for ‘Interoperability Mode’

5) Clear the check box for ‘Web bound security attribute propagation’

6) Click OK.

__ c. Click to save the configuration.

__ d. On the Global security page, find the Authentication section, then click the link LTPA

1) Enter a password such as 'monitor' and the same for the confirm password

2) Enter the key file name such as 'C:\monitor.key'

3) Click the ‘Export Keys’ button. This action exports a key file to the specified location.

4) Click Ok

__ e. Click to save the configuration.

____ 2. Setup SSL on monitor server on machine 1.

__ a. In the administrative console, navigate to Security > SSL certificate & key management > Key stores & certificates

__ b. Click NodeDefaultTrustStore > Signer certificates > Retrieve from port

__ c. For the host name, enter the remote CEI server machine name. For example, aimcp096.austin.ibm.com.

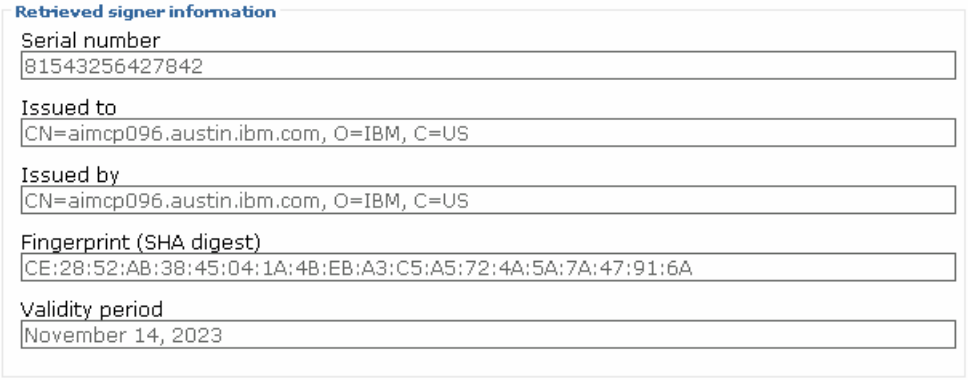
__ d. Enter the remote server port. For example, 8880

1) You can verify the remote port by logging into the remote server administrative console and navigating to Servers > Server Types > WebSphere Application Servers > Server1 > Ports.

__ e. Enter the alias, for example ‘bpm’

© Copyright IBM Corporation 2011. All rights reserved

__ f. Click to retrieve signer information.

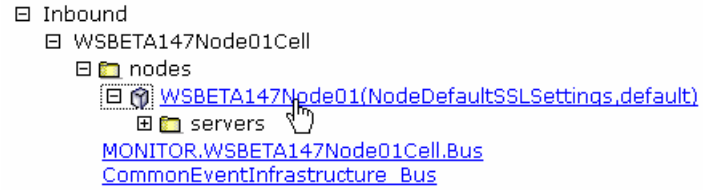


__ g. Click Ok.

__ h. Click to save the configuration.

__ i. In the administrative console, navigate to Security > SSL certificate & key management > Manage endpoint security configuration.

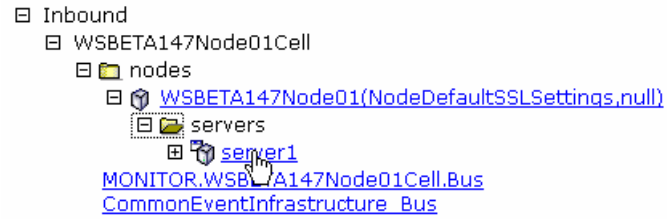
__ j. For the inbound event node, navigate to Inbound > <yourCell> > nodes > then click the node link



__ k. Make sure you have the default SSL configuration and the default alias:

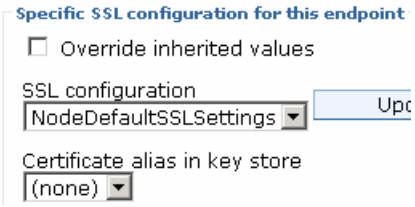
__ l. Click OK.

__ m. For the inbound event node server, navigate to Inbound > <yourCell> > nodes > <yourNode> > servers > then click the server1 link



© Copyright IBM Corporation 2011. All rights reserved

__ n. Make sure that override is unchecked:



__ o. Click OK.

__ p. Perform the same checks and updates for the outbound event node and server.

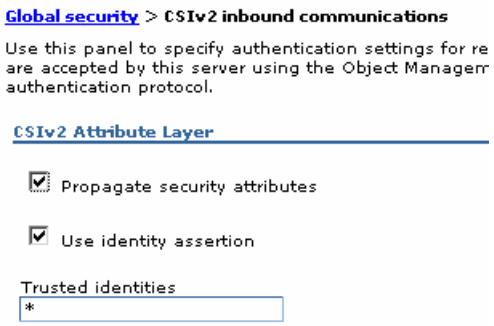
__ q. Save the configuration.

__ r. Navigate to Security > Global security > Authentication section > RMI/IIOP security > CSIv2 **in-bound** communications

__ s. Select 'Propagate security attributes'

__ t. Select 'Use identity assertion'

__ u. Set 'Trusted identities' to '*'.



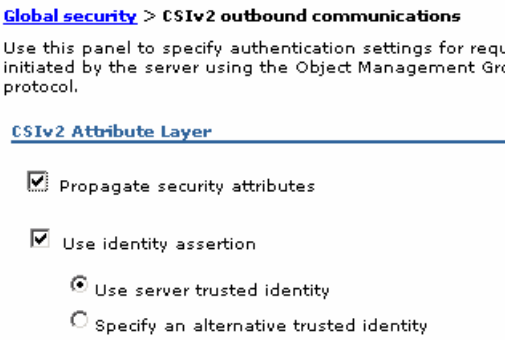
__ v. Click OK

__ w. Navigate to Security > Global security > Authentication section > RMI/IIOP security > CSIv2 **outbound** communications

__ x. Select 'Propagate security attributes'

__ y. Select 'Use identity assertion'

__ z. Select 'Use server trusted identity'

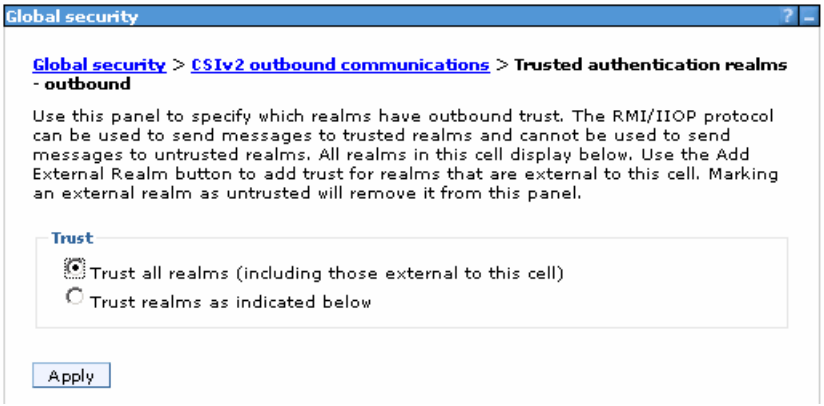


© Copyright IBM Corporation 2011. All rights reserved

__ aa. Click Apply

__ bb. Click the link 'Trusted authentication realms – outbound'

__ cc. Select 'Trust all realms (including those external to this cell)'



__ dd. Click Apply

__ ee. Save the configuration.

__ ff. Restart the server.

__ gg. Check SystemOut.log for errors.

© Copyright IBM Corporation 2011. All rights reserved

Part 5: Configure single sign-on and SSL on process server on machine 2

____ 1. Copy the monitor.key file from machine 1 to machine 2. In this example it is copied to machine 2 at location C:\monitor.key.

____ 2. Configure ‘Single Sign-on’ on process server on machine 2.

__ a. In the administrative console, navigate to Security > Global security > Authentication section > Web and SIP security > click the ‘Single sign-on (SSO)’ link

__ b. In the 'Single sign-on (SSO)’ panel, do the following:

1) Select the check box for ‘Enabled’

2) Ensure the check box for ‘Requires SSL’ is NOT selected

3) Enter your domain name, for example, ibm.com

4) Select the check box for ‘Interoperability Mode’

5) Clear the check box for ‘Web bound security attribute propagation’

6) Click OK.

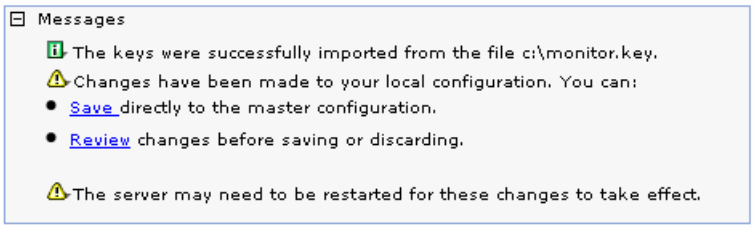
__ c. Click to save the configuration.

__ d. On the Global security page, find the Authentication section, then click the link LTPA

1) Enter a password such as 'monitor' and the same for the confirm password

2) Enter the key file name such as 'C:\monitor.key'

3) Click the ‘Import Keys’ button.



4) Click Ok

__ e. Click to save the configuration.

____ 3. Setup SSL on process server on machine 2.

__ a. In the administrative console, navigate to Security > SSL certificate & key management > Key stores & certificates

__ b. Click NodeDefaultTrustStore > Signer certificates > Retrieve from port

__ c. For the host name, enter the monitor server machine name. For example, wsbeta147.austin.ibm.com.

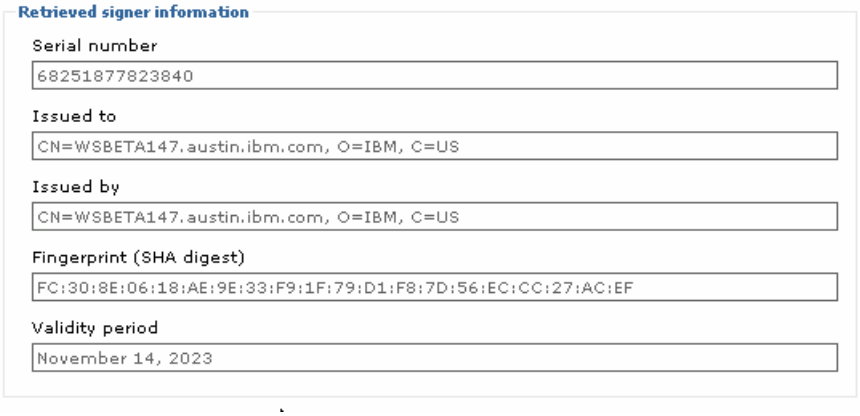
__ d. Enter the remote server port. For example, 8880

© Copyright IBM Corporation 2011. All rights reserved

1) You can verify the monitor server port by logging into the monitor server administrative console and navigating to Servers > Server Types > WebSphere Application Servers > Server1 > Ports.

__ e. Enter the alias, for example 'mon'

__ f. Click to retrieve signer information.



__ g. Click Ok.

__ h. Click to save the configuration.

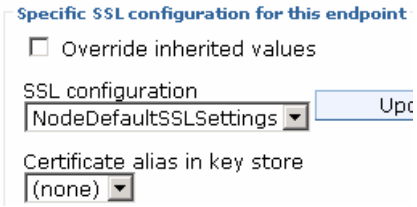
__ i. In the administrative console, navigate to Security > SSL certificate & key management > Manage endpoint security configuration.

__ j. For the inbound event node, navigate to Inbound > <yourCell> > nodes > then click the node link

__ k. Make sure you have the default SSL configuration and the default alias:

__ l. For the inbound event node server, navigate to Inbound > <yourCell> > nodes > <yourNode> > servers > then click the server1 link

__ m. Make sure that override is unchecked:



__ n. Perform the same checks and updates for the outbound event node and server.

__ o. Save the configuration.

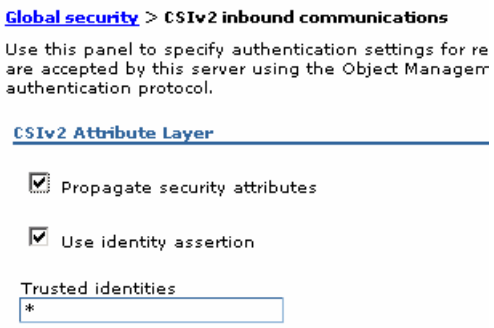
__ p. Navigate to Security > Global security > Authentication section > RMI/IIOP security > CSIv2 **inbound** communications

© Copyright IBM Corporation 2011. All rights reserved

__ q. Select ‘Propagate security attributes’

__ r. Select ‘Use identity assertion’

__ s. Set ‘Trusted identities’ to ‘*’.



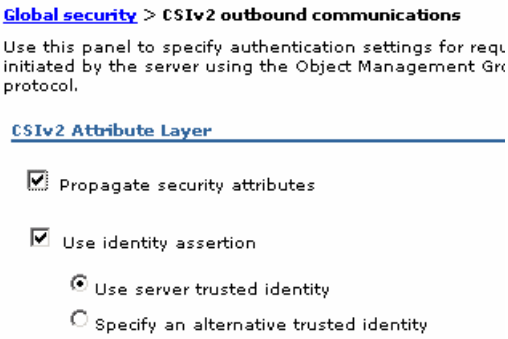
__ t. Click OK

__ u. Navigate to Security > Global security > Authentication section > RMI/IIOP security > CSIv2 **out-bound** communications

__ v. Select ‘Propagate security attributes’

__ w. Select ‘Use identity assertion’

__ x. Select ‘Use server trusted identity’



__ y. Click Apply

__ z. Save the configuration.

__ aa. Restart the server.

__ bb. Check SystemOut.log for errors.

© Copyright IBM Corporation 2011. All rights reserved

Part 6: Run the queue bypass script on the remote server on machine 2

____ 1. From the <profile_root>\bin folder of the remote CEI server, run wbmConfigureQueueBypass-Datasource. Here is a sample. You will need to substitute the correct cell name of your monitor server, and you need to substitute the correct server name. Note that if you try to copy and paste from here to the command line on your server, the dashes may not copy properly, so you may need to overtype them.

To run the script interactively:

wsadmin –lang jython

```
AdminTask.wbmConfigureQueueBypassDatasource('[–interactive]')
```

AdminConfig.save()

To run the script with parameters, here is an example:

wsadmin –lang jython

```
AdminTask.wbmConfigureQueueBypassDatasource('[-monitorCell
WSBETA147Node04Cell -databaseType db2 -jdbcProvider "DB2 Universal
JDBC Driver Provider (XA)" -driverType 4 -databaseName MONDB -
databaseServerName dbsrv3 -databaseServerPort 50000 -user db2admin -
password yourpw]')
```

AdminConfig.save()

```
WASX7278I: Generated command line: AdminTask.wbmConfigureQueueBypassDatasource('
[-monitorCell WSBETA147Node04Cell -databaseType db2 -jdbcProvider "DB2 Universal
 JDBC Driver Provider (XA)" -driverType 4 -databaseName MON7CC -databaseServerNa
me wsbeta147.austin.ibm.com -databaseServerPort 50000 -user db2admin -password *
****]')
"CWMIC0530I: The data source named 'Monitor_WSBETA147Node04Cell_Routing_Database
' was created."
wsadmin>AdminConfig.save()
''
```

____ 2. Check that the data source was created.

__ a. On the remote server's administrative console, navigate to Resources > JDBC > Data sources. You should see the routing database entry in the list.

Monitor WSBETA147Node01Cell Routing Database	jdbc/wbm/WSBETA147Node01Cell /MonitorDatabase	Cell=aimcp096Node02Cell

____ 3. Restart the process server.

____ 4. Test the JDBC connection.

__ a. On the remote server's administrative console, navigate to Resources > JDBC > Data sources.

__ b. Click the 'Monitor <yourCell> Routing Database' in the list.

__ c. Click the button 'Test connection'.

© Copyright IBM Corporation 2011. All rights reserved

© Copyright IBM Corporation 2011. All rights reserved

Part 7: Install the Clips And Tacks BAM monitor model on the monitor server on machine 1

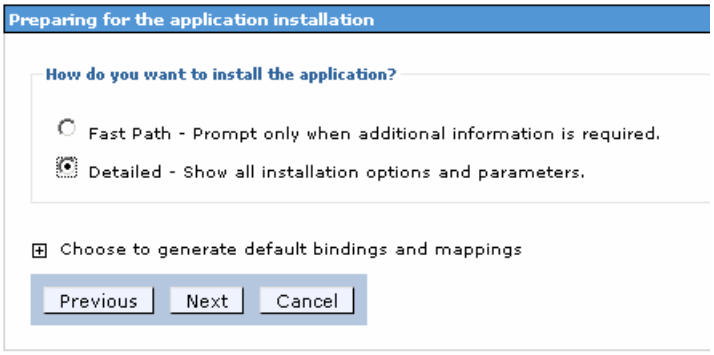
____ 1. On monitor server's administrative console, install the Clips And Tacks model EAR, and specify the remote CEI server configuration.

__ a. Navigate to Applications > New application > New enterprise application

__ b. Browse to the ear file, C:\Labfiles75\RemoteCEIServer\ClipsAndTacksApplication.ear

__ c. Click Next.

__ d. Make sure that you select 'Detailed'.



__ e. Click Next. Click Continue.

__ f. In step 13 (Select monitor model CEI options) specify the remote CEI server.

1) Click location remote, and enter your remote CEI server name and port. For example, aimcp096.austin.ibm.com, 2809.

a) You can verify the remote CEI server port by logging into the remote server administrative console and navigating to Servers > Server Types > WebSphere application servers > Server1 > Ports.

2) Click security enabled, and enter the user name and password for the server

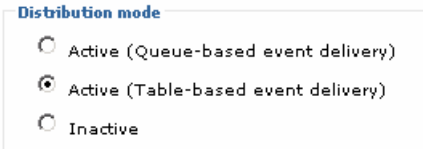
3) Click the button 'refresh list' on the page, and you should see that the events group profile list is updated with the remote cell:

Event group profile list name

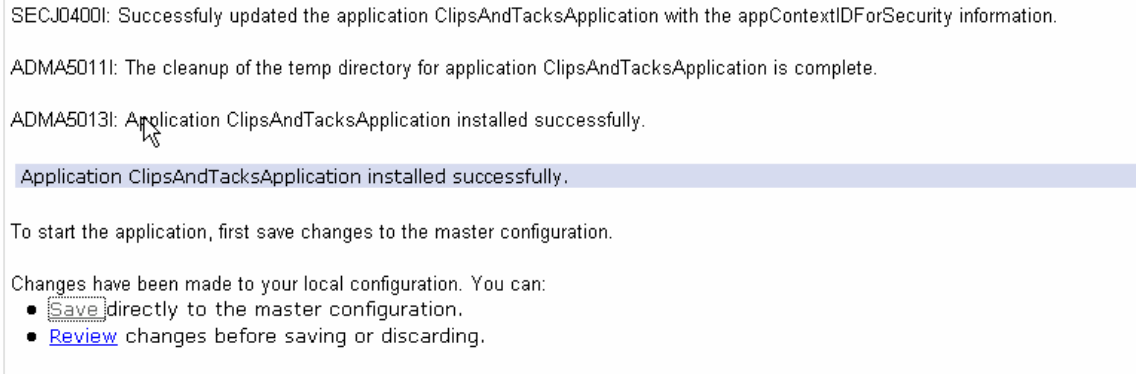
Select	Event group profile list name	Scope
☑	Event groups list	cell=aimcp096Node02Cell, node=aimcp096Node03, server=server1

4) For distribution mode, verify that 'Active (Table-based event delivery)' is selected on this page

© Copyright IBM Corporation 2011. All rights reserved



__ g. Finish the installation and verify that it completes successfully:



__ h. Save the configuration.

__ i. Check SystemOut.log for errors. Here is a sample of messages for a successful installation:

1) WSVR0221I: Application started: ClipsAndTacksApplication

2) CWMLC0804I: ***** 'GENERAL' integration sequence is COMPLETE. modelID: 'ClipsAndTacks'

3) CWMRT3005I: The Monitor Model "ClipsAndTacks 20070911120730" (codegen:MONX.MONBME [o1120.09], library:MONX.MONBME [o1120.09]) is activating on this application server or cluster member in SCALABLE mode with reordering=false from INCOMING_EVENT_TABLE:20070911120730.

____ 2. The application will start automatically after installation, so stop it. In the administrative console, navigate to Applications > Application Types > WebSphere enterprise applications > ClipsAnd-TacksApplication. Select it and click Stop. Leave the application in stopped status so that the model will leave the events in the inbound event table, so then you can easily check that the remote event configuration is working.

© Copyright IBM Corporation 2011. All rights reserved

Part 8: Run events on the remote CEI server on machine 2

The supplied program is 'BatchCBEWriter61' and it will submit the events to the Common Event Infrastructure. Look for the program in \Labfiles75\ClipsAndTacks\BatchCBEWriter. This program reads XML files which represent the common base events for the model.

You should run this program on the process server not the monitor server in order to test that the remote CEI configuration is working properly.

____ 1. Update BatchCBEWriter61.bat to point WAS_HOME to the CEI server home, for example 'set WAS_HOME=C:\IBM\BPM\v75'.

____ 2. Update config.properties, setting the serverName and portNumber. You can find the port number by browsing the server log and finding 'bootstrap port'. For example, check for the log at C:\IBM\BPM\v75\profiles\ProcCtr01\logs\server1\SystemOut.log . Here is an example of the config.properties settings:

__ a. `connect.serverName = localhost`

__ b. `connect.portNumber = 2809`

____ 3. Open a command window, then change directory to the folder containing BatchCBEWriter61, for example, type this command

__ a. cd \Labfiles75\BatchCBEWriter

____ 4. Run commands to load the common base events to the server.

__ a. batchcbewriter61 -Dsource.filename=allevents.xml

__ b. When it prompts you for user identity and password, enter 'admin' for both (without the quotation marks)

____ 5. When you run BatchCBEWriter61, you should see results such as:

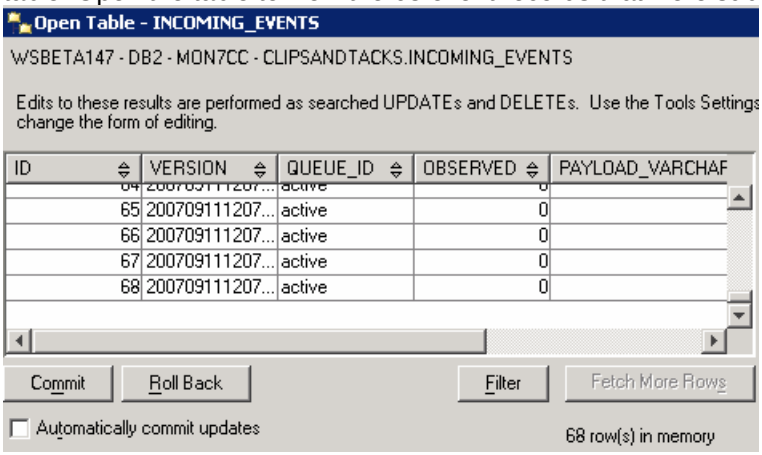
```
C:\Labfiles70\BatchCBEWriter>batchcbewriter61 -Dsource.filename=allevents.xml
Getting CBEs.
Getting Emitter.
Removing GlobalInstanceIds.
Setting missing values.
Changing Instance Ids.
Updating timestamps.
Validating CBEs.
Sending CBEs.
START=12:39:48.843
Sending cbe[10].
Sending cbe[20].
Sending cbe[30].
Sending cbe[40].
Sending cbe[50].
Sending cbe[60].
END=12:40:11.734
TotalTime=22891 milliseconds.
```

____ 6. Check the logs on monitor server and process server for errors.

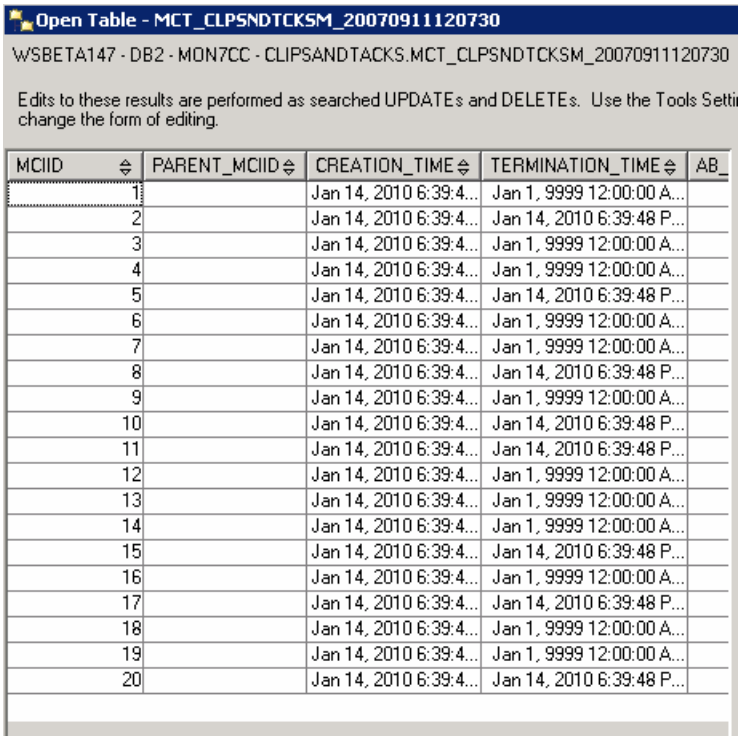
____ 7. Since the Clips and Tacks application is stopped the events should stay in the incoming events table. On the monitor server, open the DB2 control center, and navigate to the INCOMING_EVENTS

© Copyright IBM Corporation 2011. All rights reserved

table. Open the table to view the 68 event records that were submitted:



____ 8. Start the ClipsAndTacksApplication on the monitor server, then wait a few minutes, then check the MCT_CLPSNDTCKSM_<timestamp> table in the DB2 control center for records. You should see 20 monitoring context instances. This means that the events were successfully processed by the monitor model and monitoring instances were created.



© Copyright IBM Corporation 2011. All rights reserved

What you did in this exercise

You installed DB2 and a stand-alone monitor server onto machine 1.Then you installed a stand-alone process server on machine 2. Then you configured and verified the table-based connection. Also, you deployed a model and sent events from the remote server to the monitor server.