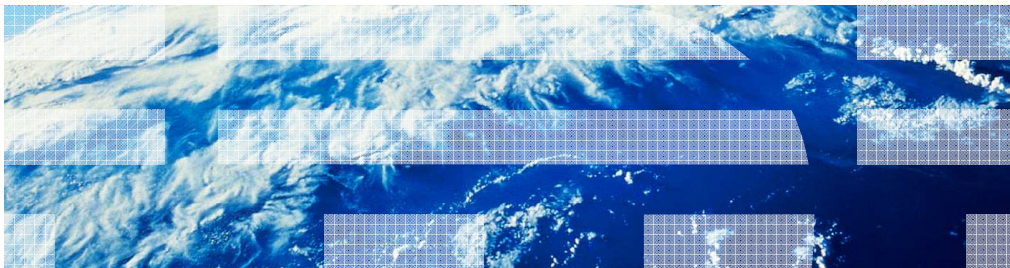


IBM WebSphere Application Server V8

Optimized local adapters for z/OS - Installation



This presentation discusses the WebSphere Application Server optimized local adapters for z/OS® feature support in Version 8.

Overview

- Optimized local adapters for z/OS installation

This presentation briefly discusses the installation of the optimized local adapters function for z/OS for WebSphere Application Server V8

Installing optimized local adapters

- `$WAS_HOME/bin/olaInstall.sh` NO LONGER APPLIES- NOT NEEDED
- `$WAS_HOME/bin/copyZOS.sh` used to copy OLA load modules to a dataset from the WAS file system.
 - Two options for OLA with `copyZOS.sh` – OLAMODS OLASAMPS
 - OLAMODS will perform a copy of the OLA load modules from the WAS file system to the specified dataset
 - OLASAMPS will perform a copy of the OLA sample source files from the WAS file system to the specified dataset
- `$INSTALL_ROOT/util/zos/OLASamples/olaRar.py`
 - Sets WebSphere® Application Server environment variable to enable adapters in the WebSphere Application Server daemon
 - Installs the JCA RAR into specified server
 - Can also perform these actions using WebSphere Application Server administrative console
 - Script is in ASCII – needs to be edited with defaults for your system/server

Starting with WebSphere Application Server for z/OS Version 8, the optimized local adapters feature is already pre-installed in the application server's file system, There is no longer any need to run the `olaInstall` script to activate OLA. There is a new script which does need to be run, `copyZOS.sh`. This script is used to copy the OLA load modules and samples to datasets where they can be accessed by OLA-exploiting jobs on z/OS.

There are two choices for the first parameters for the `copyZOS` script; the first being OLAMODS. You must specify a pre-allocated load library dataset as the second parameter for `copyZOS` when OLAMODS is specified. When this runs, it will copy the load modules from the WAS file system to the target dataset which is then used in the STEPLIB for batch, DFHRPL DD for CICS or DFSESL DD for IMS.

The second choice for the first parameter which also pertains to OLA is OLASAMPS. Specify this and the target source dataset name where you wish to copy the OLA sample source files.

The next script described above, `olaRar.py` is a script provided to run required configuration steps against your WebSphere Application Server environment. This is a sample script.

Listed above are the three steps the script will execute, setting a WebSphere environment variable in the daemon, installing the JCA RAR file into your application server and creating the connection factory in the RAR file. You can modify the sample script to fit your environment or you can complete all the required steps using the administrative console which is shown on the next slides.

Finally, if your configuration uses RACF® then you will need to set up the CBIND class to allow the batch and CICS region to connect to WebSphere Application Server.

Installing optimized local adapter (1 of 3)

- Optimized local adapter RAR
 - Located at \$WAS_HOME/installableApps/ola.rar

Resource adapters

Use this page to manage resource adapters, which provide the fundamental interface for connecting applications to an Enterprise Information System (EIS). The WebSphere(R) Relational Resource Adapter is embedded within the product to provide access to relational databases. To access another type of EIS, use this page to install a standalone resource adapter archive (RAR) file. You can configure multiple resource adapters for each installed RAR file.

☑ Scope: =All scopes

☑ Preferences

Select	Name	Scope
You can administer the following resources:		
<input type="checkbox"/>	OptimizedLocalAdapter	Node=SY1
<input type="checkbox"/>	WebSphere MQ Resource Adapter	Cell=SY1
<input type="checkbox"/>	WebSphere MQ Resource Adapter	Node=SY1
<input type="checkbox"/>	WebSphere MQ Resource Adapter	Node=SY1,Server=server1
Total 4		

Here is a screen capture of installing the RAR file into your installation from the administrative console. The RAR file is located in the installable apps directory of your configuration hfs.

Installing optimized local adapter (2 of 3)

- Optimized local adapter RAR connection factory

Resource adapters > OptimizedLocalAdapter > J2C connection factories

Use this page to create a connection factory for use with the resource adapter. The connection factory is a collection of configuration values that define a WebSphere(R) Application Server connection to your Enterprise Information System (EIS). The connection pool manager uses these properties as directions for allocating connections during runtime. You can configure multiple connection factories for each resource adapter.

Preferences

Select	Name	JNDI name	Scope	Provider	Description	Connection factory interface	Category
You can administer the following resources:							
<input type="checkbox"/>	OLACE	eis/ola	Node=SY1	OptimizedLocalAdapter		javax.resource.cci.ConnectionFactory	
Total 1							

Once the RAR file is installed you will need to create a connection factory shown above. It is recommended you have one connection factory per node.

Installing optimized local adapter (3 of 3)

- Optimized local adapter daemon environment variable
 - Set this under “environment->WebSphere variables”
 - Variable will take effect only for the daemon in the current scope

WebSphere Variables

Use this page to define substitution variables. Variables specify a level of indirection for some system-defined values, such as file system root directories. Variables have a scope level, which is either server, node, cluster, or cell. Values at one scope level can differ from values at other levels. When a variable has conflicting scope values, the more granular scope value overrides values at greater scope levels. Therefore, server variables override node variables, which override cluster variables, which override cell variables.

Scope: Cell=**SY1**, Node=**SY1**

Preferences

Select	Name	Value	Scope
You can administer the following resources:			
<input type="checkbox"/>	WAS_DAEMON_ONLY_CONFIG_ROOT	/WebSphere/v7R0/Daemon/config	Node=SY1
<input type="checkbox"/>	WAS_DAEMON_ONLY_control_region_configured_system	SY1	Node=SY1
<input type="checkbox"/>	WAS_DAEMON_ONLY_enable_adapter	1	Node=SY1

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Optimized local adapters for z/OS - Installation

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Here is a screen capture of the WebSphere Application Server environment variable `WAS_DAEMON_ONLY_enable_adapter` that needs to be set to 1 to enable the adapter support. Once set to 1 the Daemon will need to be recycled. If successful, in your Daemon log you will see `enable_adapters=1`, the control and servant region will still indicate `enable_adapters=0`, this is expected.

This property tells the Daemon to enable itself to be in charge of any connection between WebSphere Application Server and batch or CICS. The Daemon is the central point where all the connections take place. The Daemon will allocate shared storage to maintain the control blocks that the optimized local adapters need to function correctly.

CICS setup

- Transaction and resource definitions
 - Copy “CSDUPDAT” from samples dir, update JCL and run
 - Defines CICS TRUE and supporting programs/transactions
- Start PROC changes
 - Dataset containing optimized local adapter load modules should be added to DFHRPL
- Optional changes
 - PLTPI program to start TRUE automatically (see DFHPLTOL in samples dir) - BBOACPLT
 - PLTPI program to pass a BBOC command during initialization. Could use this to Register automatically or do a start server during CICS initialization - BBOACPL2
 - SAF changes to define a SURROGAT class (for WebSphere Application Server->CICS user ID assertion) – see the information center for details

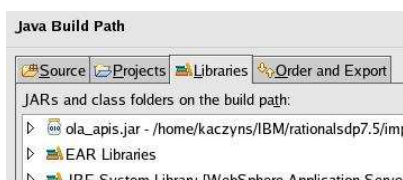
After installation and activation of the optimized local adapter feature you must perform certain steps to configure your CICS environment. In the samples directory, `$INSTALL_ROOT/util/zos/OLASamples`, you will need to take a copy of the CSDUPDAT jcl, update the jcl accordingly and execute. This job will define supporting programs and supporting transactions in CICS such as control transaction and link server transaction. Also, this job will install the CICS TRUE. TRUE is installed a little differently than a regular programmer transaction.

The dataset that you created during the optimized local adapter INIT step will need to be added to the CICS start proc in step DFHRPL.

Other optional features that are provided are a sample that shows you how to use PLTPI to automatically start the TRUE adapter support when the CICS region starts. Another optional feature you can use is if you want to have WebSphere Application Server cert the user ID when you call into CICS from WebSphere. You will have to setup a SAF SURROGAT class to allow optimized local adapters to assert the user ID inside of CICS.

Preparing your development environment

- COBOL / C / Assembler / PL1
 - Header files for C provided in samples (BBOAAPI)
 - The dataset specified in “copyZOS.sh” is required to link applications
- Rational® Application Developer (RAD) / RDz
 - APIs jar file shipped in \$INSTALL_ROOT/util/zos/OLASamples/ola_apis.jar
 - Add this jar to your project classpath
 - Contents:
 - EJB™ Home/Remote interface classes
 - JCA ConnectionSpecImpl, InteractionSpecImpl, IndexedRecordImpl



A development system consists of two sides, a native side and a Java side. The native side is where your client code runs and contains batch or Cobol programs. Optimized local adapters provide a C header file called bboaapi.h in the samples directory. The dataset that you created during the optimized local adapter INIT step needs to be available to client programs during the bind step. The stubs in this dataset contain the implementation of the functions provided in the bboaapi.h file.

For the Java environment optimized local adapters provide a jar file, called ola_apis.jar located in your \$INSTALL_ROOT path. You can use this jar file inside of Rational Application Developer (RAD) or Rational Developer for Z (RDZ), and from the command line. You should add the jar file to your class path in RAD or RDZ. The jar file contains EJB™ Home and Remote interface classes that you will use if you want to make an EJB call from a batch or a CICS process into WebSphere Application Server. It also creates three JCA classes that your Java application will use if you make calls from your WebSphere Application Server into a batch or CICS process.

Samples

- Located in \$INSTALL_ROOT/util/zos/OLASamples directory
- OLACC01 (Batch/CICS)
 - Uses the basic APIs to drive work into WebSphere (BBOA1REG, BBOA1INV, BBOA1URG)
 - Uses the sample EJB provided
- OLACC02 (Batch/CICS)
 - Uses the advanced APIs to drive work into WebSphere
 - BBOA1SRQ with the ASYNC option
 - Target EJB calls back into OLACC02 using the JCA API
 - OLACC02 receives the callback using the basic APIs to drive work into a Batch or CICS program (BBOA1SRQ, BBOA1SRP)
- OLACBnn (Batch/CICS) – Cobol samples
- More samples – see @@README file samples directory

Optimized local adapters have provided several samples to be run in both a batch and CICS environment. The samples will use both basic and advanced API's to drive work into a WebSphere Application Server. The samples are located in the \$INSTALL_ROOT/util/zos/OLASamples directory of your installation. OLACC01 demonstrates how to use the basic inbound APIs to drive work into a WebSphere Application Server system. Also provided is a sample EAR file located in the samples directory and is called OLA_Sample2.ear.

OLACC02 is a similar application but uses the advanced APIs to drive work into a WebSphere Application Server system. The EJB implementation, however, will then use the outbound APIs to go back into the client program.

Additional samples are provided and listed in the @@README file in the samples directory. The samples are a comprehensive collection of programs used to demonstrate optimized local adapter capabilities.

Summary

- Installation and activation of optimized local adapter code
- Sample optimized local adapter applications

In this presentation you have viewed how to install and activate the optimized local adapter feature provided in WebSphere Application Server for z/OS. Additionally, samples have been provided to demonstrate how to use the optimized local adapter function.



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