WebSphere Telecom Toolkit V7.0

Telecom application enablement tools

Samples setup and testing

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This presentation provides an overview and explains how to configure and test the samples provided by the telecom enablement feature of the IBM WebSphere® Telecom Toolkit V 7.0. To get a better understanding on the content of this presentation first review the overview presentation of this feature.

The goals of this presentation are to provide an overview of the various IP Multimedia Subsystem (IMS) samples available in the Telecom Enablement feature of the toolkit and explain the setup and testing process of these samples.

The samples are client applications or templates to develop client applications using the tools available in the Telecom Enablement feature of the WebSphere Telecom Toolkit for various IMS services or enablers. These samples are a valuable reference for developing new IMS client applications and server side extensions or enablers and enable developers to quickly understand the API's.

Agenda

- Diameter samples
- Presence Samples
- Session Initiation Protocol Samples
- XML Document Management Server Samples

The agenda of this presentation covers the steps to configure and test all of the telecom application enablement samples.

The samples provided are targeted to various IBM IP Multimedia Subsystem (IMS) enablers that include

- the IMS Connector based on diameter Web services

- the WebSphere Presence Server that provides rich real time presence information

- the WebSphere Session Initiation Protocol (SIP) converged container that provides the complete infrastructure for hosting SIP applications and

- the XML Document Management server (XDMS) which provides network accessible storage, retrieval, and management of XML documents owned by entities.

The Diameter Enabler Samples set includes three Web service client samples. These samples can be used to test the design parameters for diameter client applications against the Rf offline charging, Sh subscriber profile, and Ro online charging Web services.

Each sample can be imported into a Rational® Application Developer workspace by clicking the import link provided for the sample. These samples initially flag errors when loaded in the workspace due to a missing com.ibm.ws.webservices.thinclient jar file on the classpath. To resolve these errors follow the Setup Instructions link in the samples page, which offers detailed instructions on importing this file.

Diameter samples setup

- Diameter Rf, Ro, and Sh client samples setup steps:
  1. From the Samples page, load samples into workspace using 'Import..' link
  2. Right click the imported project -> Select Properties
  3. Select Java Build Path -> select Libraries tab -> click 'Add External Library' button
  4. Add com.ibm.ws.webservices.thinclient jar library from runtimes folder of WebSphere Application Server.
  5. Click 'OK' button to exit Properties dialog.
  6. Change the static endPoint string in the Java class
   - E.g:http://9.22.95.20:9081/DHADiameterRfWebService/services/Diameter RfService

The setup process of the Diameter Ro, Rf and Sh Samples involves these steps:

1. Load the samples into the Rational Application Developer workspace using the Import links from the Diameter Samples page. The Diameter Samples page can be accessed from the Help->Samples->Technology Samples->Telecom Application Enablement Feature->Telecom Application Enablement Samples->Diameter page.

2. Review the prerequisite instructions by clicking on Setup Instructions link.

3. Import the sample.

4. Right click the imported project and select the Properties menu item.

5. In the properties dialog select Java Build Path properties page followed by selecting the Libraries tab in this page. Click the 'Add External Library' button.

6. In the Jar Selection dialog, locate the runtimes folder of the WebSphere Application Server in use and select the com.ibm.ws.webservices.thinclient.jar

7. Click OK on the Properties dialog.

8. Change the endpoint static variable to point to a valid Diameter Rf, Ro, or Sh Web services endpoint. For example http://9.22.95.20:9081/DHADiameterRfWebService/services/DiameterRfService

Diameter sample - execution

- Right click Project -> Run As – Run Configuration
- Create new Java application configuration
- Click Run
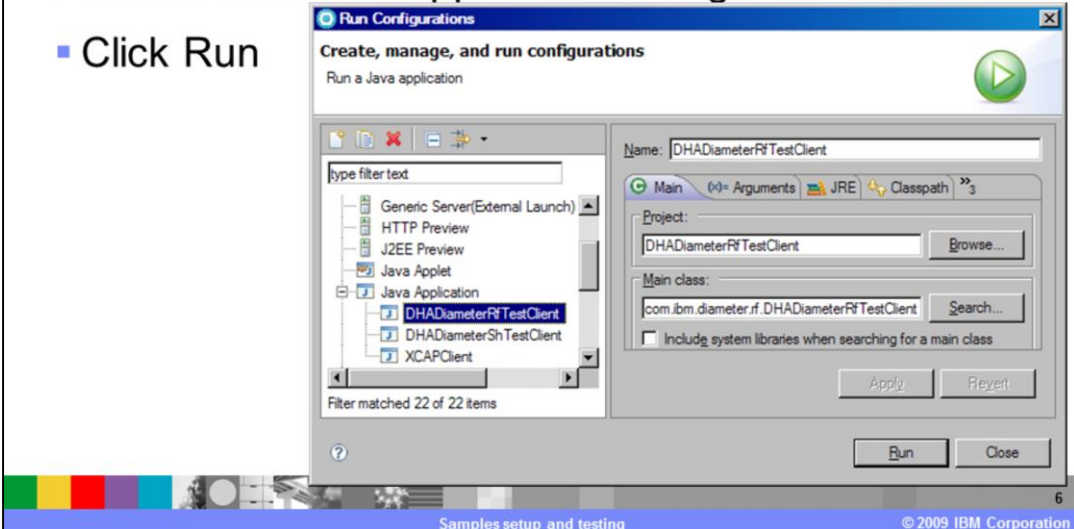
To run the Diameter test samples follow these steps:

1. Right click the Sample Project and Select Run As -> Run Configuration.

2. Create a new Java Application Configuration as shown in the figure.

3. Click the Run button to run the sample.

4. The results are displayed in the Console view.

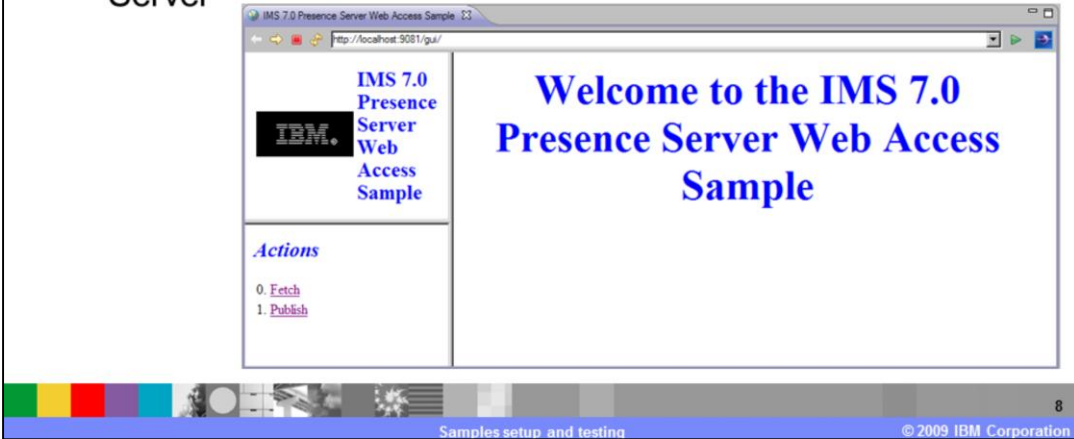The Presence Samples category provides three samples that include:

The Sip External Source sample which demonstrates the behavior of a SIP external source. The sample application consists of SIPp scripts which provide a PUBLISH, SUBSCRIBE notify scenario to an external SIP source. The script accepts incoming subscribe requests, and responds with 200 OK and a NOTIFY message with a simple presence document. The presence document includes the subscribed presentity identity. It also simulates state changes for the subscribed presentity by periodically sending NOTIFY messages with changes in the presence information and stops sending NOTIFY messages upon receiving an unsubscribe request from the Presence Server. The sample can be tested using the SIP Client test tool provided. The Sample provides a README file that describes how to setup this sample to test with the IBM Presence and SIP external source.

The Presence REST Sample which demonstrates how a RESTful HTTP interface can be used to retrieve rich presence information from a Presence Server. A REST interface permits Web clients to perform HTTP GET, PUT, POST, and DELETE requests. The sample is based on a new feature available in IBM WebSphere Presence Server V7.0 that provides a REST interface to retrieve presence information. Presence Server supports interoperability between SIP clients and clients using the REST interface, all connected to the same server. More details about this sample are explained in the next slide.

The SIP Sample which is a Java EE application that can be used to send and receive SIP requests to or from a Presence Server. It contains standard SIP code patterns the can be used in other application scenarios.

The figure shows the user interface of the Presence REST Sample after deploying it on WebSphere Application Server V7.0.

The Fetch Action provides the functionality to presence subscriber to retrieve presence information, and the Publish Action provides the functionality for a presentity to publish their presence information.

To deploy this sample follow these steps:

- Import the sample into a workspace from the Presence Sample category by clicking the Import Presence REST link.

- Modify the restAddress value in the web.xml to a valid Presence Server

- Right click the presence.sample.rest.war project and select Run As -> Run On Server and select the WebSphere Application Server V7.0 from the list of servers and Click Finish.

- The sample gets deployed and the browser shows the sample's homepage as shown in the figure.

The Sample provides a README file that describes how to setup this sample to test with IBM Presence.

The SIP samples category provides the IMS Session Control (ISC) Charging sample in two versions, one version for WebSphere Application Server V6.1 and another version for WebSphere Application Server V7.0.

The ISC sample demonstrates the use of the ISC interface available in WebSphere Application Server and Diameter Web services interfaces available in IBM IMS Connector products. It is demonstrated by simulating a SIP call flow and applying the Diameter Ro online and Rf offline charging functions in the SIP transaction. The sample also demonstrates the processing of P-Asserted-Identity and P-Charging-Vector headers.

In an IMS environment, the P-Asserted-Identity is a header that is inserted into a SIP or HTTP request by a Call Session Control Function (CSCF) for authenticated subscribers. Refer to Request for Comment - IETF RFC 3325 for more details on the P-Asserted-Identity. The P-Charging-Vector header is a charging vector defined as a collection of charging information on a SIP network. It allows the SIP network elements to collect charging information for SIP-based communications, that flow across one or more networks. Network elements originating SIP traffic such as creating new and outbound telephone calls, can add P-Charging-Vector headers to their outbound SIP requests and responses. For more details on the P-Charging-Vector headers, refer to 3GPP RFC 3455.

The Appendix section of this presentation includes two slides that depict the SIP call flows between various network elements when the Rf and Ro ISC samples are run in a IMS network.

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XML Document Management Server (XDMS) samples

- XML Configuration Access Protocol Client sample
  - ▸ Java Application Client that exercises various XCAP GET, PUT functions against an XCAP server

- XDMS Template
  - ▸ Provides a template to enable the development of a new XDMS enablers.

- XDMS ID Mapping Provider sample
  - ▸ Java Application sample that implements a Public Identity Mapper Interface

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The XML Document Management Server (XDMS) samples category provides a wide variety of samples that include both client and server side XML document management applications. The functionality of the samples include:

- The XCAP client sample that runs batched XCAP requests against an XDMS server and returns the results.

- The XDMS Template sample is an Enterprise application that contains a Web Application. The Web application provides a template servlet, stubbed out XML, schema files, and default property files to develop new XDMS-side enablers.

- The XDMS ID Mapping Provider sample is a Java application that contains a Java class file along with the dependent libraries. The Java class provides sample code for implementing the Public Identity Mapper interface.

XDMS samples

- SharedList, PresRules, SharedGroup, SharedPolicy, SharedProfile, SharedEnablers XDMS samples
  - ▶ Represent XML Document Management (XDM) server side enablers
  - ▶ Each sample provides an XDM enabler stub based on OMA XDM 2.0 specifications to create complete enablers
  - ▶ Each sample is a Java EE enterprise application that contains a Web application
  - ▶ Web application contains corresponding stubbed servlet, default XML and schema files that support resource-lists and rls-services documents

The SharedList, PresRules, SharedGroup, SharedPolicy, SharedProfile, SharedEnablers XDMS samples represent server side XML Document Management (XDM) enablers for various group list management functions based on the Open Mobile Alliance XDM 2.0 specification. Each of these sample provides an XDM enabler stub for developing the corresponding XDM enabler. The XDM enabler stubs are shipped as Java EE enterprise applications that contain a Web application. The Web application contains the corresponding enabler stubbed servlet, default XML and schema files that support resource-lists and rls-services documents at a user or group level.

XDMS client samples setup

- XCAP Client and SampleIDMappingProvider Samples setup steps:
  1. Plain Java applications
  2. Load sample into workspace using Import Sample link
  3. Right click the imported project -> Select Properties
  4. Select Java Build Path -> select Libraries tab -> click 'Add Library' button
  5. Select Telecom Application Enablement Toolkit Libraries -> click 'Next' -> check XDMS Client Libraries -> click 'Finish' button.
  6. Click 'OK' button to exit Properties dialog

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The XCAP Client and XDMS ID Mapping Provider samples are Java application samples.

The setup process involves these steps:

1. Load the samples into the Rational Application Developer workspace using the Import links from the XDMS Samples page.

2. Right click the imported project and select the Properties menu item.

3. In the properties dialog select Java Build Path properties, then select the Libraries tab in this page and click the 'Add Library' button.

4. Select Telecom Application Enablement Toolkit Libraries and click 'Next' button. Check the XDMS Client Libraries check box and click 'Finish' button.

5. Click the 'OK' button to exit the Properties dialog box.

XDMS samples setup

- XDMS Template, SharedList, PresRules, SharedGroup, SharedPolicy, SharedProfile, SharedEnablers Samples setup steps:
  1. Select imported project -> Right click and select Import
  2. Select Telecom Application Enablement -> Telecom Application Enablement Resources -> click 'Next'
  3. Checkbox under XDMS Resources Libraries
  4. Click 'Finish' button

The setup process of the XDMS Template, SharedList, PresRules, SharedGroup, SharedPolicy, SharedProfile, SharedEnablers samples involves these steps:

1. Load the samples into the Rational Application Developer workspace using the Import links from the XDMS Samples page.

2. Select the imported project, then click File -> Import.

3. Under Telecom Application Enablement, select Telecom Application Enablement Resources and click the 'Next' Button.

4. Check the Libraries check box under XDMS Resources and click the 'Finish' button.
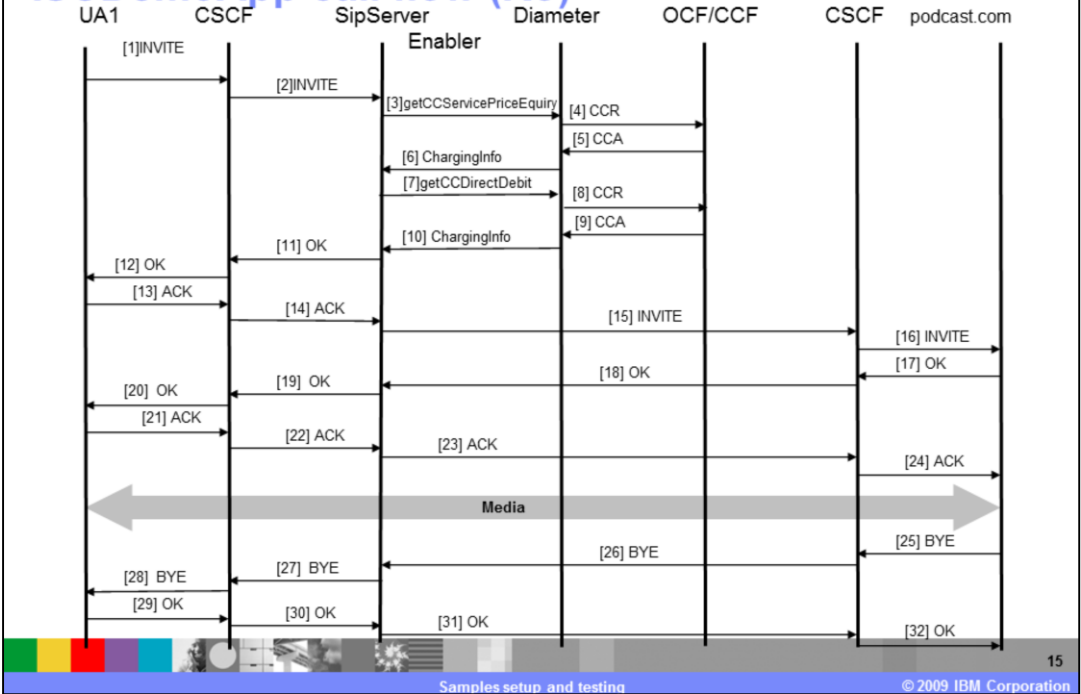
Section

Appendix
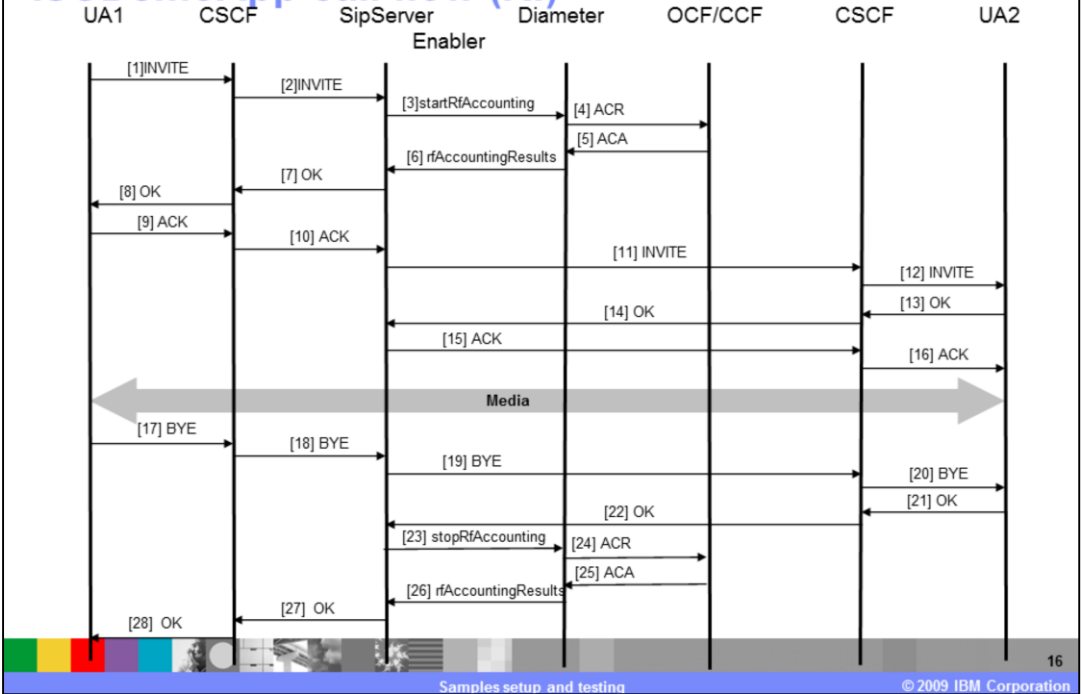
This is the Appendix section.

This figure depicts an IMS Session Control Demonstration Application online charging Ro service call flow.

This figure depicts an IMS Session Control Demonstration Application online charging Rf service call flow.

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