Est. time 1:30

IBM WebSphere DataPower XC10: HTTP session lab exercise

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What this exercise is about

The objective of this lab is to provide you with an understanding of how to configure a WebSphere Application Server application to use session management using IBM WebSphere DataPower XC10 Appliance.

Introduction

The IBM WebSphere DataPower XC10 Appliance is an easy-to-use caching appliance. It provides simplified deployment at the caching tier of your enterprise application infrastructure. XC10 client code is provided that easily plugs into an existing application on a WebSphere Application Server for seamless caching of HTTP session data on the DataPower XC10 Appliance. The integration is non-intrusive and only requires an integration of the session persistence framework to the DataPower XC10 through a simple web console configuration as shown in this lab.

What you should be able to do

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

- Create data grids on the IBM WebSphere DataPower XC10 Appliance
 - o From the IBM WebSphere DataPower XC10 web console
 - o From the WebSphere Application Server administrative console
- Configure WebSphere applications to store HTTP session data to a data grid on the IBM WebSphere DataPower XC10 Appliance through the WebSphere Application Server administrative console
- Verify session management processes are running and responsive by monitoring the session data grid's health and performance through the DataPower XC10 web console

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Lab requirements

List of system and software required to complete the lab.

Hardware requirements

- IBM WebSphere DataPower XC10 Appliance with supported firmware level
 - For example, 2.0.0.1-cf31124.67080 (fix pack 1)

Software requirements

You must install the WebSphere eXtreme Scale client for DataPower XC10 on top of a supported WebSphere Application Server. See the **Supported software** section below for software levels that were used in the creation and testing of this lab.

 This lab requires Jakarta Jmeter or a similar HTTP load generator installed on the WebSphere Application Server or on another computer or laptop which has web access to your WebSphere Application Server. Jakarta JMeter can be downloaded from http://jakarta.apache.org/jmeter/

Web browser requirements

The DataPower XC10 administrative console supports the following web browsers:

- Mozilla Firefox, version 3.5 and later
- Microsoft Internet Explorer, version 7 or 8

Supported software

The following software levels are recommended when running this lab:

- WebSphere Application Server Version 6.1.0.35 or later
- WebSphere Application Server Version 7.0.0.13 or later
- WebSphere eXtreme Scale Client Version 7.1 with supported client fix pack
- Recommended software setup:
 - WebSphere Application server v 7.0.0.13 or later.
 - o WebSphere eXtreme Scale 7.1 client installed on WebSphere Application Server binaries
 - o Deployment manager profile and at least one WebSphere Application Server profile

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Lab Instructions

Some instructions in this lab are Windows[®] operating-system specific. If you plan on running the lab on an operating-system other than Windows, you will need to run the appropriate commands and use appropriate files (.sh or .bat) for your operating system. The directory locations are specified in the lab instructions using symbolic references, as follows:

Reference variable	Windows location	AIX [®] or UNIX [®] location
<was_home></was_home>	C:\WebSphere\AppServer	/usr/WebSphere/AppServer
		/opt/WebSphere/AppServer
<lab_files></lab_files>	C:\LabfilesXC10	/tmp/LabfilesXC10
<temp></temp>	C:\temp	/tmp

Note for Windows users: When directory locations are passed as parameters to a Java[™] program such as EJBdeploy or wsadmin, replace the backslashes with forward slashes to follow the Java convention. For example, replace C:\LabFilesXC10\ with C:/LabFilesXC10/

Part 1: Create a session data grid

You can create a session cache on the IBM WebSphere DataPower XC10 Appliance from the DataPower XC10 web console. The session data grid can be used for storing HTTP application session information. After creating a session cache, you can grant the other users in a user group access permission to monitor the session data grid you have just created by adding the group credentials to the **Access granted to...** property. By default, this does not limit who can access data in the cache, only who can view it in the XC10 console.

1. Open the IBM WebSphere DataPower XC10 Appliance web console in a supported browser.

IBM WebSphere DataPower XC10 Appliance User name: Password: Log In

- 2. Log in to the DataPower XC10 Appliance with your user credentials as provided by IBM.
- 3. Create a new session data grid.
 - ____a. Navigate to **Data Grid→Session.**

WebSph	nere DataPo	wer XC10 A	Appliance	
Home	Data Grid 🔽	Monitor 💌	Tasks	
	Simple Data G Dynamic Cach Session	irid Ie		

___ b. Click the <table-cell-rows> icon to create a new session cache.

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- c. Data grid names must be unique on the appliance. Since this is a shared environment, consider the need to make your data grid names unique and standard. For this lab, add a prefix of your initials to the data grid name to help identify the caches you create. (Example: "XX_Your_Data_Grid_Name"). Note that multiple applications can share a session data grid.
- ____d. Enter "<xx>_<Your_Data_Grid_Name>" in the "Session data grid name" entry field.

Create a new session data grid	
* Session data grid name:🛅	AB_XC10Created_Session_Grid
	OK Cancel

- ____e. Press the **OK** button.
- _____f. On the dialog asking whether you want to Stay Here or go to Tasks View, select Stay Here. It will take approximately 1 minute to create the grid. Refresh the screen by putting the cursor in the sort field and hitting Enter, until the new grid name appears. You could also choose to go to the tasks view and return to the cache details when the cache creation task is complete.

Session Data Grids		÷
C)	†↓ ▼

_____4. Set permissions for your data grid, so other people in your group can monitor the cache.

Learn: Providing the appropriate User or User Group the *Appliance Monitoring* permission is not sufficient for monitoring a data grid; you must also update the data grid's permissions to allow the User or User Group (minimally) read access, since the data must be read to gather monitoring statistics.

- _____a. Click the name of the session data grid you just created from the list on the left.
- _____ b. From the data grid properties shown on the right, navigate to the Access granted to: section and place the cursor in the Add more... entry field. When you click this field you will be presented with a list of users and groups you can add to your cache's authorization list.

Access granted to:	T1-User2 [owner]	
Show advanced attributes	Administrator TO-User1 TO-User2 TO-User3 TO-User4 TO-User4	

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____ c. Click the name of your user group (for example, Team 1) from the drop down box to add it to the Access granted to: list.

Access granted to:	T1-User2 [owner]
	Team-1 [read] [remove]
	Add more

- ____d. If you click on the [read] link, the allowed access will change from "read" to "write". Subsequent clicks will change to "create", then "all ", then back to "read". For this exercise set the allowed access to "read".
- ____e. Allow the properties under Advanced Attributes to retain their default values.

Part 2: Configure session cache during application installation

The DataPower XC10 product provides client code that is easily installed as an extension to the WebSphere application server installation. The XC10 client must be installed as an extension to your WebSphere Application Server installation before your WebSphere applications can store HTTP session data to a data cache on the DataPower XC10 Appliance.

Part 1 and Part 2 provide a 2 step process for configuring session cache. In Part 1 you created the session data grid using the XC10 web console. In this section, you will configure your session data information to be cached in the session data grid you created in the previous section of the lab.

- 5. Open a supported browser and navigate to the **WebSphere Integrated Solutions Console** (administrative console). The WebSphere console can be found at http://<dmgr_host>:9060/ibm/console.
- 6. Enter a User ID for WebSphere Application Server. If administrative security is not enabled the User ID can be any identifier. Click **Log In**.
- **7.** Navigate to Applications \rightarrow New Application.
- 8. Click on **New Enterprise Application**.

New Application
New Application
This page provides links to create new applications of different types.
Install a New Application
 New Enterprise Application New Business Level Application New Asset

9. Browse to <LAB_FILES> to locate the XC10SessionTest.war.

10. Select **Detailed – Show all installation options and parameters** from the **How do you want to install the application** panel.

Preparing for the application installation
How do you want to install the application? Fast Path - Prompt only when additional information is required. Detailed - Show all installation options and parameters.
⊕ Choose to generate default bindings and mappings
Previous Next Cancel

- _____11. Click Next button.
- _____ 12. Click **Continue** button if you see any **Application Security Warnings** like the one below.

Application Security Warnings
Specifies the resulting security warnings from an analysis of this application.
The contents of the was.policy file -
<pre>// // Template policy file for enterprise application. // Extra permissions can be added if required by the enterprise application. // // NOTE: Syntax errors in the policy files will cause the enterprise application FAIL to start. // Extreme care should be taken when editing these policy files. It is advised to use // the policytool provided by the JDK for editing the policy files // (WAS_HOME/java/jre/bin/policytool). // grant codeBase "file:\${application}" { }; grant codeBase "file:\${jars}" { }; grant codeBase "file:\${ejbComponent}" { }; "file:\${webComponent}" { }; grant codeBase "file:\${ejbComponent}" { };</pre>
Continue Cancel

Note: For the next three steps, you will need to click the step links highlighted in red below:

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Install New Application

→ Step 1: S installati	elect on options	Select installation options
<u>Step 2</u> modules t	Map o servers	Specify the various options that are available to prepare and install your
<u>Step 3</u> reloading Web modu	Provide JSP options for Jles	Directory to install application
<u>Step 4</u> libraries	Map shared	 Distribute application Use Binary Configuration
<u>Step 5</u> library rela	Map shared ationships	Deploy enterprise beans Application name
Step 6 hosts for modules	Map virtual Web	XC10SessionTest_war Create MBeans for resources
Step 7 context re Web mode	Map oots for ules	Override class reloading settings for Web and EJB modules Reload interval in seconds
<u>Step 8</u> Scale ses	eXtreme sion	Deploy Web services
settings		Validate Input off/warn/fail warn 🗸
<u>Step 9</u>	Summary	Process embedded configuration

- 13. Click the **Map virtual hosts for Web modules** step and keep the default settings by pressing **Next** from this panel. This step is necessary to ensure the virtual host is set properly.
- _____14. You will now be on the Map context roots for Web modules step; enter /test as the context root.
- 15. Click on **eXtreme Scale session management settings** and enter the following parameters.
 - ____a. Select the check box for **Enable session management**.
 - ____ b. Select IBM WebSphere DataPower XC10 Appliance from the Manage session persistence by: drop down list.
 - ____ c. Enter the appliance IP or host name.
 - _____d. Enter the appliance user name and password. This should be the same user name that you used to create the cache.

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Specify options for installi	ng enterprise applications and modules.
<u>Step 1</u> Select installation options	eXtreme Scale session management settings
<u>Step 2</u> Map modules to servers	✓ Enable session management
<u>Step 3</u> Provide JSP reloading options for Web modules	Manage session persistence by: IBM WebSphere DataPower XC10 Appliance 💌 * IP or host name of the IBM WebSphere DataPower XC10 Appliance: aimcp101.aimcp.ibm.com
<u>Step 4</u> Map shared libraries <u>Step 5</u> Map shared library relationships	IBM WebSphere DataPower XC10 Appliance administrative credentials * User name: T1-User2 * Password:
<u>Step 6</u> Map virtual hosts for Web modules	Test Connection
<u>Step 7</u> Map context roots for Web modules	Session persistence preference © Persist sessions in a new data grid on the IBM WebSphere DataPower XC10 Appliance
 Step 8: eXtreme Scale session management settings 	Data grid name: Team1_XC10SessionTes Persist session in an existing data grid on the IBM WebSphere DataPower XC10 Appliance
<u>Step 9</u> Summary	Existing data grid name: Browse
Desviews Next	
Previous Next (

____e. Click the **Test Connection...** button to confirm that you can connect successfully to the appliance.

GLA	DOKCICTORCO DUU
-	- Test connection
E	Connection to appliance aimcp097.aimcp.ibm.com is successful.
-	
	Close

- _____f. In the Session persistence preference section, click Persist session in an existing data grid on the IBM WebSphere DataPower XC10 Appliance.
- ____g. Click the **Browse...** button to see a list of caches that you created or that you have been granted access to. Click on the cache you created in Part 2 of the lab.

* Pas	ssword:	
Te	List of active remote data grids]
Sessi		
0		here DataPower XC10 Appliance
⊙		abSphere DataPower XC10 Appliance
	Close	

___h. The cache name will be entered into the "Existing data grid name" field.

Constr	
3622210	on persistence preference
0	Persist sessions in a new data grid on the IBM WebSphere DataPower XC10 Appliance
	Data grid name:
\odot	Persist session in an existing data grid on the IBM WebSphere DataPower XC10 Appliance Existing data grid name:
	AB_XC10Created_Sessio Browse

____ 16. Click the **Next** button at the bottom of the installation dialog.

Learn: You can create a new cache on the DataPower XC10 appliance by selecting "Persist sessions in a new data grid...". You will use this capability in Part 3 of this lab.

- _____ 17. Click **Finish** on **Summary** on the summary panel.
- _____18. Save the changes.
 - ___a. Click Finish button.
 - ____b. Click **Review** in the messages area.
 - ____ c. On the Save panel, make sure that the check box Synchronize changes with Nodes is selected.
 - ___ d. Click Save.
 - ____e. Click **OK** when the sync operation completes.

Part 3: Configure session cache for existing applications

In this section of the lab, you will create a session cache and configure XC10 session caching for an existing application using only the Websphere administration console. You will walk through the session management settings panel for an existing application, which can also be used to edit appliance connection information if changes are required in the future. Then you will create a session cache (also through the application server console) on the IBM WebSphere DataPower XC10 Appliance.

You will then use the XC10 web console to grant the other users in your group access to the session data grid you have just created by adding your user group credentials to the **Access granted to...** property.

- 19. From the WebSphere Application Server administrative console, navigate to Applications → Application Types → WebSphere enterprise applications.
- **20.** Click the WebSphere Sample name, **DefaultApplication**.
- _____ 21. Under Web Module Properties section, click Session management.



____ 22. Under Additional Properties section, click on eXtreme Scale session management settings.



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- ____ 23. Configure DefaultApplication to use the DataPower XC10 Appliance for session management.
 - ____a. Select the check box for **Enable session management**.
 - ____b. Select IBM WebSphere DataPower XC10 Appliance from the Manage session persistence by: drop down list.
 - ___ c. Enter appliance IP or host name.
 - ____ d. Enter User name and password.

<u>Enterprise Applications</u> > <u>DefaultApplication</u> > <u>Session management</u> > eXtreme Scale session management settings
Configure this application to be associated with eXtreme Scale.
Configuration
General Properties
✓ Enable session management
Manage session persistence by:
IBM WebSphere DataPower XC10 Appliance 💌
* IP or host name of the IBM WebSphere DataPower XC10 Appliance:
aimcp101.aimcp.ibm.com
IBM WebSphere DataPower XC10 Appliance administrative credentials
* User name:
T1-User2
* Password:
Test Connection
Session persistence preference
Persist sessions in a new data grid on the IBM WebSphere
DataPower XC10 Appliance
Data gro name:
Persist session in an existing data grid on the IBM WebSphere DataPower XC10 Appliance
Existing data grid name:
Browse

____e. Click the **Test Connection...** button to confirm that you can connect successfully to the appliance.

₽ŕ	\$00
<u>r</u>	- Test connection
<u>N</u> - >	Connection to appliance aimcp101.aimcp.ibm.com is successful.
ן	
	Close

- __ f. In the Session persistence preference section, click Persist sessions in a new data grid on the IBM WebSphere DataPower XC10 Appliance
- _____g. Data grid names must be unique on the appliance. Since this is a shared environment, consider the need to make your data grid names unique and standard. For this lab, add a prefix of your initials to the data grid name to help identify the caches you create. (Example: "XX_Your_Data_Grid_Name"). Note that multiple applications can share a session data grid.
- ____h. Enter "<xx>_<Your_Data_Grid_Name>" in the "Session data grid name" entry field. For this lab's illustration purposes, the grid name 987_Default_test is used below.

Session persistence preference
 Persist sessions in a new data grid on the IBM WebSphere DataPower XC10 Appliance
Data grid name: 987_Default_test
igodoldoldoldoldoldoldoldoldoldoldoldoldol
Existing data grid name: Browse

24. Click the OK button at the bottom of the page. When you click OK or Apply the administrative console client will immediately begin the process of creating the session cache on the appliance, rather than waiting for you to save your changes within the WebSphere configuration. Creating the session cache might take up to 1 minute. If you do not save the changes within the WebSphere configuration later, the session cache will still be present on the appliance.

Learn: You can use a cache that already exists on the DataPower XC10 appliance by selecting "Persist sessions in an existing data grid...". You used this capability in Part 2 of this lab.

- ___ 25. Save the changes.
 - ____a. Click **Review** in the messages area.
 - ___ b. On the Save panel, make sure that the check box Synchronize changes with Nodes is selected.
 - ___ c. Click **Save.**

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- ____ d. Click **OK** when the sync operation completes.
- 26. Set permissions for your data grid, so other people in your group can monitor the cache. See the HINT provided in the previous section for this similar step.
 - ____a. Open the IBM WebSphere DataPower XC10 Appliance web console in a supported browser.
 - ____b. Log in to the DataPower XC10 Appliance with your user credentials as provided by IBM.
 - ___ c. Navigate to **Data Grid→Session** .

WebSpl	here DataPo	wer XC10 A	Appliance	Â
Home	Data Grid 💌	Monitor 💌	Tasks	
	Simple Data G Dynamic Cach	Brid		
	Session			

- _____ d. Click the name of the session data grid you just created from the list on the left. (For illustration purposes only, the grid below is not the same as the one created; in your case, select the data grid created in step 23 (h).
- ____e. From the data grid properties shown on the right, navigate to the Access granted to: section.

Session Data Grids	÷	102_DefaultApp_Cache		×
Search	↑↓▼	Session data grid name: 🛍	102_DefaultApp_Cache	
102_DefaultApp_Cache		Catalog servers: 🛅	9.3.75.209:2809	
102_XC10Created_Example_Cache		Security settings:	 Enable security Enable authorization 	
		Access granted to:	T1-User2 [owner] Team-1 [read] [remove] Add more	

____ f. Click the Add More field and select the name of your user group (Team 1) from the drop down box. Then toggle through the "read", "write", "create" and "all" options and set the Access granted to: "read".

Part 4: Monitor the session data grid

The DataPower XC10 web console includes monitoring capabilities to dynamically report key metrics pertaining to the overall performance of the data grids. In this section of the lab, you will use the JMeter tool to simulate multiple users generating load on the application you configured in Part 2. You can then monitor your session data grid in real time by reviewing the number of cache entries through the DataPower XC10 web console.

- _____ 27. Manually start the server, if it is not started already.
 - ____a. From the WebSphere Application Server administrative console, expand Servers → Server Types → Application Servers.
 - ____ b. Select the check box next to **server1** and click **Start.**
 - ____ c. Wait for confirmation that the server is started. This could take several minutes.
 - ____28. Start the lab application, XC10SessionTest_war, if it is not already started.
 - ____a. In the Navigation panel, expand Applications → Application Types → WebSphere enterprise applications.

Note: In this lab you will use Apache JMeter to generate session data for the SessionTest_war application. This tool is freely available from http://jakarta.apache.org/JMeter/

- ____ 29. Start JMeter a Windows **Command prompt**.
 - ____a. Open a Command Prompt (by clicking **Start -> Run cmd.exe** and navigate to the directory where the jmeter test tool files are stored, for example **cd C:\jmeter\bin**
 - ____b. Type .\jmeter.bat and press enter.
 - __ c. From the jmeter tool interface, click **File →Open** and navigate to </pr
 - _____d. Click on the **SessionStress.jmx** and click **Open** button. The necessary jars will be loaded to run the test tool. Once that is complete, a dialog opens that allows you to run the test tool.
 - ____e. If the plan is not expanded, click this graphical symbol in the left pane.



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SessionStress.jmx (C:\Do	cuments and Settings\Administrator\De	sktop\XSA SVN\Bet 🗐 🗖 🔀
<u>File Edit Run Options H</u>	elp	
		0/0
Placement Lab → ∰ HTTP Request Defau	Test Plan	<u>^</u>
- 🚟 HTTP Cookie Manage	Name: Placement Lab	
- 🗋 Response Assertion	Comments:	=
- 🗋 Response Assertion		
🗠 <u> </u> SessionTest		
— 💽 Summary Report	User Define	ed Variables
- 🔄 Assertion Results	Name:	Value
— 💽 View Results in Tab		
🗆 🔄 View Results Tree		
🖵 🏢 WorkBench		
	Add	Delete
	Run each Thread Group separately (i.e	e. run one group before starting tr 💌
		• • •

_____f. Click **HTTP Request Defaults** and review the following (already set) parameters.

🗍 Blasamantiah	8	0/				
HTTP Request Defaults	HTTP Request Defaults					
HTTP Cookie Manager	Name: HTTP Request Defaults					
Response Asserbon	Comments:					
- To SessionTest	Web Server Timeouts [milliseconds]					
Create session	Server Name or IP: localhost Port Number: 9080 Connect: Response:					
👇 🗑 Test sessions in a loop	HTTP Request					
- Retrieve session	Protocol [default http]: http Content encoding:					
	Path: test/SessionTest					
– 🔄 Summary Report	Send Parameters With the Renuest:					
🔄 Assertion Results	Name: Value Encode9 Include	: Equal				
— 💽 View Results in Table						
🗆 🔄 View Results Tree						
WorkBench 🗧						

- ___ 30. **Optional:** Follow the instructions below to adjust the test plan for the amount of load/stress required.
 - ____a. Click "SessionTest" if you want to adjust "Number of Threads (users)" and "Ramp-Up Period"
 - b. Click "Create Session" and adjust min/maxObjects and min/maxObjectSize (in bytes). Do not change the login or logout parameters.

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- ____ c. Click "**Test sessions in a loop**" and change the loop count to change number of times it calls the test servlet to retrieve the session data.
- 31. Click **Run** then click **Start** to start the stress tool using these plan settings.
- _____ 32. Click **Summary Report** to ensure you see some data being populated.

SessionStre	ss.jmx (/home/virt	user/LabFilesX	C10/SessionStr	essijmx) - Apa	iche JMeter (2/3	4(r785646)		_ 🗆 🗙
<u>File Edit Run Options Help</u>								
								8 / 20 🗖
👇 🍰 Placement Lab 🕂 🚟 👬 HTTP Request Defaults	Summary	Report						
— 🗯 HTTP Cookie Manager	Name: Sum	nary Report						
- ? Response Assertion	Comments:							
- ? Response Assertion	-Write resu	lts to file / R	ead from file-					
🕈 🔟 SessionTest							_	
— 🧷 Create session	Filename				Browse_	Log/Display (Dniy: 🔄 Erro	rs 📃 Succe
🖓 🧭 💓 Test sessions in a loop	i attel	# Comniec	Пиегопе	Min	May	eru Den	Error %	Throughout
🕈 🥟 Retrieve session	Create sessi_	# Jumpics 8	14	3	84	26.29	0.00%	45.1/min
— 🕚 Think time	Retrieve ses_	1	8	1	26	9.90	0.00%	1.1/sec
🗆 🦯 🥕 Log out	TOTAL	15	11	1	84	20.61	0.00%	1.3/sec
— 💽 Summary Report								
— 🔄 Assertion Results								

__ 33. You can verify that the DataPower XC10 Appliance is being used for session management by looking for the following string in the application server's SystemOut.log.

```
[6/22/11 15:49:37:258 CDT] 00000021 servlet I
com.ibm.ws.webcontainer.servlet.Serv|etWrapper init SRVE0242I: [XC10SessionTest_war]
[/test] [Session test]: Initialization successful.
[6/22/11 15:49:37:305 CDT] 00000021 HttpSessionFi A CWWSM0007I: Using the
ObjectGrid based Session Manager.
```

- _ 34. Monitor the data grid from the DataPower XC10 web console.
 - ____ a. From the DataPower XC10 web console, navigate to Monitor → Individual Data Grid Overview.

WebSp	here DataPo	wer XC10 Appliance
Home	Data Grid 💌	Monitor 🖃 🛛 Tasks
		Data grid overview
		Individual data grid overview
		Data grid detail reports

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. . . .

_____b. Click the name of the session data grid you configured for with the XC10SessionTest application from the left side of the panel. The screen capture below shows what will be displayed on the right side of the panel for the data grid before the testing starts.

Number of cache entries: O	Average Transaction Time: 0.00	Average Throughput: 0.00	Cache hit rate: 0.00	
Used Capacity Cache Usage	Average Throughput			
Jsed Capacity (B) vs. Numbe	r of cache entries			
Chart Table				
Time range: Hour	•			
1	1			
		Used Canacity		

-1

6/23/11 2:43 PM

(B)

entries

Number of cache

-1

6/23/11 2:36 PM

- _____ 35. After the test has run for a few minutes,
 - _____a. Observe both the **Chart** and **Table** views of the **Used Capacity tab** to verify that the session data grid is being used to cache data. NOTE: the number of cache entries may differ between this chart/table and the **Current Summary** at the top of the panel.

	Used Capacity	Cache Usage	Average Throughpu	ıt			
U	Used Capacity (KB) vs. Number of cache entries						
	Chart Table						
	Time range Hour	:	*				
	600				600		
	500			Τ	500		
	400			Λ.	400	Used Capacity	
	300			17	300	(KB)	
	200				200	Number of cache	
	100				0	entries	
	6/24/11	. 7:33 AM 6	/24/11 8:01 AM	6/24/11 8:	29 AM		

ed Capacity (KB) vs.	Number of cache entries	
Chart Table		
Name	Used Capacity (KB)	Number of cache entries
6/24/11 8:11 AM	0	0
6/24/11 8:13 AM	0	0
6/24/11 8:15 AM	0	0
6/24/11 8:17 AM	0	0
6/24/11 8:19 AM	0	0
6/24/11 8:21 AM	192.56	66
6/24/11 8:23 AM	64.33	22
6/24/11 8:25 AM	529.91	187
6/24/11 8:27 AM	325.58	117
6/24/11 8:29 AM	264	94
6/24/11 8:31 AM	316.33	113

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____b. Observer both the **Chart** and **Table** views of the Cache Usage tab.

l	Jsed Capacity	Cache Usage	Average Throughput	:		
Ca	iche Usage					
	Chart Table					
	Time range: Hour		¥			
	700 600 500 400 300 200 100 0			*** **	700 600 500 400 300 200 100 0	 ← Cache attempts ← Cache hits ← Cache hit rate
	6/24/11	7:36 AM 6,	/24/11 8:04 AM	6/24/11 8	:32 AM	

Used Capacity Cache Usage Average Throughput

che Usage				
Chart Table				
Name	Cache attempts	Cache hits	Cache hit rate	
6/24/11 8:14 AM	0	0	0	
6/24/11 8:16 AM	0	0	0	
6/24/11 8:18 AM	0	0	0	
6/24/11 8:20 AM	0	0	0	
6/24/11 8:22 AM	211	1	0	
6/24/11 8:24 AM	620	8	0.01	
6/24/11 8:26 AM	613	8	0.01	
6/24/11 8:28 AM	619	7	0.01	
6/24/11 8:30 AM	608	8	0.01	
6/24/11 8:32 AM	619	7	0.01	
6/24/11 8:34 AM	612	8	0.01	-

XC10 HTTP Session Lab Exercise

____ c. Observer both the **Chart** and **Table** views of the Cache Usage tab.



Name	Average Throughput	Average Transaction Time	
6/24/11 8:15 AM	0	0	
6/24/11 8:17 AM	0	0	
6/24/11 8:19 AM	0	0	
6/24/11 8:21 AM	0.02	1404.42	
6/24/11 8:23 AM	4.68	246.8	
6/24/11 8:25 AM	5.14	242.93	
6/24/11 8:27 AM	5.05	246.17	
6/24/11 8:29 AM	5.07	236.29	
6/24/11 8:31 AM	5.15	246.46	
6/24/11 8:33 AM	5.18	232.45	
6/24/11 8:35 AM	4.91	250.67	-

- 36. Stop the stress tool within JMeter.
 - ____a. Click **Run** and then **Stop** menu in the stress tool.

What you did in this exercise

 In this exercise, you configured WebSphere applications to store HTTP session data to a data grid on the IBM WebSphere DataPower XC10 Appliance. You learned how to create the session data grids required to cache the HTTP session information in two ways, from the DataPower XC10 web console and from the WebSphere Application Server administrative console. You also learned how to grant specific users or user groups access to the data grids you created. The monitoring features of the DataPower XC10 product provide an easy and quick method to review the health and performance of the data grids. With a stress tool you were able to observe that the session management processes were running and responsive. IBM WebSphere DataPower XC10 V2.0 XC10 HTTP Session Lab Exercise

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