DataPower XC 10 seamless integration with XI 52

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1.1 What are we planning to do?

With the introduction of firmware V 6.0 for the DataPower XI 52 the integration between the XI 52 and XC 10 has become seamless and can be setup and working in an hour. In this tutorial, we will setup Datapower XC10 seamless integration with XI 52. We will then create a sample web service that will cache the responses.

1.2 Things we need

The following is the list of software that are required for completion of this tutorial

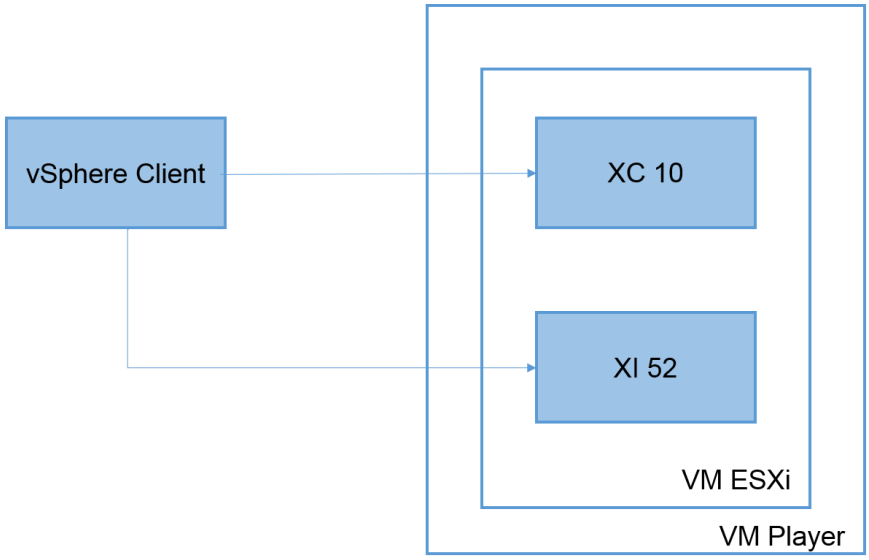
1. XI 52 VM

   The XI 52 should be running a firmware minimum of V 6.0.0 to have a seamless integration with XC 10

2. XC 10 VM
   Download the virtual image **XC10-Developer_2.5.0.2.zip** (Free for developer purpose ☺) from following site https://www.ibm.com/developerworks/community/blogs/714470bb-75c8-4f99-8aca-766c0d55a21c/entry/introducing_a_developer_xc10_appliance_virtual_image?lang=en
3. VMware Player
   https://my.vmware.com/web/vmware/downloads
4. VMware vSphere Client
   You can download the VMware vSphere Client from any server (http://pubs.vmware.com/vsphere-4-esx-vcenter/index.jsp?topic=/com.vmware.vsphere.gsclassic.doc_41/common/install/t_down_client.html) or download directly from here (http://www.empirion.co.uk/vmware/vmware-vsphere-client-direct-download-links/)
5. VMware vSphere Hypervisor 4.1 or ESXI 4.1

You can download it from https://my.vmware.com/web/vmware/evalcenter?p=free-esxi&lp=default . You need to register to get the evaluation version.

1.3 Development Environment Setup

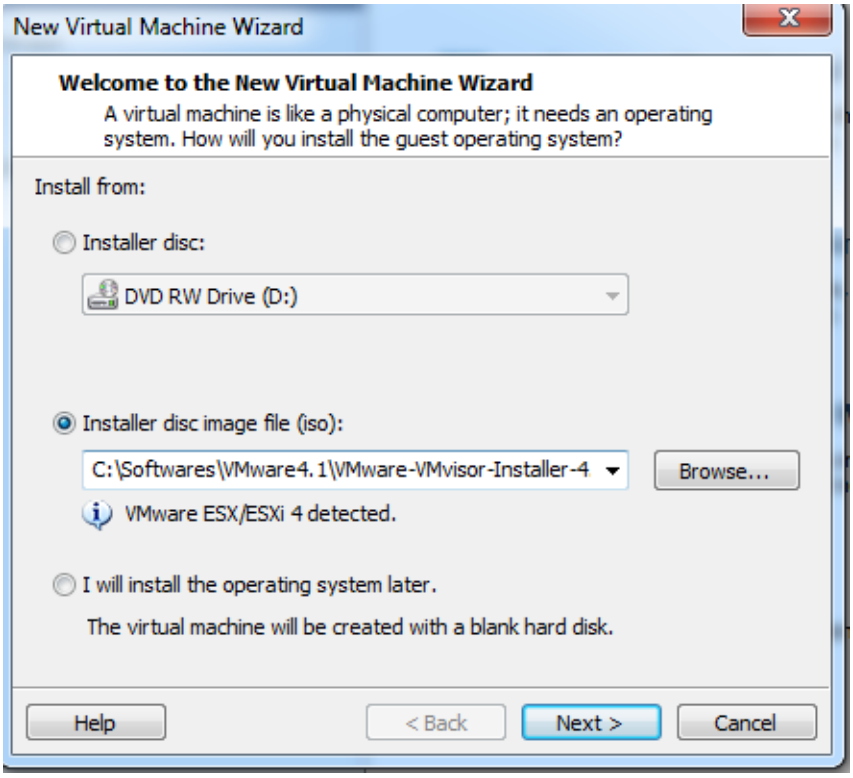


The above diagram lays out the structure for the development environment.

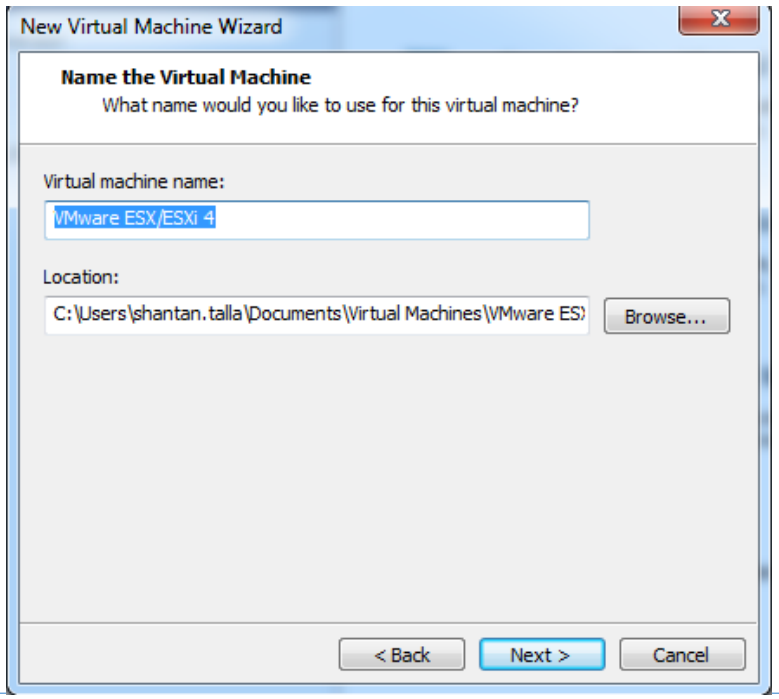
1.3.1 Hypervisor/ ESXi Server installation

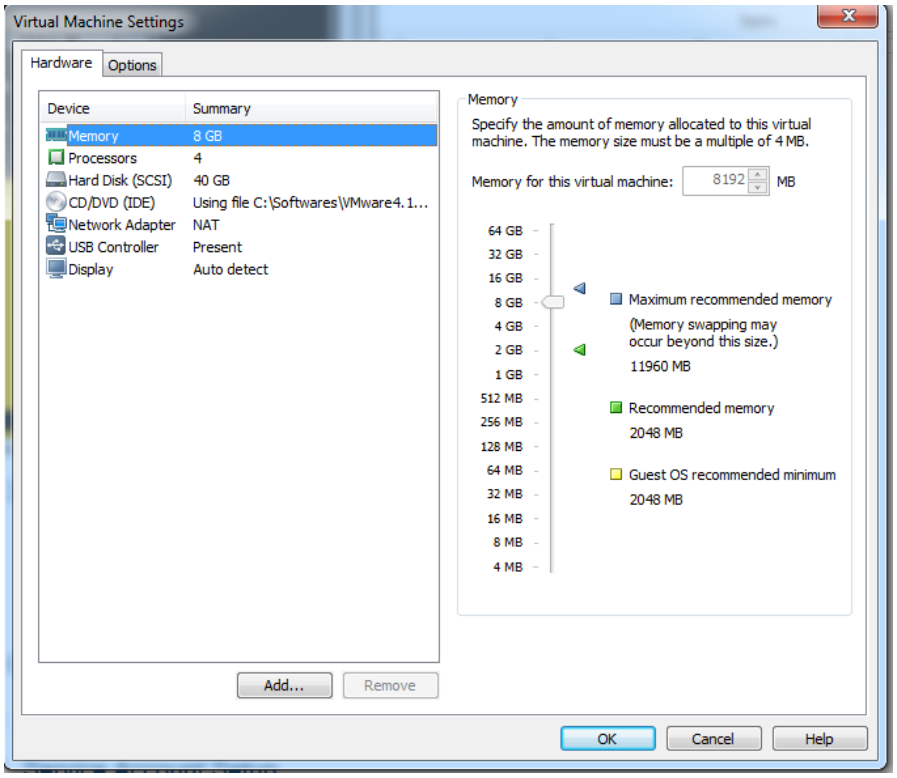
1. After installation of the VM player to install VM ESXi we need a new VM
   - Click the “Create a New Virtual Machine”

- Select the “Installer disc image” and browse to the “VMware-VMvisor-Installer-4.1.0.update03-800380.x86_64.iso”

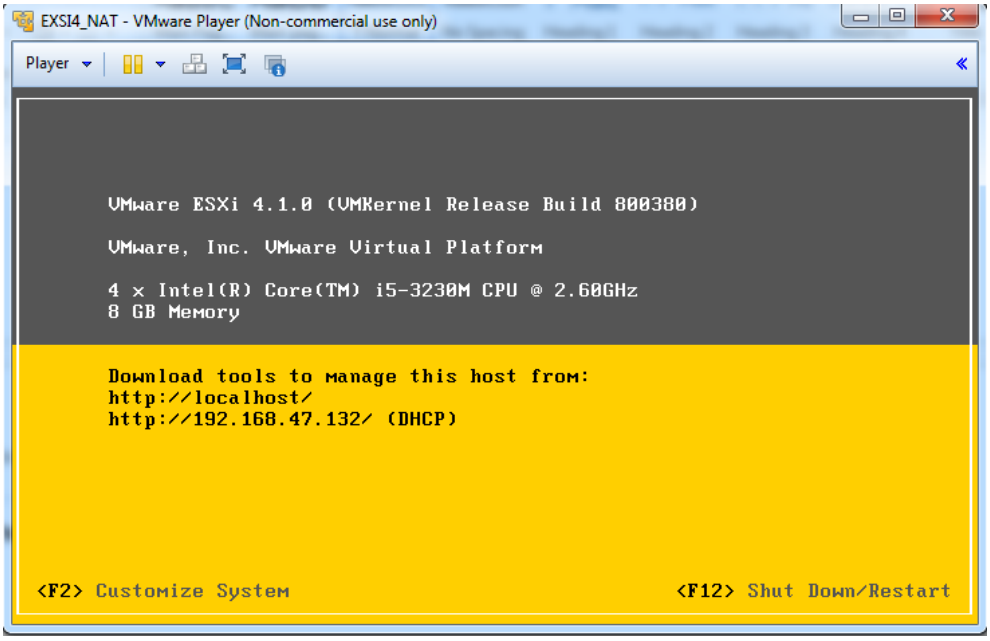


- Name the Virtual Machine and set the hardware settings as shown below.

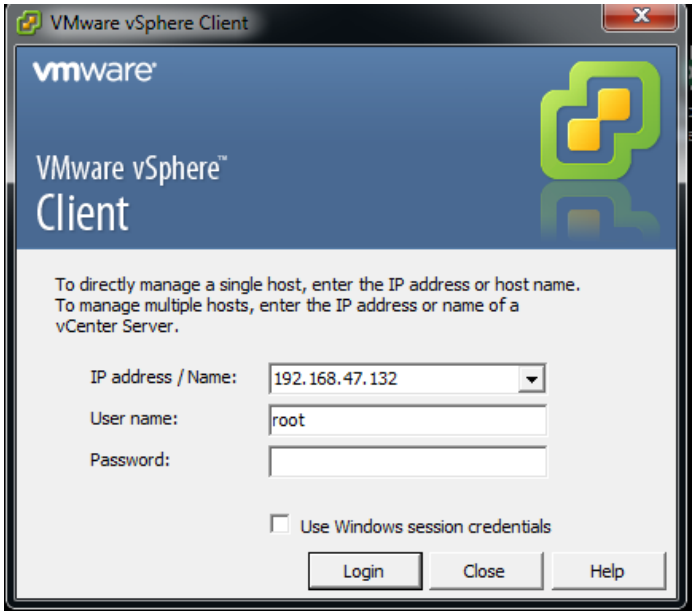




Once the hypervisor is up and running you should see following screen. As network settings is set to NAT the hypervisor gets an IP address based on you VMNet8 adapter. In our case it is 192.168.47.132

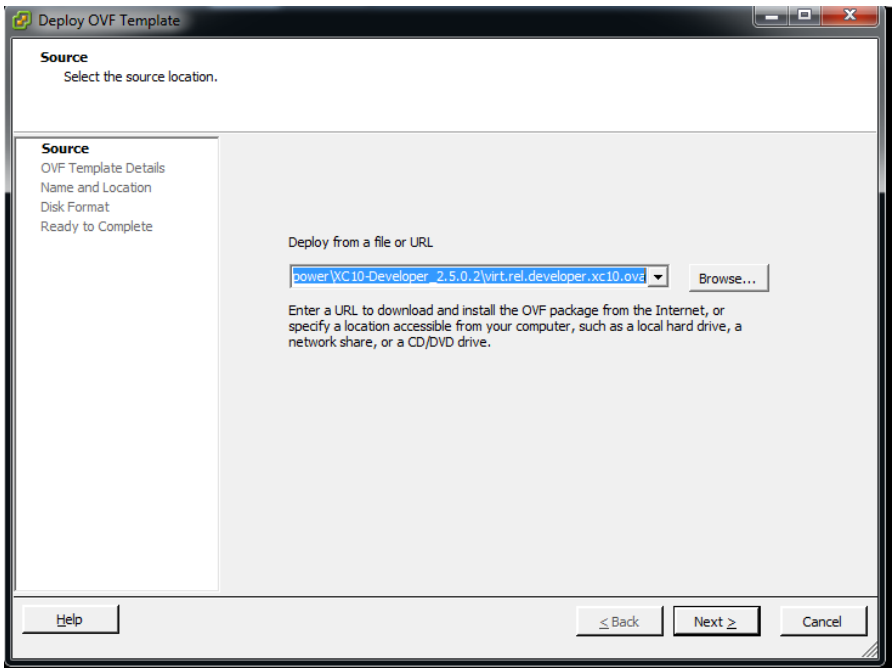


Now connect to the hypervisor (EXSI) using the vSphere client installed as shown below. (Note: leave password empty as we did not setup one)



1.3.2 XC 10 installation

Now deploy the XC 10 virtual image to the hypervisor.

- Click File -> Deploy OVF Template
- Select the file for deploy “XC10-Developer_2.5.0.2\virt.rel.developer.xc10.ova “
- 

- Click next and name the XC 10 and complete the deployment.
- Right click on the XC 10 Name in left hand panel and “Power On”
- It will take few minutes to start the XC 10 once it is complete you will see following information with assigned IP address. Take note of the IP address.

1.3.3 XI 52 installation

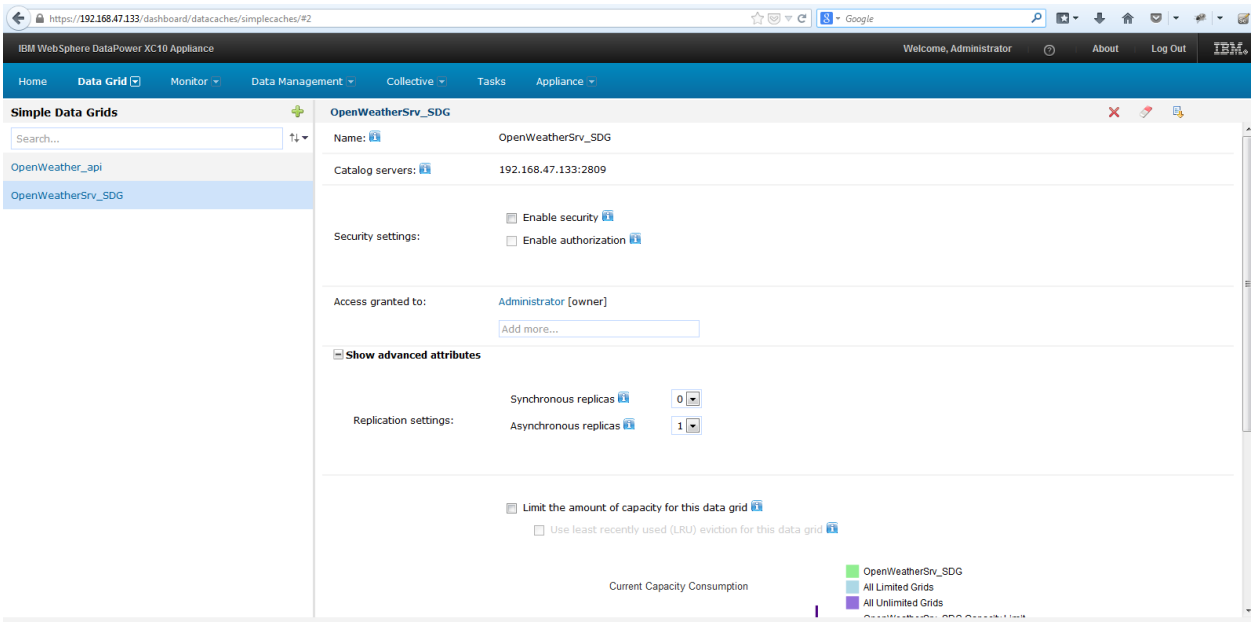
Complete the installation in similar fashion for XI 52. For guidance please follow this article http://blogs.perficient.com/ibm/2014/01/27/how-to-install-xi52-virtual-applaince/

1.4 Caching setup on XC 10

The caching setup on XC 10 requires creation of data grid which basically acts like a basket for storing the information from the XI 52. We can separate these data girds based on the business needs or on the service needs. It is suggested to logically separate the data girds based on business need and separate out the common data objects for reuse.

1.4.1 Data gird creation

1. Login to XC 10 device
   Using https://*xc10ipaddress*/login/
2. Click Data grid -> Simple Data grid
3. Click Plus (+) sign on the left hand panel next to “Simple Data grids” to add a new gird.
4. Enter the name of the grid as “OpenWeatherSrv_SDG”, you should see the following



1.4.2 Service Account Setup

XC 10 provides role based authentication to control the access and creation of data grids. For this tutorial we will create a simple user and assign access to the created data grid.

1. For create new user account, Click Collective -> Users
2. Click the Plus(+) sign and enter the user name and password as “xcuser”.
3. You can assign the access level basing on your needs to this user.
4. Go back to the data gird we created “OpenWeatherSrv_SDG” and add “xcuser” to “access granted to”.

With this we have the setup ready on the XC10. Let go setup on the XI 52.

1.5 Caching Setup on XI 52

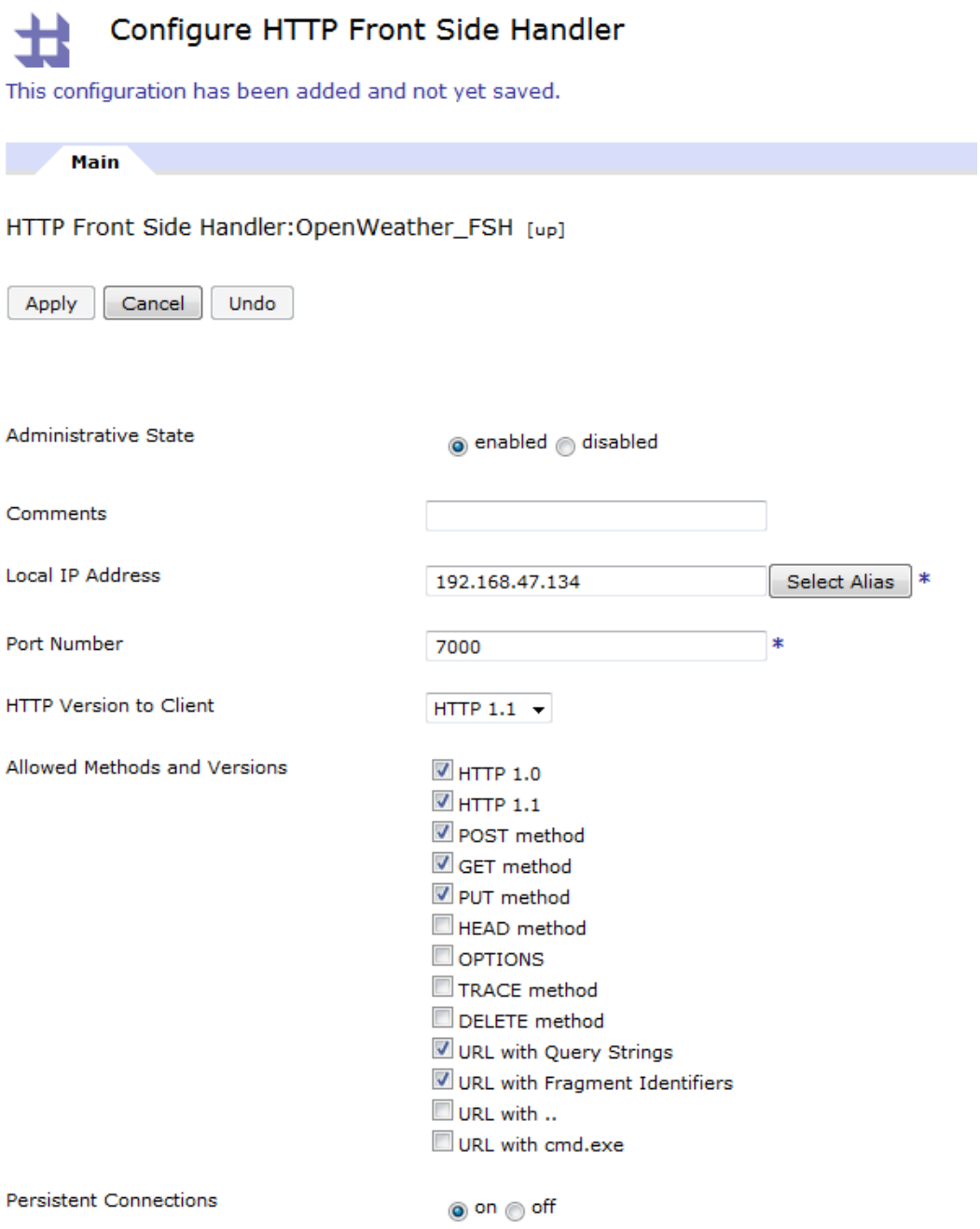
To setup cache we will start by creating a sample service which will connect to “ OPEN WEATHER MAP” (http://openweathermap.org/API) to get the weather for a given city and we will cache the responses from the service. Even though this scenario is not an appropriate caching scenario but we will use it for simple demonstration purpose

http://api.openweathermap.org/data/2.5/weather?q=London,uk or

http://144.76.102.166/data/2.5/weather?q=London,uk

1.5.1 Sample MPG Setup

1. Create a MPG with name “OpenWeather_MPG”
2. With backend url "http://144.76.102.166/”
3. Create a http front side handler “OpenWeather_FSH” with port “7000” as shown below (Note : enable “get”)



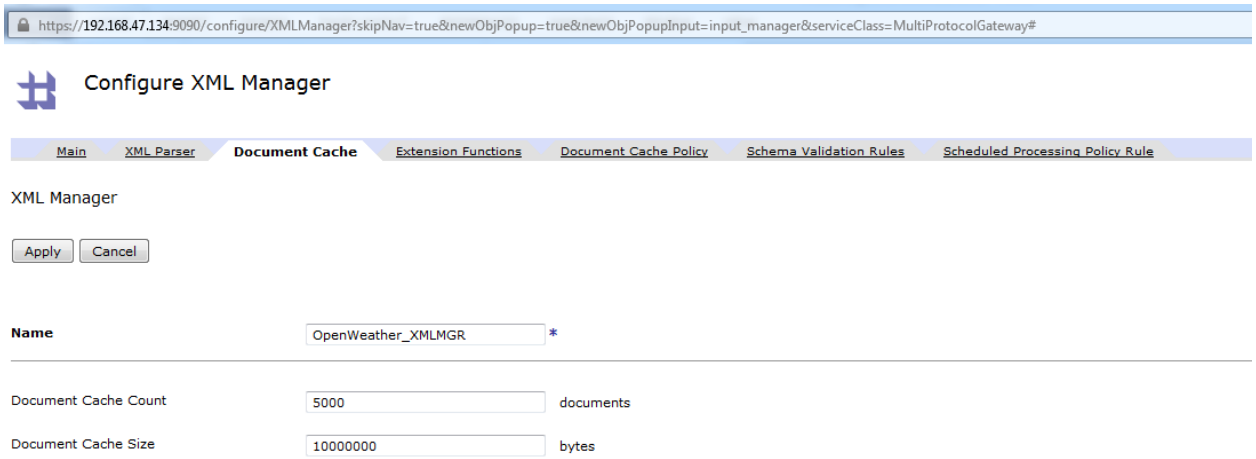
Create a policy which has a simple rules with client to server rule and server to client rule with no transformations actions.

At this point you should be able to hit the service with any browser or rest client using your XI 52 ip address as follows and get a valid json response

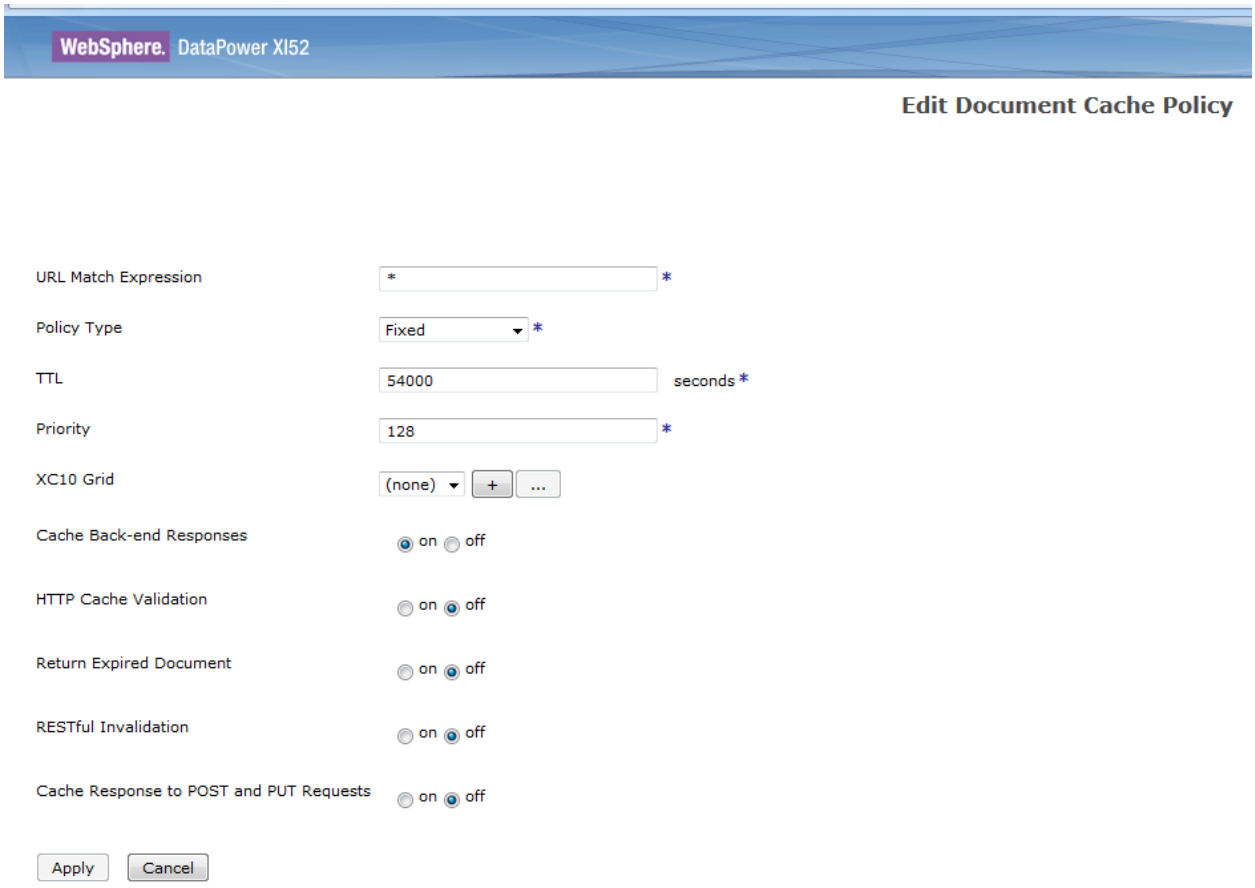
http://youripaddress:FSH port/data/2.5/weather?q=city,state
http://192.168.47.134:7000/data/2.5/weather?q=nashville,tn

1.5.2 Caching Setup

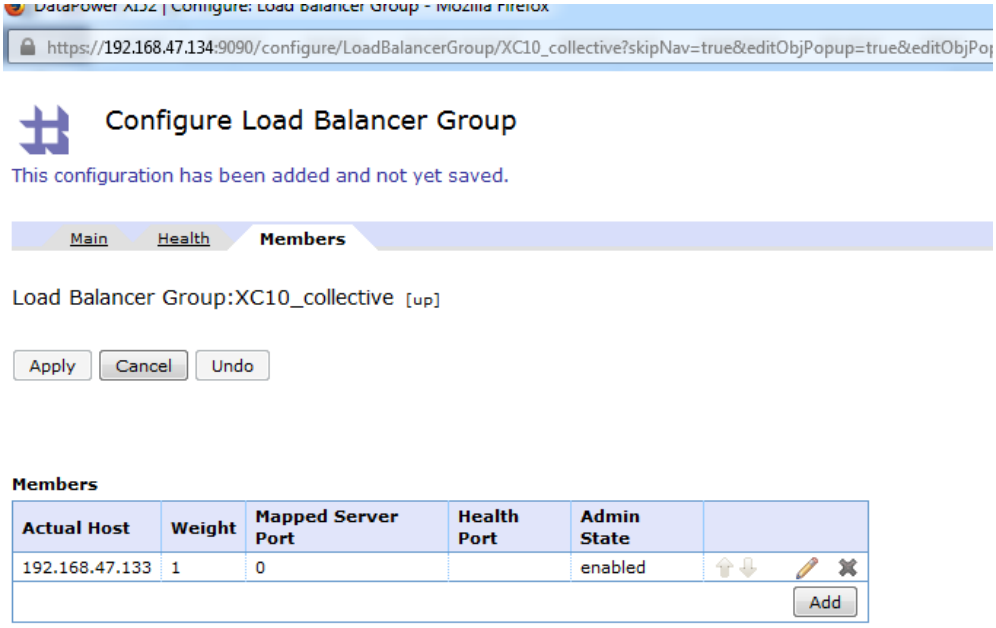
1. To setup cache for a MPG we need to modify the XML Manager, It is suggested to create a new XML manager.
2. Lets create the new xml manager for the “OpenWeather_MPG”. Click Plus (+) next to xml manager and enter the name “OpenWeather_XMLMGR”
3. Click Document Cache and change the document cache size as shown below



4. Click “Document Cache Policy” in the top tabs and click “add”
5. In “Edit Document Cache Policy” enter
   - URL match expression as “ * ”
   - Policy Type as “Fixed”
   - TTL as “54000”
   - Cache backend responses to ON



6. Now Click the Plus (+) button for XC 10 grid in the same page
7. In the " Configure XC 10 Page" fill out as below
   - Name : OpenWeather_XC10Grid
   - GridName : OpenWeatherSrv_SDG (same as in XC 10 grid name)
   - Username and password as "xcuser"
8. Now click the Plus (+) right next to collective
9. In "Configure Load Balancer Group" page enter
   - Collective name - XC10_collective
   - Click "Members"
   - Under members add the ip address of the XC 10 with weight '1'



Important : Click apply on the all the windows you opened so far ☺

10. Save the config and we are all set with integration. There are some other configurations like SSL config and collective creations which we are avoiding for this tutorial to keep it simple.

1.6 Let's test this out !!

So the exciting part testing, we are ready for testing.

Hit the service with multiple requests like

http://192.168.47.134:7000/data/2.5/weather?q=nashville,tn

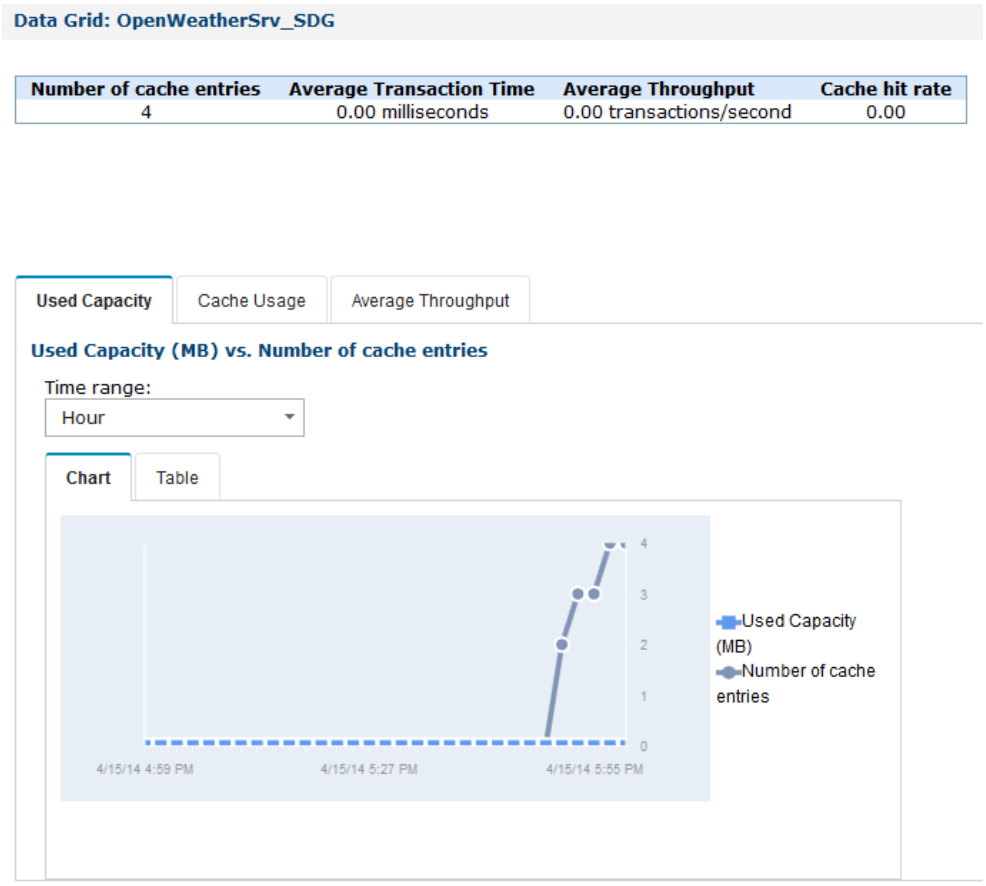
http://192.168.47.134:7000/data/2.5/weather?q=dayton,ohio

http://192.168.47.134:7000/data/2.5/weather?q=austin,usa

and so on

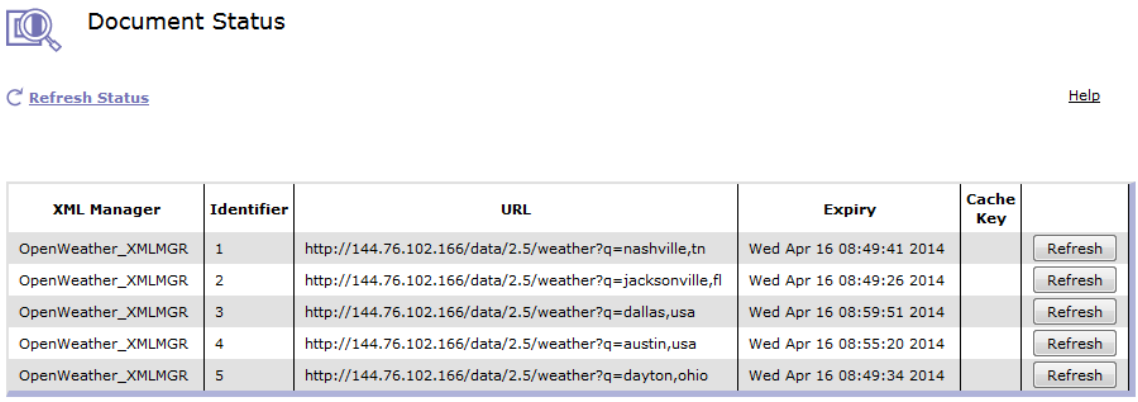
Now we have multiple places where we can check if it is saving the reponses in cache

1. Go to the XC 10 Administration console and Click “Mointor” -> Individual Data Grid Overview and select the grid name.
2. You see the statistics about the cache requests



Explore the different options.

3. You can check the similar entries in the XI 52 under “Document Cache”



Document Status

Refresh Status

Help

XML Manager	Identifier	URL	Expiry	Cache Key	
OpenWeather_XMLMGR	1	http://144.76.102.166/data/2.5/weather?q=nashville,tn	Wed Apr 16 08:49:41 2014		Refresh
OpenWeather_XMLMGR	2	http://144.76.102.166/data/2.5/weather?q=jacksonville,fl	Wed Apr 16 08:49:26 2014		Refresh
OpenWeather_XMLMGR	3	http://144.76.102.166/data/2.5/weather?q=dallas,usa	Wed Apr 16 08:59:51 2014		Refresh
OpenWeather_XMLMGR	4	http://144.76.102.166/data/2.5/weather?q=austin,usa	Wed Apr 16 08:55:20 2014		Refresh
OpenWeather_XMLMGR	5	http://144.76.102.166/data/2.5/weather?q=dayton,ohio	Wed Apr 16 08:49:34 2014		Refresh

So we are able complete the seamless integration between XC 10 and XI 52

1.7 References

1. Enterprise Caching Solutions using IBM WebSphere DataPower SOA Appliances and IBM WebSphere eXtreme Scale
http://www.redbooks.ibm.com/abstracts/sg248043.html