Using Metric Extensions in EM12c

Introduction
The former release of Oracle Enterprise Manager provided us with the ability to create User Defined Metrics in order to create custom Metrics and Thresholds that were not included in the default “Out of the Box” Metrics and Thresholds. In several cases this feature was just enough to do the jobs, however there were many restrictions like:

• Although we were actual doing development, no support for the Development Lifecycle were available.
  o Lack of a Library to locate User Defined Metrics
  o No support for Development – Test – Deployment
  o No versioning
• Limited to Database and Host Target types

Oracle Enterprise Manager 12c introduces a new concept called “Metric Extensions”, that replaces the concept of User Defined Metrics. User Defined Metrics are still supported in EM12c, but Oracle encourages you to migrate to Metric Extensions, as User Defined Metrics will not be supported in the next major release of Enterprise Manager.

EM12c does have a Library to locate Metric Extensions and supports the following Development and Deployment Process:

Develop
1. Create the Metric Extension and test it against a specific Target to make sure it is working correctly
2. Make any modifications if necessary

Test
1. Deploy the Metric Extension to any number of Test Targets and evaluate
2. Review the Metric Data
3. Test the Alert Notifications that result from the Metric Extension
Deploy

1. Deploy the Metric Extension by means of a Monitoring Template

Example

Navigate from the Enterprise Menu → Monitoring → Metric Extensions

From the Metric Extensions Page select the [Create] Button
In this example we will create a Metric Extension that will collect the Agent’s cpu Utilization.

We will select “Host” as Target Type

Enter Agent_CPU as name, “Agent CPU Utilization (%)” for Display Name

Select “OS Command – Multiple Columns” as the Adapter to be used

Leave the Collection Schedule to it’s default values and press [Next]
As command we will use %perlBin%/perl

Next we need to upload the actual script that will take care of the Agent CPU Utilization collection.

For this I have created a text file agent_cpu_usage.pl that I will upload from my local desktop by pressing the [Upload] Button.

```
my $agent_pid_str = `emctl status agent | grep "Agent Process"`;  
my @tmp = split(':',$agent_pid_str);  
chomp $tmp[1];  
my $agent_pid = $tmp[1];  

#Find the agent cpu utilization using ps  
my $cmd = "ps -p $agent_pid -o pcpu";  
my $ps_cpu_util_arr = `ps -p $agent_pid -o pcpu`;  
my $ps_cpu_util = $ps_cpu_util_arr[1];  

print "em_result=$agent_pid|$ps_cpu_util\n";
```

Figure 1 agent_cpu_usage.pl
Next we will enter “|” as the Delimiter that is used in the command output.

Enter "em_result=" for the Starting String of the metric result line.

Press [Next].

Press [Add] to enter the Metric Columns we will be using for this Metric Extension.
We will enter AgentPid for Name and “agent process id” as Display Name.

As this Column will be the Column that uniquely identifies each row in the result we select “Key Column” as Column Type.

Press [OK]

Next we enter “AgentCPUUsage” with “agent cpu usage” as Display Name as a second Column.

We will use “>=” for Comparison Operator and use “10” as Warning and “25” as Critical Threshold.
The rest of the values we keep the defaults.

Press [OK]

For this example we will use the Default Monitoring Credentials and press [Next]

Next we will test the Metric Extension and need to a one or more Test Targets to do so. Press [Add] to select the Test Target(s) to be used.
For this example we have selected “em12c.mycorpdomain.com” as the Host to test this Metric Extension.

Press [Run Test]

As part of the Test run, the Metric Extension will be deployed to the Test Target and the Test Results will be shown in the Page.

Next press [Next]
In this Page we can do a final Review and assuming everything is ok we can press [Finish]

As you can see we just created a new Metric Extension, it is not being used in any Monitoring Template and has not been deployed to any Target yet.

The status of the Extension is “Editable” meaning we can still edit this version of the Extension.
If we want to deploy this Extension we first need to save it as a “Deployable draft”. To do so, we select the Extension and open the Action menu to select “Save as deployable draft”.

Deploying the Metric Extension
Now we have developed and tested our Metric Extension we want to deploy it to other Targets.

For this we will select the Metric Extension and select “Deploy to Targets...” from the Action Menu.
Using the [Add] Button we have added "em12c.mycorpdomain.com" as the Host Target we want to deploy our Metric Extension

Next press [Submit]

After the deployment has finished successfully (just refresh the page to see the operation has completed), we want to check if everything is as expected.
From the Targets menu select Hosts and select Host “em12c.mycorpdomain.com”

From the Host Menu we navigate Monitoring → All Metrics
Here we will notice the Metric Extension “Agent cpu Utilization (%)” we just deployed.

**Publish**

Now we know the Metric Extension is fully tested and ok we could decide to publish the Metric Extension, so others can use it.

Again from the Enterprise Menu navigate Monitoring → Metric Extensions
Select the Metric Extension and from the Action Menu select “Publish Metric Extension”

Next we will notice that the Status has been changed to “Published”, meaning that it can be used in Monitoring Templates or directly from the list of published Metric Extensions.

Reference
Youtube:
Oracle Enterprise Manager 12c: Metric Extensions Part I – Deploy Metric Extensions
Oracle Enterprise Manager 12c: Metric Extensions Part II – Deploy Metric Extensions