Availability Monitoring using Http Ping
With SAP Solution Manager 7.1

Introduction: This document describes how you can set up Http Ping metrics to monitor any URL. This is especially useful if you want to monitor 3rd party components which can be reached via a http call. SAP provides two generic Http Ping data collectors which can be used for this purpose. This document describes how to set up generic Http Ping monitoring and which options you have, when using the SAP delivered data collectors.

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PREREQUISITES

Install Diagnostics Agent and SAP Hostagent

The Http ping is performed locally by the Diagnostics agent that is installed on the host for the 3rd party application. Therefore it is necessary to install a Diagnostics agent on the 3rd party host.

Please refer to SAP note 1448655 for the installation guide for the Diagnostics agent. The SAP Hostagent is usually installed together with the Diagnostics agent. If you want to install the SAP Hostagent separately please refer to SAP note 1031096.

Create a technical system in Solution Manager

If your managed system is a non-SAP system and doesn’t have SLD data suppliers that make sure it is created in LMDB automatically, you will have to create a technical system in LMDB manually. How to create a non-SAP system in LMDB is described in the guide “Creating Unspecific Cluster Systems for TechMon and BPMon in LMDB” under http://wiki.scn.sap.com/wiki/display/TechOps/System+Monitoring+-+How-to+Guides

URL MONITORING USING SIMPLE HTTP PING

The first example is a simple Http ping of a website. The ping is considered successful if we receive a http status code < 400 from the called website. For this simple ping we use the data collector SAP Ping Http Generic.

In case the http ping can be done without authentication you can directly jump to chapter “Setup the Custom Metric”.

In case the http ping requires authentication or you want to ping a host which does not belong to your system you need to create an own data collector template first as a copy of the existing one. This is described in the chapters “Monitoring URLs that require Authentication (optional)”. After performing the optional steps you can create the custom metric as described below.

Setup the Custom Metric

Once you have set up all prerequisites, you can now create your custom metric. Create a custom template for your system. If you have a non-SAP system, create a template under “Generic Product Version”.

Switch to “Expert Mode”
And create a new metric

Enter the required parameters. Set the parameter to “Availability”

Select you previously created data collector and enter the port and the URL. You can also enter the protocol. Http is the standard protocol, if you want to use https, you have to enter it here.
If you want to use authentication, set the value for `USE_AUTHENTICATION` to TRUE.

Set the threshold to already rated. The data provider will provide the following rating:
- `http status code < 400` → green rating
- `http status code >= 400` → red rating

Enter a technical name and press “Next”

Press “Finish” as there are no custom alerts yet.

Don’t forget to save the template!

To be able to actually use the metric you have to create a custom alert.
Make sure the category is Availability again. Otherwise you will not be able to assign the metric to the alert.

The only other thing you have to do is enter a technical name.

Click “Next” and select you previously created metric from the list.

Click Finish and save the template.

Now you can apply and activate the template for you non-SAP system. In step “Define Scope” select your non-SAP system from the list and click “Next” while it is selected,
Assign your template to the non-SAP system. In the example we created the template on instance level.

Result
After successful activation of the monitoring template you can see the result in the System Monitoring application.
Monitoring URLs that require Authentication (optional)

Create own Data Collector Template

The SID is needed to identify the communication user in case you have to use authentication on the URL you are pinging. Without the SID it is not possible to provide another user than the ABAP/JAVA communication user for authentication. Unfortunately the data collector “SAP Ping Http Generic” does not replace the SID correctly, so you need to create your own data collector template which correctly replaces the SID parameter.

Call the maintenance for the Data Collector templates:
http(s)://<solman-host>:<solman-port>/sap/bc/webdynpro/sap/wd_mai_dpc_main

Select Diagnostics Agent (Push) collector type.

Select the SAP Ping Http Generic collector and press copy

Enter the necessary information. Make sure that the Collector ID of your custom Data Collector template starts with ZZ. Otherwise it will be overwritten with the next monitoring content update.
On the Parameters step select the SID parameter and press the “Entry one page up” button to be able to change the parameter value.
Enter $T_SYSTEM_SIDS$ in the column Predefined Value.

Press the “Entry one page down” button to transfer your changes.

Press “Next step” and save your new DC template in the last step.
After saving you find you DC template in the list of the available templates.

Maintain Log-on Information on Agent Level

If you want to ping a website that requires a log on, you have to maintain the log on information for the website on diagnostics agent level. If authentication information should be used is determined by the parameter `USE_AUTHENTICATION`. The parameter can have these values:

- **FALSE** [default]: check is done without using credentials
- **TRUE**: take credentials from `<SID>/sapj2ee/com/user` and `<SID>/sapj2ee/com/pwd`
- **ABAP**: take credentials SMDAGENT_<SolMan SID>
- **J2EE**: take credentials SM_COLL_<SolMan SID>

To create a communication user for your non-SAP system open the Diagnostics Agent administration. You can do this via the URL `http(s)://<solman-host>:<solman-port>/smd/AgentAdmin`. Switch to the tab “Application Configuration” and select `com.sap.smd.agent.application.global.configuration`

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¹ The users for ABAP and J2EE are created during the managed system setup if your managed system is an ABAP, SAP J2EE or dual stack system. For non-SAP systems these users are not created automatically.
In the scope field select the agent which is installed on the host on which your non-SAP system is running on. If you want to ping a remote host, select the agent which will run the HttpPing for the remote system.

Switch to edit mode and add the parameters `<SID>/sapj2ee/com/pwd` and `<SID>/sapj2ee/com/user`, where SID is the SID of your Unspecific Cluster System in LMDB which represents your non-SAP system. In our example the non-SAP system is called SAS.
Your new properties will show up at the end of the list. Save your changes.
Creating a Data Collector template for remote URLs (optional)

If you want to ping an URL on which host you cannot install SAP agents, e.g. the URL from an external partner, you can do this by calling the URL from a Diagnostics agent installed somewhere in your landscape. This can be the agent from Solution Manager or from the managed system that has to connect to the external URL.

To ping an external URL you have to create a custom DC template for each external URL. The reason is that the host name is a Collector Context Parameter (CCP). This parameter type cannot be changed during the metric setup in the monitoring template. You also cannot change the parameter type to something more convenient, as the data provider implementation expects certain parameter types.

So the only way is to create a DC template with a predefined hostname.

<table>
<thead>
<tr>
<th>Parameter Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Name: **</td>
</tr>
<tr>
<td>Display Name: **</td>
</tr>
<tr>
<td>Type: **</td>
</tr>
<tr>
<td>Description: **</td>
</tr>
<tr>
<td>Extented Context:</td>
</tr>
<tr>
<td>Mandatory:</td>
</tr>
<tr>
<td>Sequence:</td>
</tr>
<tr>
<td>Usage: **</td>
</tr>
<tr>
<td>Accept Ranges:</td>
</tr>
<tr>
<td>Accept Wildcards:</td>
</tr>
<tr>
<td>Predefined Value:</td>
</tr>
</tbody>
</table>

This way the host name parameter will not be overwritten with the hostname of the host the agent is running on during the configuration of the monitoring.
URL MONITORING USING HTTP PING WITH RESPONSE

The simple Http Ping always returns only the Http status code and a status message. If you want to do some more intelligent monitoring, e.g. checking if the website is not only up and running, but checking if a certain content is available (via a regular expression), then you have to use the data collector SAP Ping Http Response Generic (Push).

In case you want to do more sophisticated checks on the http response you have to use the End-User Experience Monitoring.

This data collector returns not only the return code but also the content of the website as string.

For example we want to monitor the SLD of our system is running and not stopped. So we need to search for the string “Running” on the website we ping. Because this website is reachable even if the SLD server is stopped.

If we use the SAP Ping Http Response Generic (Push) data collector to ping this website it will return the status code in square brackets and the content as string, e.g. [200] <content>

For the website above, this would be the returned content.
We are interested in the string “Running” in this content, which is located in line 71.

To set this up, we will create a new metric using this data collector and set up a text threshold that filters for the string “Running”.

Create a new metric. Make sure you set the data type to String.

Luckily in this case the data provider template is maintained correctly and we don’t have to create an own one.
For the data collection, select the data collector SAP Ping Http Response Generic (Push) and add the URL. Again we need to authenticate against the website to be able to monitor it.

Set up the text thresholds. You can also set them up as regular expression if you want to.

Enter a technical name for the metric and click “Next”.
In the next step you assign the metric to a custom alert of the same category. If there is no alert available you have to create one. In our example I will assign the second metric to the alert I created for availability before.

To reduce the size of the response you can also restrict the content to the header information of the website only, if the header information contains the information you need. This is useful if you only want to monitor meta-information written in the response header, without having to retrieve the whole content.

To retrieve only the header information use the option HEAD instead of GET for the parameter METHOD.

**Using POST option**

With the POST option you can send a request to the website and receive the corresponding response if the backend logic of the website can process your request. The response would be the HTTP status code in square brackets and the response from the website on your request.

This can be useful if you want to send a request to a web service that you might use to monitor your non-SAP application.

The format of the POST payload depends on the format the website can process. This could be for example an XML string.

**Result**

After applying the template you can see the result in the system monitoring application.
In case the application is not available an alert will be generated in alert inbox.
APPENDIX

Known Restrictions

Please be aware that the diagnostics agents do not support external or internal redirects. You always have to provide the full target URL.

Example: The URL /sap/admin of the SAP Webdispatcher Administration GUI has an implicit internal redirect to /sap/admin/public/default.html. Though, using the URL /sap/admin alone will not work, even if you can use it in the browser. You have to provide the full URL /sap/admin/public/default.html for your monitoring.