Using Azure Lighthouse and Azure Monitor for SAP Solutions to view SAP telemetry across Multiple Tenants

Azure Lighthouse

Today as customers are accelerating their journey to the cloud it brings new opportunities for the service providers, instead of hosting customers in their data centers they can now host multiple customers on Microsoft Azure. Azure Lighthouse allows for increases in operational efficiencies by allowing the service providers and their customers to simplify credentials management and aggregate information across customer environments.

Today Service Providers often have credentials in the customers environments (Tenants) which they use to logon and manage the customers infrastructure, the consequence of this is that in order to manage another customers environment the service provider’s technician will need to re-authenticate with the credentials they are given to the new customer. With Azure Lighthouse it is possible to reduce the context switching by providing delegated access to the customer environment using the Service Provider’s credentials and not the customer specified credentials.

Another benefit with the delegated resource management provided by Azure Lighthouse is that it allows for aggregation of information across tenants. A service provider can create a dashboard that shows information across tenants allowing them to get a comprehensive view of all the environments in one place. For more info see What is Azure Lighthouse?

Azure Monitor for SAP Solutions

With Azure Monitor for SAP Solutions, customers can collect telemetry data from Azure infrastructure and databases in one central location and visually correlate telemetry data for faster troubleshooting.

Azure Monitor for SAP Solutions builds on native Azure capabilities like Log Analytics and Workbooks to meet the monitoring needs. The solution also allows for easy creation of custom visualizations and custom alerting. Azure Monitor for SAP Solutions ships with default Workbooks than can either be used out of the box or extended to meet your requirements.

Combining Azure Monitor for SAP Solutions with Azure Lighthouse a service provider can monitor the metrics of their SAP Solution using native Azure tooling and aggregate that across tenants. For more info see Azure monitor for SAP solutions and Building Azure Monitor for SAP Solutions
Integrating Azure Monitor for SAP Solutions and Azure Lighthouse

The following section describes how to build a cross tenant Azure Monitor for SAP Solutions implementation that aggregates information to a common dashboard.

Identity delegation

The identity delegation across Tenants can be achieved using Azure Resource Manager Templates that declare the identities and the permissions they are to be given. For more information on this visit the [https://docs.microsoft.com/en-us/azure/lighthouse/concepts/azure-delegated-resource-management](https://docs.microsoft.com/en-us/azure/lighthouse/concepts/azure-delegated-resource-management) page.

In this example we will grant the “Log Analytics Reader” permissions to a specific user. In order to achieve this we will use this ARM template `delegatedResourceManagement.json` and modify this parameter file: `delegatedResourceManagement.parameters.json`. The modified parameter file is shown in Figure 2.

```json
{
  "contentVersion": "1.0.0.0",
  "parameters": {
    "mspOfferName": {
      "value": "Kimmo's Managed Services"
    },
    "mspOfferDescription": {
      "value": "Kimmo's Managed Services"
    },
    "managedByTenantId": {
      "value": "[TenantID]"
    },
    "authorizations": {
      "value": [
        {
          "principalId": "[User's ID]",
          "principalIdDisplayName": "Kimmo Forss",
          "roleDefinitionId": "73c42c96-874c-492b-b04d-ab87d138a893"
        }
      ]
    }
  }
}
```

Figure 1. ARM Template parameter for permissions delegation
The Tenant ID in the template can be read using the following PowerShell command

```
(Get-AzSubscription -SubscriptionName [Name of Service Provider Subscription]).TenantId
```

The User's ID in the template can be read using the following PowerShell command

```
(Get-AzADUser -UserPrincipalName [Service Provider’s users UPN]).id
```

The roleDefinitionId is retrieved from here: [https://docs.microsoft.com/en-us/azure/role-based-access-control/built-in-roles#monitor](https://docs.microsoft.com/en-us/azure/role-based-access-control/built-in-roles#monitor)

The delegation can be deployed by executing the following PowerShell command in the customer subscription (i.e. the subscription that will contain the Azure Monitor for SAP Solutions Log Analytics workspace)

```
New-AzSubscriptionDeployment -Name "Delegation" -Location wesueurope -TemplateFile "./delegatedResourceManagement.json" -TemplateParameterFile "./delegatedResourceManagement.parameters.json"
```

Validating the delegation

You can validate the delegation by navigating to the My Customers blade in the Azure portal and then navigating into the selected subscription.

![Figure 2. Delegated permissions for customer subscription](image-url)
Aggregating information across Azure Monitor for SAP Solution workspaces

Environment description
The demonstration below will consist of an environment for the service provider and an environment for their customer as is shown in Figure 4.

The demo environment has the following Azure Monitor for SAP Solution log analytics workspaces deployed in the subscriptions.

<table>
<thead>
<tr>
<th>Subscription</th>
<th>Workspace</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subscription A</td>
<td>sapmon-log-90345840554cd9</td>
</tr>
<tr>
<td>Subscription B</td>
<td>sapmon-log-8571a6ed7699bb</td>
</tr>
</tbody>
</table>

Table 1 List of the SAP Monitor workspaces
Building the Azure Monitor workbook to consolidate information

You can use an Azure Monitor workbook to create a dashboard to show the pertinent information from the SAP Monitor workspaces.

Navigate to Azure Monitor and create a new workbook and add a query component with the following properties.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source</td>
<td>Azure Resource Graph</td>
</tr>
<tr>
<td>Subscriptions</td>
<td>Choose the relevant subscriptions</td>
</tr>
<tr>
<td>Size</td>
<td>Tiny</td>
</tr>
<tr>
<td>Query</td>
<td>`Resources</td>
</tr>
</tbody>
</table>

Table 2. Query settings for listing the workspaces

Note that you can distinguish the SAP Log Analytics workspaces from all the other workspaces by including the tags contains('SapMon') tag.

Click the Run Query to validate that you see both workspaces.

![Figure 4. List of workspaces](image)

Click Done Editing and save the workbook.

Joining information from two workspaces

In the next step you will dynamically join information from two SAP Log Analytics workspaces.

On the workbook page Add a new parameter. Configure the parameters with these settings:
### Table 3. Parameter settings

<table>
<thead>
<tr>
<th>Parameter name</th>
<th>Type</th>
<th>Query</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host</td>
<td>Drop down</td>
<td>SapHana_LoadHistory_CL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TimeRange</th>
<th>Time Range Picker</th>
<th>Choose the relevant time ranges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Granularity</td>
<td>Drop down</td>
<td>[JSON] [</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{ &quot;value&quot;:&quot;1m&quot;, &quot;label&quot;:&quot;1 Minute&quot;, &quot;selected&quot;:false},</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{ &quot;value&quot;:&quot;5m&quot;, &quot;label&quot;:&quot;5 Minutes&quot;, &quot;selected&quot;:false},</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{ &quot;value&quot;:&quot;15m&quot;, &quot;label&quot;:&quot;15 Minutes&quot;, &quot;selected&quot;:true},</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{ &quot;value&quot;:&quot;30m&quot;, &quot;label&quot;:&quot;30 Minutes&quot;, &quot;selected&quot;:false},</td>
</tr>
<tr>
<td></td>
<td></td>
<td>{ &quot;value&quot;:&quot;1h&quot;, &quot;label&quot;:&quot;1 Hour&quot;, &quot;selected&quot;:false}</td>
</tr>
</tbody>
</table>

**Note** You need to update the values in the Host query’s workspace() statements to reflect your Log Analytics workspace IDs. Click Done Editing and save the workbook. Your workbook should now have the parameters that allow you to choose the Hana host.

**Displaying CPU information from the selected instance.**

On the workbook page add a new query with the following parameters.

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Source</td>
<td>Logs</td>
</tr>
<tr>
<td>Visualization</td>
<td>Time Chart</td>
</tr>
</tbody>
</table>

Query:

```javascript
let nodata = datatable(HOST_s:string, avg_CPU_d:real) |
"\N\A", 0;
];

SapHana_LoadHistory_CL | union workspace("sapmon-log-90345840554cd9").SapHana_LoadHistory_CL,workspace("sapmon-log-8571a6ed7699bb").SapHana_LoadHistory_CL |
where TimeGenerated {TimeRange} |
extend p = columnifexists("PROVIDER_INSTANCE_s", ") |
where HOST_s in ("{Host}" or ") in ("{Host}")```
| summarize avg(CPU_d) by HOST_s, bin(TimeGenerated, {Granularity}) | union isfuzzy=true nodata where HOST_s <> "N\A"

Table 4. Query settings for displaying the CPU information

**Note** You need to update the values in the Host query’s workspace() statements to reflect your Log Analytics workspace IDs.

Click Done Editing and save the workbook, your workbook should now have a graph showing the CPU information of the Hana host.

![Graph showing CPU information of selected node](image)

**Figure 6. CPU information of selected node**

**Summary**

Combining Azure Monitor for SAP Solutions and Azure Lighthouse will provide operational efficiencies for organizations that need to manage and monitor environments across subscriptions/customers by eliminating the need of changing credentials / context when reviewing the different environments.

Azure Monitor for SAP Solutions will allow customers and service providers to build the dashboards they need to monitor not just their SAP on Azure infrastructure but other relevant Azure resources as well.