How to connect a customer system located in the SAP HANA Enterprise Cloud to an on premise SAP Solution Manager
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You want to connect your SAP HANA Enterprise Cloud (HEC) system to your on premise SAP Solution Manager. As you don’t have OS level access and you cannot install the required agents by yourself it is not clear to you how to achieve it.

This guide describes the HEC landscape specifics you need to know. It guides you through the process of when to request what from the Technical Landscape Owner (TLO) on HEC side and which information you need to provide the TLO.

It is not intended to replace existing guides and descriptions for managed system configuration, technical monitoring setup or any other configuration/customizing activity in SAP Solution Manager.

Your TLO can only do the OS level / configuration activities once you have order a specific HEC Service. See section 2.2 for further details.

1 LANDSCAPE OVERVIEW

The picture above shows an abstracted HEC landscape with all components involved in the connection procedure of a managed system. Additional components like Wily Introscope on customer side or SAP Focused Run for SAP Solution Manager on HEC administration side exist but they are left out by purpose as they are not relevant for the connection procedure and to keep it simple.

On customer side only the SAP Solution Manager and the System Landscape Directory (SLD) which is connected to the Landscape Management Database (LMDB) of SAP Solution Manager are relevant. Your managed systems are located in the HEC customer network segment. The picture shows the hosts with the managed systems and its required agents. The grey boxes show the components used by the HEC operations.

The Customer Management Server hosts the Introscope Enterprise Manager used for the customer systems located in the HEC customer network segment. Additionally on the Customer Management Server the Simple Diagnostics Agent is enabled as SLD Router.

The following sub-chapter point out some HEC specifics which are given and cannot be changed.
1.1 SLD Data Suppliers

All SLD data suppliers of the managed systems, located in the HEC customer network segment, need to report their data to the SLD Router on the Customer Management Server. Connection the SLD data supplier directly to the SLD on customer side is not allowed.

HEC operation uses SAP Focused Run for Solution Manager. Due that they also need to have the landscape information of the managed systems which is reported into the SLD. In case the customer SLD would be fed directly by the SLD data supplier, the HEC SAP Focused Run would have no access.

1.2 Diagnostics Agents

There needs to be a Diagnostics Agent and a SAP Hostagent on every physical/virtual host in order to connect the managed system to your on premise SAP Solution Manager.

Normally there is already the SAP Hostagent which is used by the HEC SAP Focused Run (grey boxes in the picture above) in place. Inside of the SAP Hostagent there is also a plugin deployed to serve as agent for the HEC SAP Focused Run system called “Simple Diagnostics Agent”.

For the on premise SAP Solution Manager, the TLO on HEC side needs to install a Diagnostics Agent and connect it to your on premise SAP Solution Manager.

In order to handle the logical hostname used for your managed systems, the “agent on the fly” functionality needs to be configured in the on-premise SAP Solution Manager.

The naming convention for the Diagnostics Agent is the following:
System ID = DAC → Diagnostics Agent used by your on premise SAP Solution Manager

1.3 Introscope Agents

All Introscope agents located in the HEC customer network segment need to report their data to the Introscope Enterprise Manager located on the Customer Management Server. Depending on your managed system types there are different Introscope agents:

- The Introscope Hostadapter runs as an application on the Diagnostics Agent and is always there.
- In case of a Java based system there can be a Java Bytecode Agent.
- In case of a .NET based system there can be a .NET Bytecode Agent.

As HEC operation uses SAP Focused Run, therefore they also need to access the Introscope data. This would not be possible in case the Introscope agents would report their data to your on premise Introscope Enterprise Manager.
2 INFRASTRUCTURE PREREQUISITES
Before you can start with the Managed System Configuration for one of your HEC systems there are some infrastructure prerequisites which need to be fulfilled. Due the HEC landscape specifics there are some activities which you cannot do on your own. You need a close cooperation with the TLO on HEC side to achieve these prerequisites. The following sub-chapters provide the details about who has to do what.

2.1 SAP Solution Manager
Your on premise SAP Solution Manager needs to be on release 7.2. The Support Package Stack of the system is not relevant but as rule of thumb the higher the better. In addition on your on premise SAP Solution Manager the System Preparation and Basic Configuration already needs to be executed. The technical monitoring for your Solution Manager itself needs to be configured.

2.2 Order HEC Service OP52 “Setup Monitoring with Customer’s Solution Manager”
The OS-level and configuration activities which need to be done by the TLO are additional efforts which are not included in the SAP responsible HEC Standard Services. You need to order the optional HEC Service OP52 “Setup monitoring with Customer Solution Manager”. To order it get in touch with you Customer Engagement Service Manager (CESM) who will then coordinate the needful steps.

2.3 SLD Connectivity

As you have seen above all managed systems in the HEC Customer Network Segment report their landscape information to the SLD Router located on the Customer Management Server. This is a component of SAP Focused Run, which is operated by HEC. As this SLD Router does not serve as SLD server, the data supplier content received by the SLD Router must be forwarded into the on premise SLD connected to the on premise SAP Solution Manager to bring the landscape information to your on premise SAP Solution Manager. To achieve this do the following:

- Contact your Technical Landscape Owner (TLO) on HEC side and asking him to setup the SLD Bridge to your on premise SLD. Therefore you need to provide the following information:
  a. Hostname and HTTP port how your on premise SLD can be reach from the HEC Customer Network Segment.
b. User/Password on your on premise SLD which has the authorizations to write data. This user needs to have the role SAP_SLD_DATA_SUPPLIER. For details see also: http://help.sap.com/saphelp_nw70/helpdata/en/43/ce62c162cd0cd4e10000000a1553f7/cont

In case the landscape information does not show up correct in the LMDB of your Solution Manager after the managed system data supplier was triggered, the TLO needs to check it in the SLD located on the Communication Server.

2.4 Diagnostics Agent Connectivity

On every physical/virtual host you need to get a Diagnostics Agent installed and connected against your on premise SAP Solution Manager. As you don’t have OS level access this needs to be done by your Technical Landscape Owner (TLO) on HEC side. To achieve this do the following:

- Contact your TLO on HEC side and ask him to install the customer Diagnostics Agents for the managed systems you want to connect. After the Diagnostics Agents are installed they need to be connected against you on premise SAP Solution Manager. Therefore you need to provide your TLO the following:
  a. Hostname and J2EE message server HTTP port (this is normally 81<SolMan Java SCS instance number>) of your on premise SAP Solution Manager
  b. User/password of a user which is should be used for the diagnostics agent connection. By default the SMD_AGT user is generated in the Basic Configuration. We recommend using a different used for the Diagnostics Agents located in HEC. So either copy the existing SMD_AGT user or check in the SAP Solution Manager 7.1 Security guide for the authorization details of this user (search in the document for “SMD_AGT”) , in case you want to create it manually. You find the security guide here:
     https://service.sap.com/instguides  “SAP Components”  “SAP Solution Manager”  “Release 7.1”  "4 Operations"

Once the agents are installed on the physical/virtual host you have to perform the agent on-the-fly configuration to get Diagnostics Agent Nodes started for the logical hostnames on every physical/virtual host. In case you don’t know the relation between the physical/virtual host and the logical hostname get in touch with your TLO on HEC side. He can provide you this information.

For details of the agent on-the-fly configuration you can check the following document:
http://wiki.scn.sap.com/wiki/display/SMSETUP/Home  “7.10 SP10” section on the left side  “Agents On-the-fly and Agent Administration UI improvements with 7.1”
2.5 Introscope Enterprise Manager Connectivity

All Introscope agents located in the HEC customer network segment report their data to the Introscope Enterprise Manager located on the Customer Management Server. In order to consume this data from your on-premise SAP Solution Manager you need to configure the connectivity to this Introscope Enterprise Manager. To achieve this do the following:

- Contact your TLO on HEC side and ask him to install the customer Diagnostics Agent on the Customer Management Server
- Ask your TLO on HEC side for the following information:
  a. Physical/virtual hostname of the Customer Management Server
  b. Logical hostname (in case there is one configured)
  c. Installation path of the Introscope Enterprise Manager (theoretically this should be /usr/sap/ccms/apmintroscope)
- You need to configure agent on-the-fly for the Diagnostics Agent on the Customer Management Server (for details see the “Diagnostics Agent Connectivity” chapter above).
- Add the Introscope Enterprise Manager in the SAP Solution Manager Configuration (transaction SOLMAN_SETUP) → Basic Configuration → Configure CA Introscope
  a. Use the “Discover Introscope EM” functionality, select the Diagnostics Agent and provide the Introscope Enterprise Manager installation path. Both information (the correct name of the DAC agent and the correct installation path) needs to be provided to you by the TLO.
b. Once the Enterprise Manager is discovered you need to adapt the hostname. By default the Enterprise Manager discovery detects the HEC hostname which is not reachable from customer side. When you are in edit mode and click into the “Host” field in the Enterprise Manager table you can directly change the hostname. You need to use the hostname of the Enterprise Manager which is reachable from your customer network. Your TLO needs to provide you this hostname:

To finalize it you need to provide a user to read data:

- Once you have added the Introscope Enterprise Manager in the SAP Solution Manager Configuration you need to re-execute the “Push DPC Configuration to CA Introscope” in the “Basic Configuration” → “Configure Automatically” step.
3  MANAGED SYSTEM SETUP

Once the infrastructure prerequisites are fulfilled the managed system configuration of a system located in HEC works nearly the same way as for an on premise system. The setup sections which require special attention are covered in the following sub-chapters. Further details on the managed system configuration you find here: http://wiki.scn.sap.com/wiki/display/SMSETUP/Home → “7.10 SP10” section on the left side → “Basic and Managed System Configuration with 7.1”

3.1  Introscope Enterprise Manager Configuration

As you have seen before all Introscope agents located in the HEC customer network segment need to report to the Introscope Enterprise Manager located on the Customer Management Server. Therefore you need to make sure that in the “Managed System Configuration” → “Enter System Parameters” step you always select the Introscope Enterprise Manager on the Customer Management Server.

3.2  Introscope Bytecode Agent Configuration

The Introscope Bytecode Agent can report its data to only one Introscope Enterprise Manager. So it has only one configuration set. As HEC operation also uses an SAP Solution Manager the Introscope Bytecode Agent can be configured from two sides and the last setup wins. This means for the Introscope Bytecode Agent setup you need to get in touch with your TLO on HEC side to align on the following topics:

- For systems of type JAVA the high availability setup of the Introscope Bytecode Agent needs to be enabled in the “Managed System Configuration” → “Enter System Parameters” step and you need to make sure that the same deployment patch is used.
• For the systems of type JAVA the Byte Code Adapter Installation activity status needs to be set to “Manually Performed” in the “Managed System Configuration” → “Finalize Configuration” step. By doing this you avoid that you overwrite by mistake the Byte Code Adapter configuration which is already done by HEC and HEC is responsible for.

3.3 DBA parameters for HANA DB

When setting up a HANA DB system, the monitoring user you create for this purpose needs to be called CUST_MONITOR.