Inventory and analysis

SNMP

TITLE	Inventory and analysis
AUTHOR	Docusnap Consulting
DATE	6/8/2022
VERSION	2.1 | valid from June 3, 2022

This document contains proprietary information and may not be reproduced in any form or parts whatsoever, nor may be used by or its contents divulged to third parties without written permission of Docusnap GmbH. All rights reserved.

CONTENTS

1. INTRODUCTION 4
2. INVENTORY 5
2.1 REQUIREMENTS 5
2.2 REQUIREMENTS CISCO SNMPV3 6
2.3 SNMP INVENTORY WIZARD 7
2.3.1 SNMP V1 / V2 7
2.3.2 SNMP V3 8
3. ANALYSIS 10
3.1 INVENTORIED DATA 10
3.2 TOPOLOGY MAP 11
3.2.1 TOPOLOGY MAP – OPTIONS 14
3.3 VLAN MAP 16
3.4 REPORTS 17
4. TABULAR VIEWS 18
4.1 ADJUSTMENTS 19
4.1.1 EDIT SWITCH - CONFIGURE MANUAL CONNECTIONS 19
4.1.2 MAC FILTER 21
5. DATA PREPARATION 23
5.1 AUTOMATICALLY ASSIGN SNMP TYPES 23
5.2 MANUALLY ASSIGN SNMP TYPES 25
5.3 DEFINE OWN SNMP TYPES 27
5.4 INTEGRATING MANUALLY CREATED DEVICES 29
5.5 EFFECTS OF ADJUSTMENTS 29
6. EXTENSION 30
6.1 INTEGRATE MANUFACTURER-SPECIFIC MIBS 30
6.1.1 EVALUATE DATA 34
7. SNMP TROUBLESHOOTING - CHECKLISTS 36
7.1 CHECKLIST - SNMP INVENTORY NOT POSSIBLE 37
7.2 CHECKLIST - MISSING TOPOLOGY INFORMATION 38

1. INTRODUCTION

Active network components such as switches can be captured using the SNMP inventory with Docusnap. In this document the topic SNMP is described comprehensively, so that not only a complete inventory, but also an appropriate preparation of the collected information is possible.

The SNMP inventory supports SNMPv1, SNMPv2c and SNMPv3. Various predefined MIBs are queried, such as the Printer MIB or the RFC1213 MIB.

The collected data can then be displayed in the form of reports (text form) or maps (graphic formats such as topology and VLAN maps).

You can use the SNMP Inventory for the following purposes:

- Inventory and documentation of network components
- Carry out evaluations of which systems can be found on which switch, port and VLAN

2. INVENTORY

2.1 REQUIREMENTS

The following prerequisites must be fulfilled in order to carry out a successful SNMP inventory.

- SNMPv1, SNMPv2c or SNMPv3 must be supported and activated on the system to be inventoried.
  - When using SNMPv1 or SNMPv2c at least one Read Community String must be used.
  - When using SNMPv3, appropriate authentication data must be used.
- For a complete representation of the topology, one of the two protocols must be uniformly activated on the switches:
  - Cisco Discovery Protocol (CDP)
  - Link Layer Discovery Protocol (LLDP)
  - Fallback - Spanning Tree (STP)
- All relevant IP ranges must be known

If not all systems can be inventoried despite the prerequisites described above, the following must be checked:

- If the requests are blocked by monitoring or other security solutions - e.g. Flooding Protection
- Check IP-address-based access lists
- correctness of the community string

The names of the inventoried SNMP systems are derived from the system name of the devices if this is maintained on the systems. Alternatively, it can be activated in the inventory options that the DNS name is used instead of the system name.

If the system name is not maintained, the IP address is used as the name. For this reason, it is recommended to maintain the system names of the SNMP systems accordingly, since the display with the IP address or the standard SNMP name of the systems may not be very meaningful.

We recommend using the system name instead of the DNS name.

©2022 Docusnap – All rights reserved

2.2 REQUIREMENTS CISCO SNMPV3

For Cisco devices, additional requirements are required if they are inventoried via SNMPv3. If these requirements are not met, the **learned MAC addresses** and **VLAN assignments** may not be read out. This in turn affects the correct display of the topology- and VLAN-map.

You will find the corresponding information on the following pages:

- https://community.cisco.com/t5/network-management/vlan-bridge-mib-and-snmpv3-contexts/td-p/1589698
- https://www.netnea.com/cms/2015/01/09/netdisco-with-snmp-v3-and-cisco/
- https://community.cisco.com/t5/network-management/bridge-mib-with-snmp-v3/td-p/1179194

We do not assume any liability for the correctness of the contents of the previously linked websites.

2.3 SNMP INVENTORY WIZARD

The inventory wizard for the SNMP inventory is described below. It is divided into one step for SNMPv1 / SNMPv2c and SNMPv3.

2.3.1 SNMP V1 / V2

For the SNMPv1 / SNMPv2 inventory, the IP areas to be inventoried and a corresponding community string must be specified. If there are devices with different community strings in the IP range, this IP range must be added several times. Docusnap will try to ping the system and inventory it with the community string. If the devices, for example for security reasons, do not respond to a ping, it is possible to deselect this system availability check.

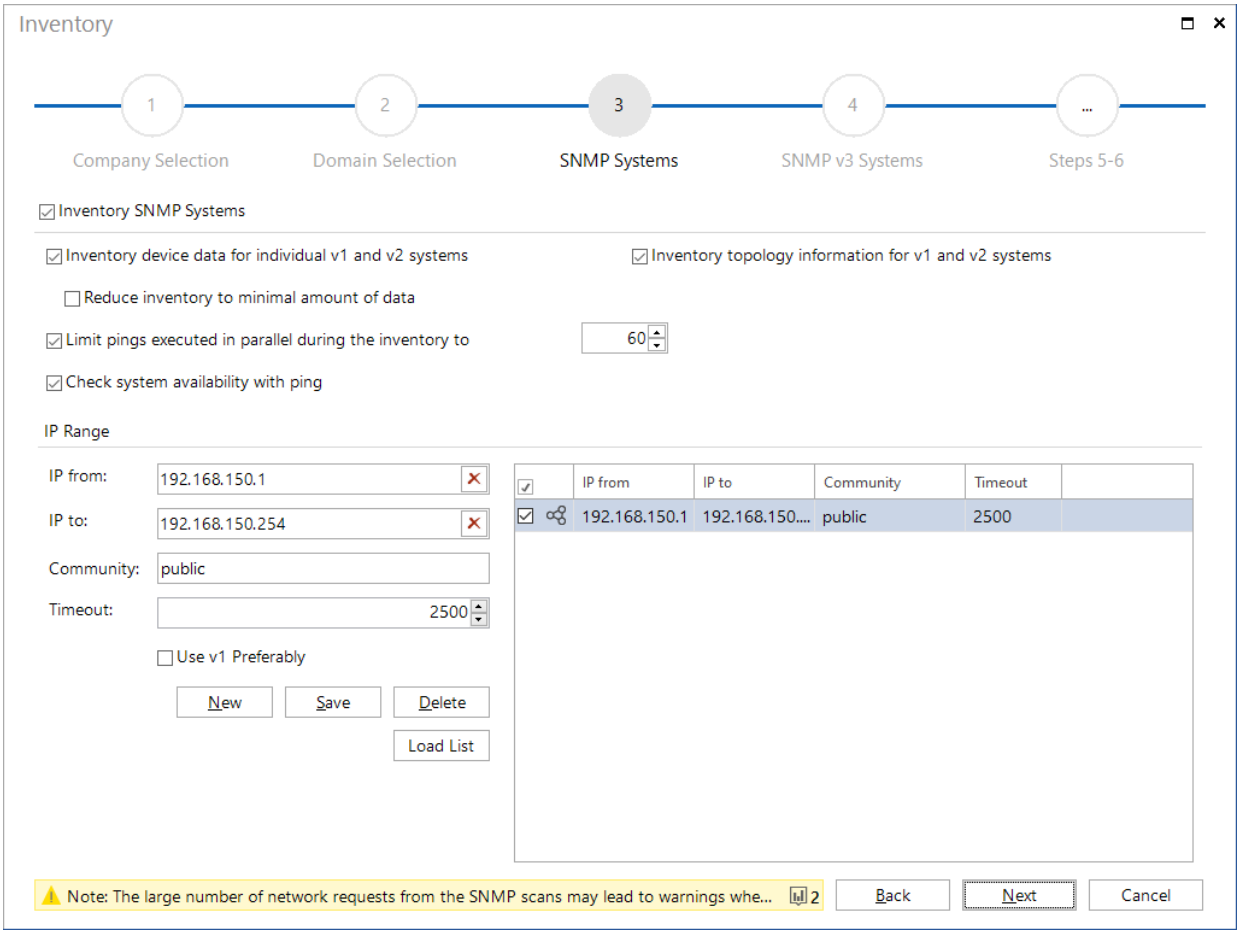

Fig. 1 - SNMP Inventory - SNMP v2c

For many networks that need to be inventoried, it is recommended to create a CSV file and import it using Load List.

Extract of a usable CSV file:

The following CSV file describes the following values: IP from, IP to, Community and Timeout

```
192.168.150.1;192.168.150.254;public;2500
```

To avoid problems with ICMP Flooding Protecting, the number of parallel pings can be reduced using the corresponding function.

Furthermore, the **timeout settings** should be observed if Cisco devices are in use. If you cannot reach all systems here, it is advisable to increase the timeout. This is necessary because Cisco devices sometimes do not respond to requests immediately.

2.3.2 SNMP V3

For the SNMPv3 inventory, the host name or the corresponding IP address must be entered. Additionally, a corresponding authentication must be used. This authentication data can also be applied to all other SNMP systems.

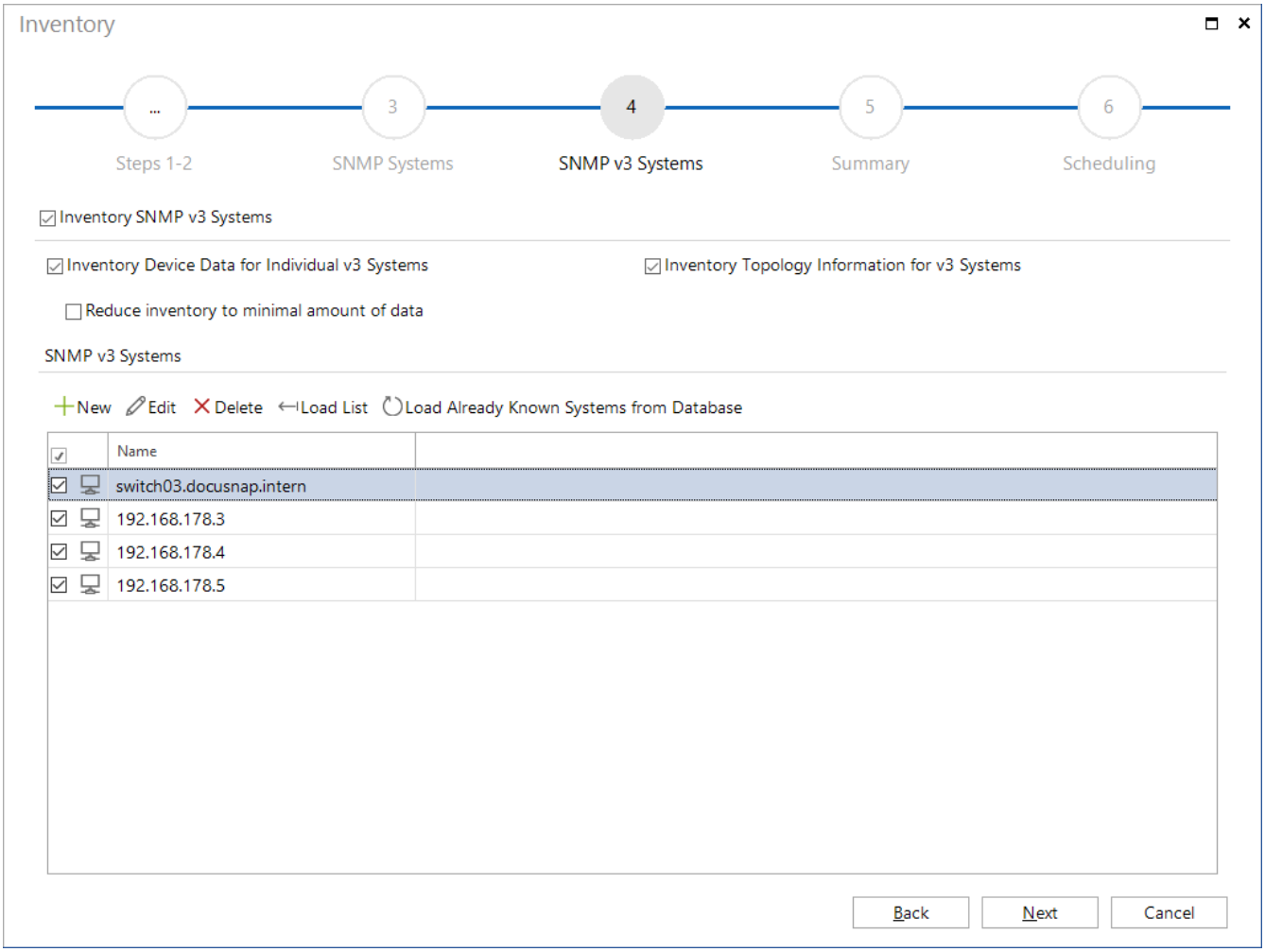

Fig. 2 - SNMP Inventory - SNMP v3

For many SNMPv3 systems it is recommended to import them via the **Load List**. In this CSV file, not only the hostname or IP address can be transferred, but also the necessary login data.

Note: Unlike SNMPv1 and v2c, SNMPv3 does not perform a system reachability check by ping, but immediately establishes an SNMP connection. The reason for this is that individual systems are specified for SNMPv3 - for SNMPv1 and v2c, each with ranges.

Extract of a usable CSV file:

The following CSV file describes the following values:

- System name or IP;
- USM user;
- Auth algorithm;
- Auth password;
- Privacy algorithm;
- Privacy password:
- Context name
- Timeout

```
switch03.docusnap.intern;Docusnap;SHA;secret;DES;secret;context;2500
192.168.150.3
192.168.150.4
192.168.150.5
```

In this CSV file only the login data of the first device was stored. This means that the credentials are automatically used for the other devices if no new credentials are entered.

3. ANALYSIS

3.1 INVENTORIED DATA

The inventoried data can be viewed via the data explorer / data tree following the inventory. Navigation is via

- Your Company - Infrastructure - Your Domain - SNMP Systems

The inventoried SNMP systems are now listed by device type.

The device type of systems found under General could not be identified by Docusnap. You can manually assign a type to these systems. Through these assignments all devices will be automatically assigned to the type in the future - this is described in 4.1 SNMP TYPES.

The inventory of the SNMP systems is carried out via standard MIBs. Since SNMP is based on a standard, parts of the inventoried information across all systems are the same. For example, general information such as system name, IP address, location, contact, and description.

In addition to these standard MIBs, device specific MIBs are also used, e.g. for printers and switches, which retrieve standard information on these device types. For printers it is the printer and toner information.

You can also add manufacturer-specific MIBs to the SNMP information and thus inventory detailed information on SNMP devices - this is described in 5.1 MANUFACTURER SPECIFIC MIBS INCLUDING.

Below each SNMP system is the report Summary SNMP. This report contains all the information collected during the standard inventory for a system.

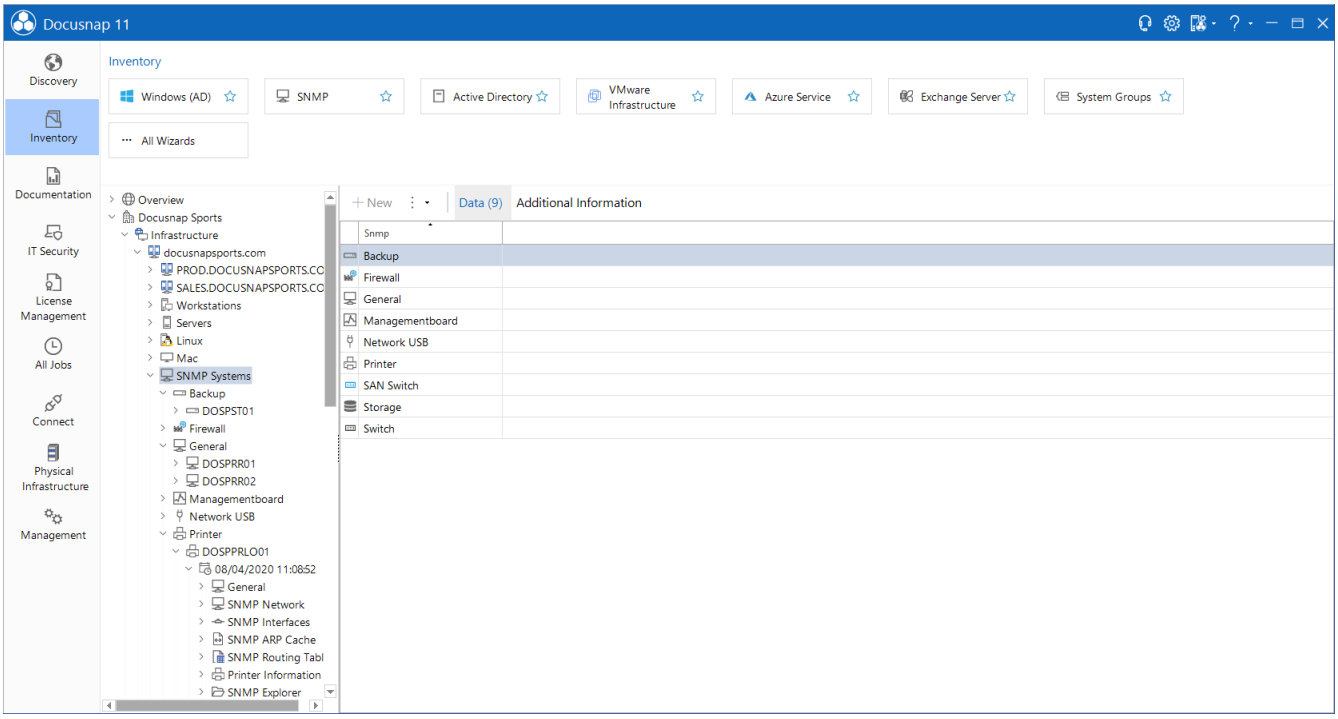

Fig. 3 - List of SNMP systems in the data tree

3.2 TOPOLOGY MAP

Docusnap can inventory the topology of corresponding network devices (switches, routers, etc.). This means that the direct connections of network devices are read and displayed in the topology map. In addition to the connections, the speed and the ports used are displayed. This information can be found in the overview map.

In addition, a port allocation map of switches is created using the ARP cache and displayed in the topology map. You can find this information in the detailed map of a switch.

It is important to note that the topology map only uses the data from the last inventory. Furthermore, the ARP cache of the switches is volatile. This means that the ARP cache cannot be read from ports where the systems are not active. Therefore, the inventory of SNMP systems, especially switches, should be done at "peak times".

The following is a list of which systems etc. are listed in the topology map

- SNMP Switch type devices
- SNMP devices with topology information (CDP, LLDP) - e.g. Access Points
- IP systems and MAC addresses recognized by switches via LLDP and CDP information
- Generally, devices which are redundantly plugged into more than one switch
- Router

The topology map can be created and exported ad hoc via the tree structure. In addition, the map can also be exported automatically and time-controlled (PNG, HTML, VDX, SVG).

Using the tree structure, you can find the topology map in the following places and in the following versions:

Your Company - Infrastructure - Standard Maps - Topology Map

- Company-wide devices are used for the topology map - across domains

Your Company - Infrastructure - Your Domain - Standard Maps - Topology Map

- Only the devices of the domain are used

Your Company - Assets - System Groups - Your Domain - System Group - Standard Maps - Topology Map

- Only the devices of the selected system group are used

Your company - Locations - Location - Documentation - Topology Map

- Only the devices of the selected and subordinate locations are used

Your company - Infrastructure - Your Domain – Systems (Server, Linux,...) - Documentation - Topology Map

- In a simple graphical representation it is shown to which switch and port the selected system is connected

Your company - Infrastructure - Your Domain – SNMP Systems - Documentation - Topology Map

- The detail map of this switch is displayed

Your company - Infrastructure - Your Domain – System - Documentation - Topology Map

- Topology of the system - Switches to which the system is connected

The following figure shows the topology of the overview map. This map shows the direct connections between the switches:

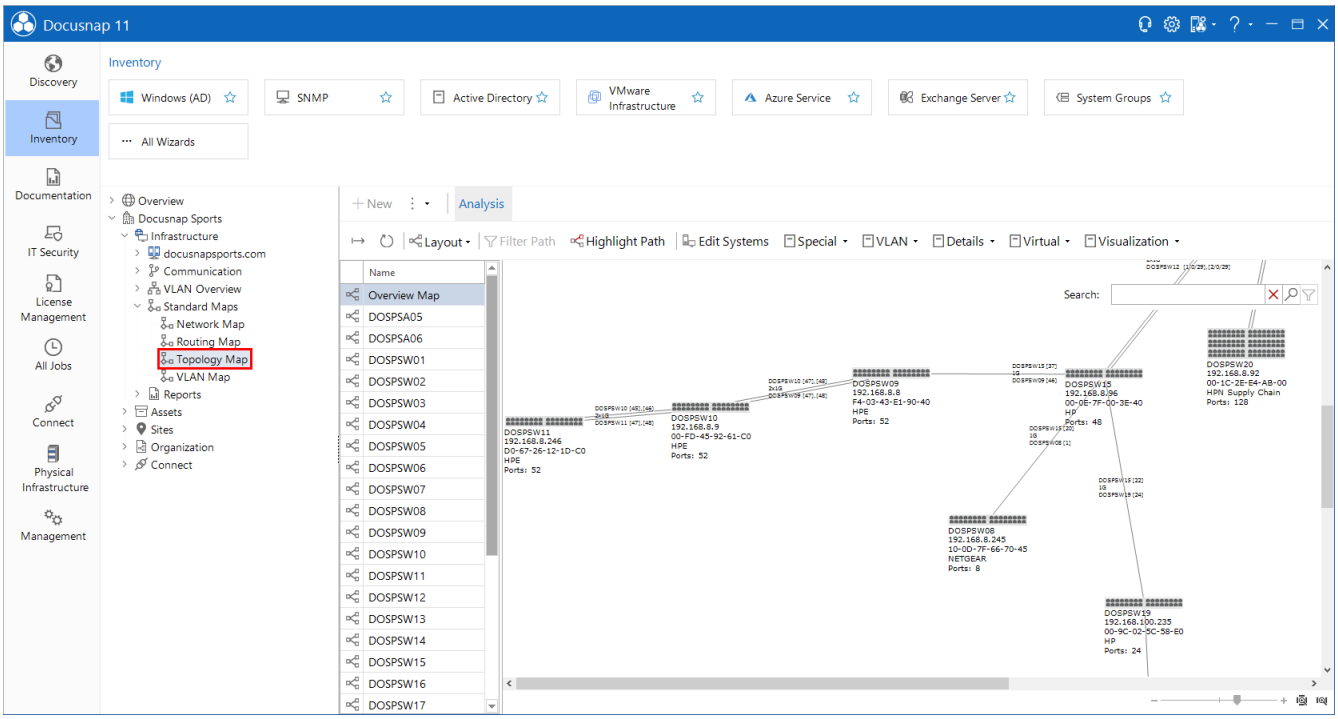

Fig. 4 – Topology Map Overview Map

Furthermore, Docusnap can also analyze whether it is a switch stack. If this is the case, a larger switch symbol is used in the overview map. For reasons of clarity, a maximum of a 3-fold stack is shown as symbol image - further switch details can be taken from the respective detail map.

To the left of the map you can find more tabs. These tabs stand for the switches shown in the overview map. The selection of one of the listed switches opens the detailed map:

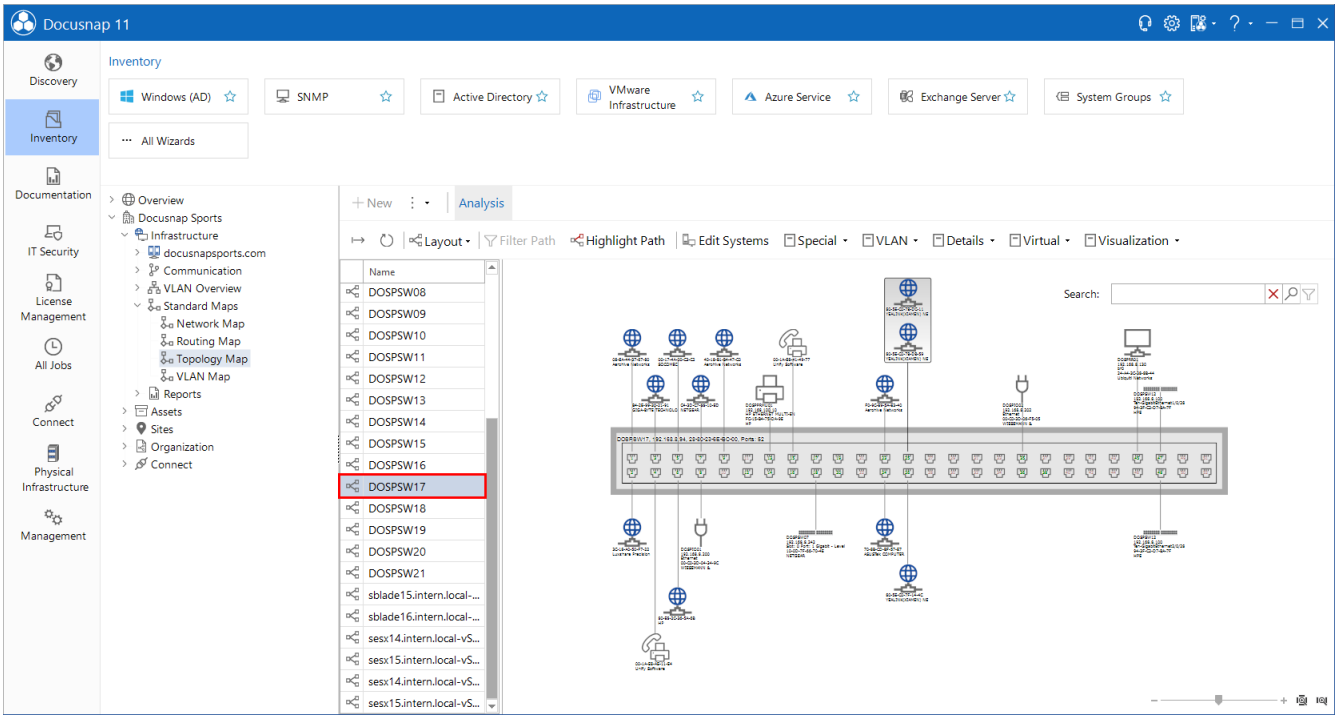

Fig. 5 – Topology map - Switch Overview

The detailed map of a switch resolves the learned MAC addresses of the ARP cache, if the corresponding device has been inventoried and is thus known in Docusnap. If the device is not yet known, only a MAC address and the manufacturer are displayed on the port - this is done via the manufacturer part of the MAC address.

Note:

IT assets that you have documented with network information (especially the MAC address) are also displayed in the topology map.

3.2.1 TOPOLOGY MAP – OPTIONS

After you have opened the topology map, a separate area is available in the action menu.

Within the are you have the possibility to perform further actions regarding the topology map. For example, you can export the map, filter paths. You also have the following options available, which have a direct effect on the map:

Special

Show potential Access Points

- Displays potential access points in the overview map. Potential access points are recognized by CDP or LLDP entries of the switches, which are not available in the Docusnap database.

Show Layer3 Elements

- Layer 3 systems, e.g. routers, are displayed in the overview map.

Show Tunnel Connections

- If a tunnel connection is known via LLDP or CDP, the connection is indicated by this option.

VLAN

Show VLAN Tables

- This option displays the respective VLANS as a table for switches.
- VLAN tables with the same content are colored the same way.

Displaying Ports with VLAN Information

- This option displays the **tagged** and **untagged** information for the ports in the detailed maps for the switches.

Filter for relevant VLANs

- Only relevant VLANs are displayed. VLANs that are active on switches but are not present on any port are ignored.

Details

Show Details

- Switch details, cable bandwidth and port designation can be displayed.

Virtual

Hide Virtual Structures

- Hides the virtual switches in the overview map.

Virtual Switches

- Detailed maps of the virtual switches are not created.

Visualization

Visualize Cable Bandwidth

- This option colors the lines of a connection differently depending on the speed.
- At higher speeds, a thicker line is used.
- If the speed exceeds 10GB, the line is displayed in blue.
- If the speed is less than 1GB, it is displayed in red.
- In the other cases the line is drawn in green.

Highlight Missing Data

- This option marks switches where no LLDP, CDP or Spanning Tree information is available.
- Furthermore, devices are marked if no learned MAC addresses are available or the interface stack data is missing.
- By right clicking on the highlighted object - **Display Data**, the error message is displayed in an additional dialog.

3.3 VLAN MAP

In the first instance, you will notice that the VLAN Map outputs the same information that you receive within the topology map with the option Display VLAN Tables.

The overview map shows the connections between the switches and the VLAN tables belonging to the switch.

You can also create a detailed VLAN map. With this detailed map you select a VLAN. You will then see all switches of the VLAN. The systems plugged into the switches and the selected VLAN are also displayed.

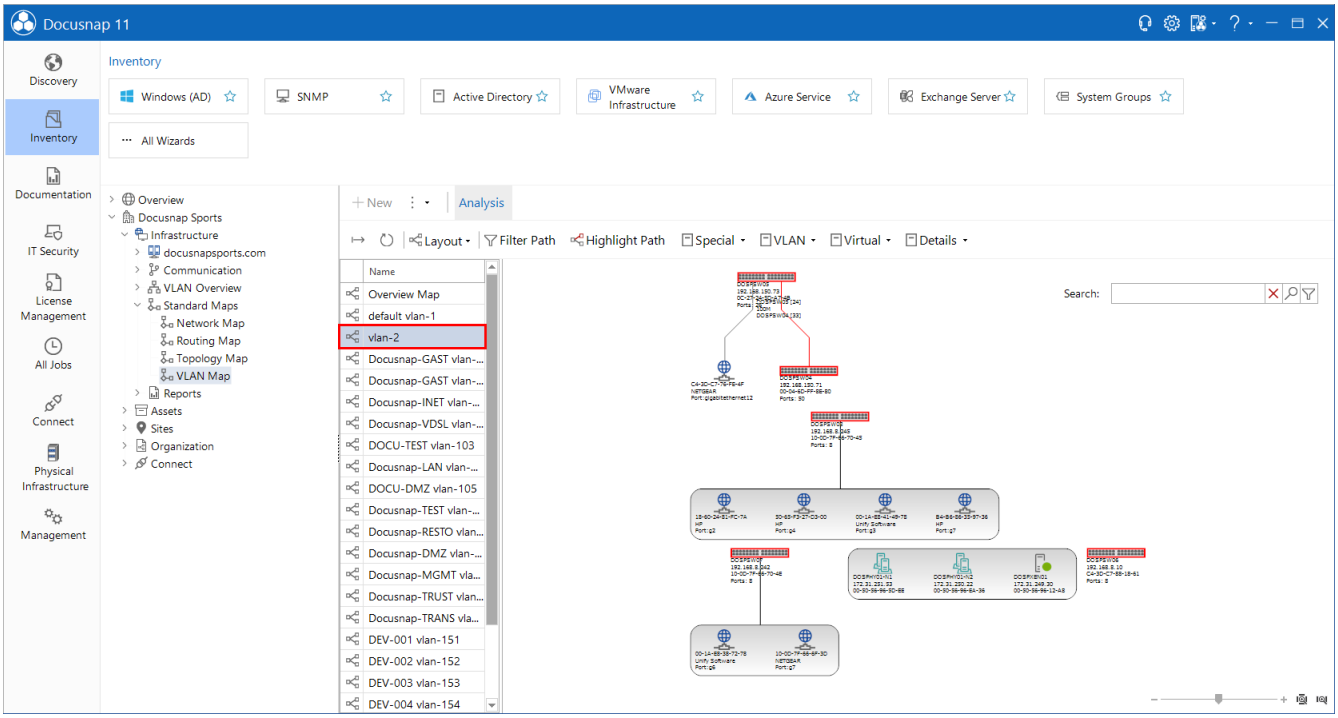

Fig. 6 - VLAN Detail Map

3.4 REPORTS

In addition to the topology- and VLAN-Map, there are also reports that allow you to analyze information from SNMP systems. These reports can be found as follows:

Your Company - Infrastructure - Your Domain - Reports - Infrastructure Net

Here you will find the following reports:

Network Devices

- The report lists all SNMP systems with the information inventoried in the standard - among others
  - General information
  - Network information
  - Interfaces

Printer

- All printers with printer-specific information
  - Printer information
  - Toner

Switches

- This report provides you with detailed information about the switches, including
  - VLAN information and its port assignment
  - List of ports and systems plugged into them

VLAN

- When creating the report, you must first select one or more VLANs
- You will then see a list of all associated systems, grouped by the selected VLANs
- For example:
  - VLAN ID:1
    - Switch1
    - Switch2
    - ...
  - VLAN ID:2
    - Switch3
    - Switch4
    - ....

VLAN Overview Switches

- Here, too, you first select one or more VLANs
- The VLANs are then grouped again according to the selected VLANs
- In addition, the system is now also grouped by switches on which the associated systems are plugged - specifying the system type, MAC and IP address and port
- For example:
    - VLAN ID:1
        - Switch: Switch1
            - ServerA – Server – 00-11-22-33-44-55 – 192.168.1.1 - Port 1
            - ServerB - Server – 00-11-22-33-44-66 – 192.168.1.2 - Port 2
            - ...
        - Switch: Switch2
            - Switch1 - SNMP – 11-11-22-33-44-66 – 192.168.100.1 - Port 1
    - VLAN ID:2
        - Switch: Switch1
            - ServerC - Server – 11-11-11-33-44-66 – 192.168.1.3 - Port 3
            - ServerD - Server – 22-22-22-33-44-66 – 192.168.1.4 - Port 4

4. TABULAR VIEWS

In addition to the topology and VLAN map, there are also views with which you can analyze the information from the SNMP systems. These tabular views are located as follows:

Your Company - Infrastructure - Your Domain – Summary – Topology

- This view gives you information about the used switch-ports
- For example, it can be filtered by MAC address to quickly find out which switch port it is connected to

Your Company - Infrastructure - VLAN Overview - VLAN Complete Overview

- In this view, the VLANs used and the systems they contain can be listed

4.1 ADJUSTMENTS

4.1.1 EDIT SWITCH - CONFIGURE MANUAL CONNECTIONS

It has already been described in this How To that the data from the switch detail map is inventoried by reading the ARP cache and that it is volatile again. For a complete documentation, you can also manually assign a MAC address to the switches and thus permanently document the port assignment of the switch. These manual adjustments remain even after a new inventory!

For example, you can see from the following figure that ports 36 and 38 are highlighted in green. This means that a cable is plugged in here, but the ARP cache could not be read.

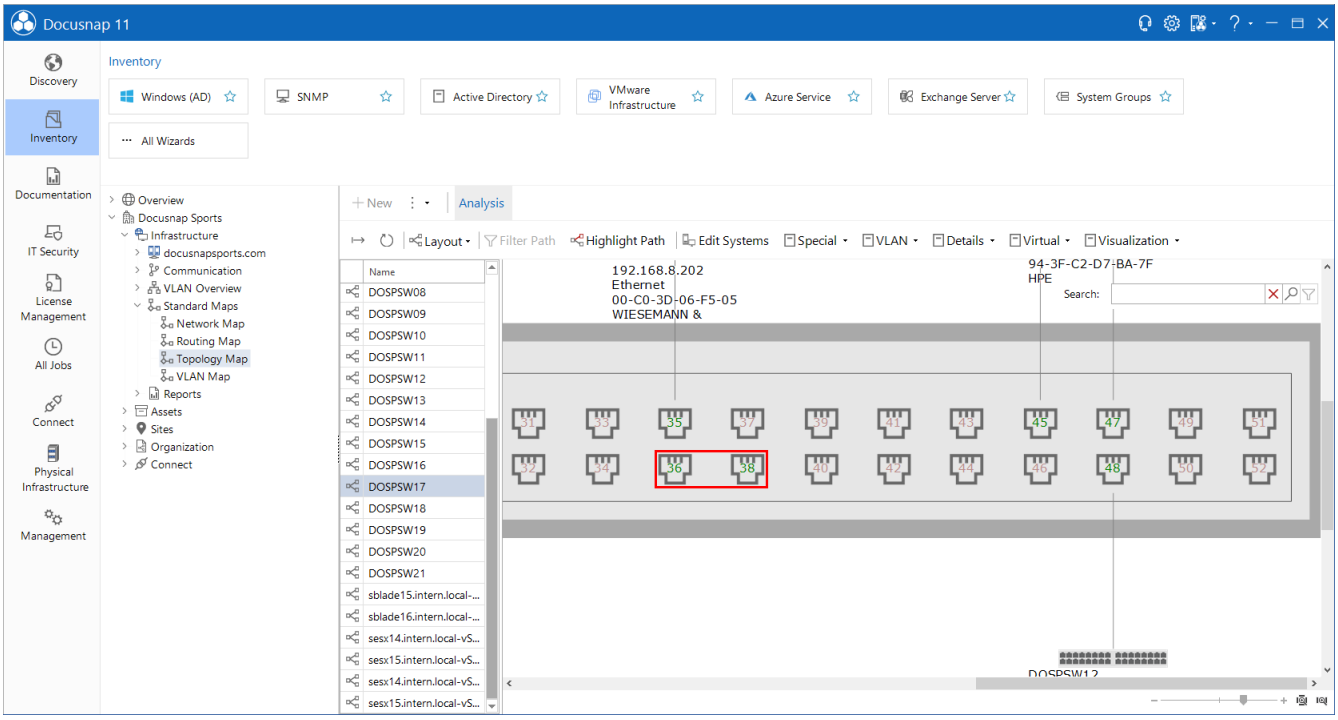

Fig. 7 - Active ports without ARP cache

You can now manually assign a system to these ports via the MAC address:

- Change to **Docusnap administration**
- Select the **Inventory** tab
- Within the ribbon you will find the category **SNMP** - select **Edit Switch**
- First select your company, then the domain and then the switch.
- Now select the port you want to customize and add the MAC address

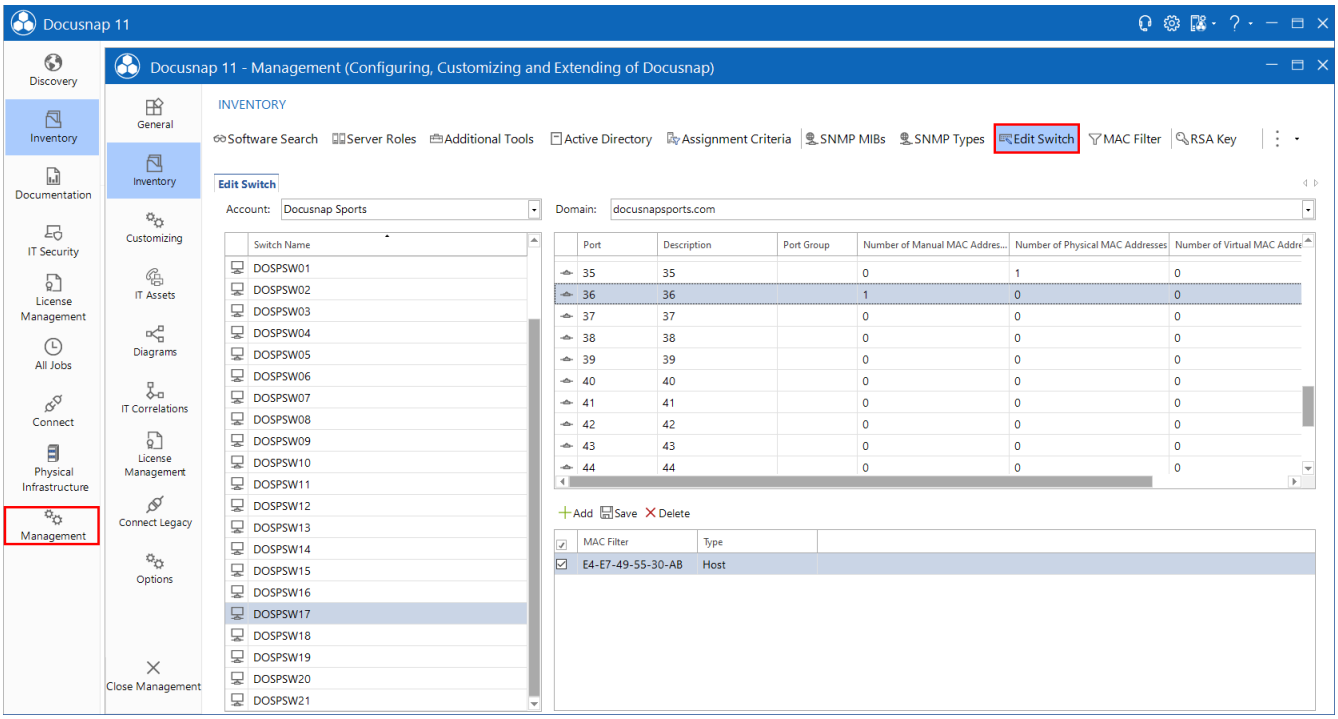

Fig. 8 - Assign MAC address to a switch port

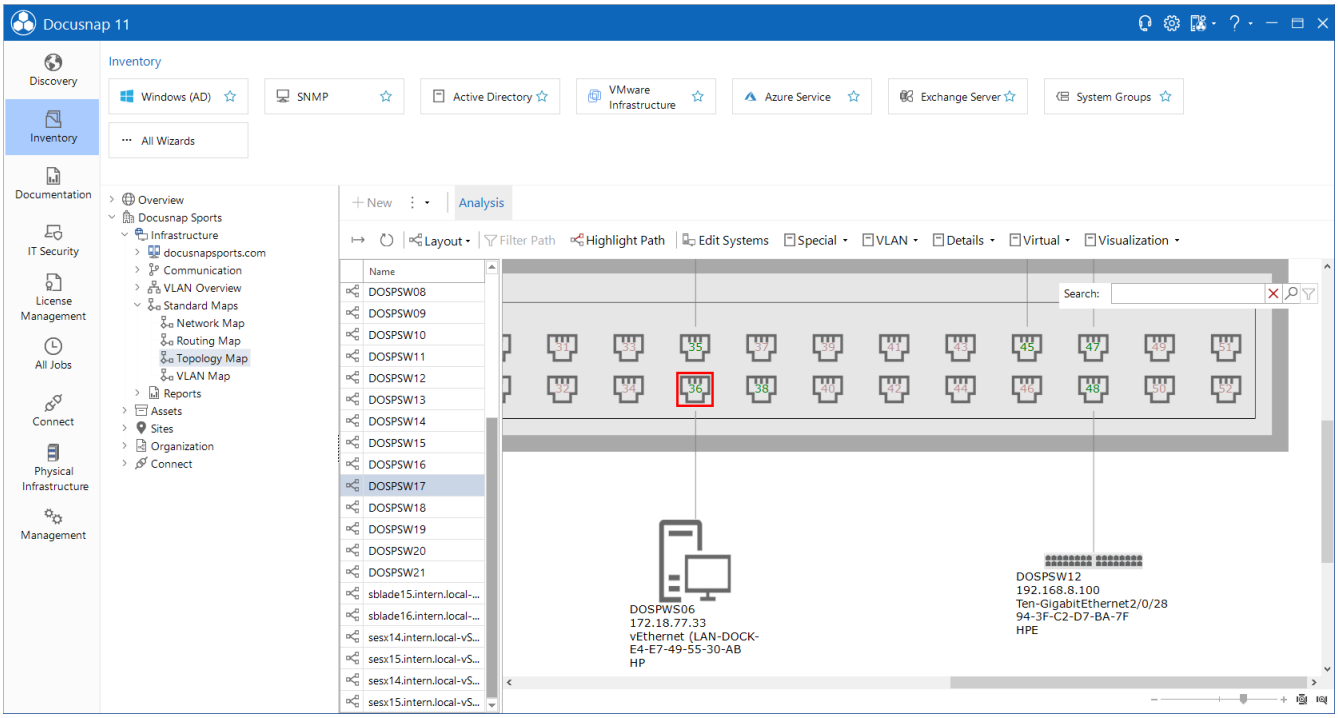

Fig. 9 - Topology Detail Map with assigned systems

4.1.2 MAC FILTER

- Store MAC addresses that are to be displayed as device, telephone or not

It can happen that some systems cannot be inventoried correctly because they do not have a SNMP interface, for example. In the course of this, only the MAC addresses can be found in the topology detail map. An example are IP phones.

In Docusnap you now have the possibility to make an assignment based on the MAC address. Search for the corresponding systems within the topology map and check to what extent the MAC addresses match and write this match down. If you use IP phones of the same manufacturer, at least the manufacturer part will be the same.

- Switch to **Docusnap administration**
- Select the **Inventory** tab
- Within the ribbon you will find the category **SNMP** - select **MAC Filter**
- Enter an appropriate MAC filter - * can be used as placeholder

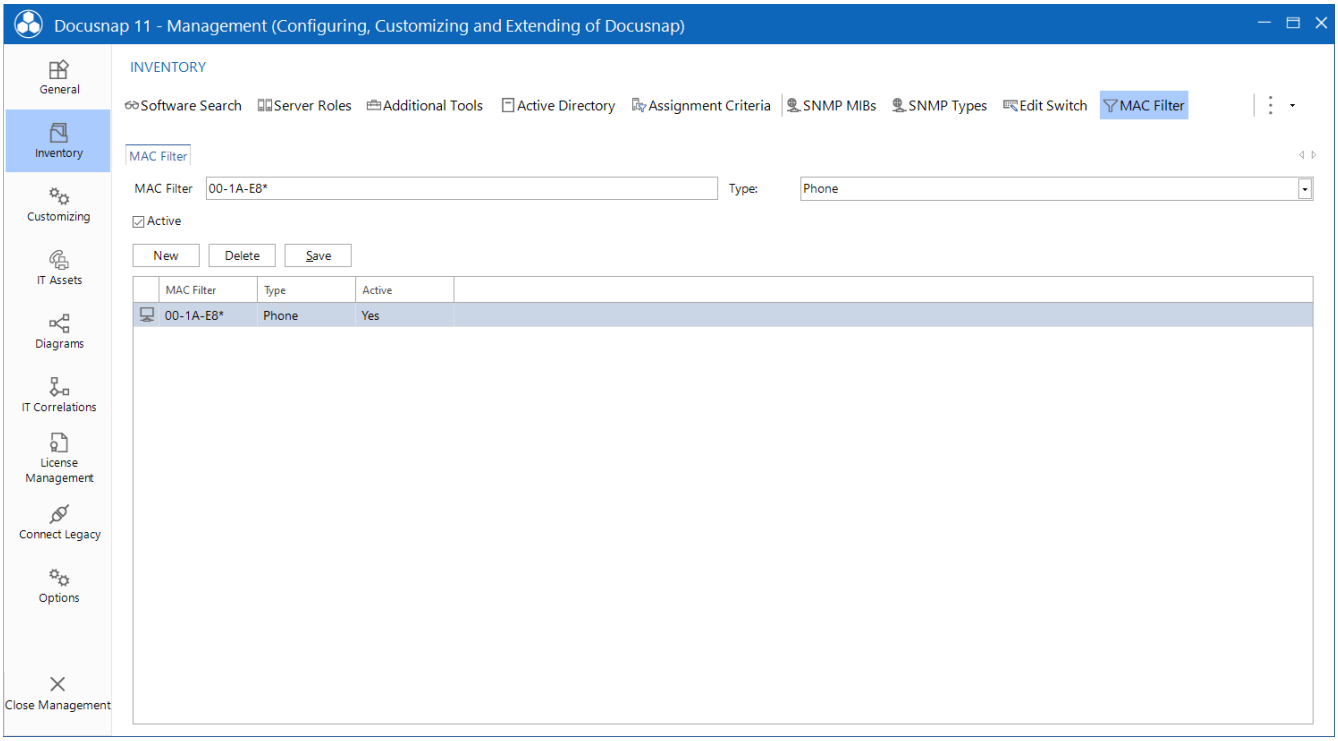

Fig. 10 - Activation of the MAC filter

The following figure shows the effects on the topology map.

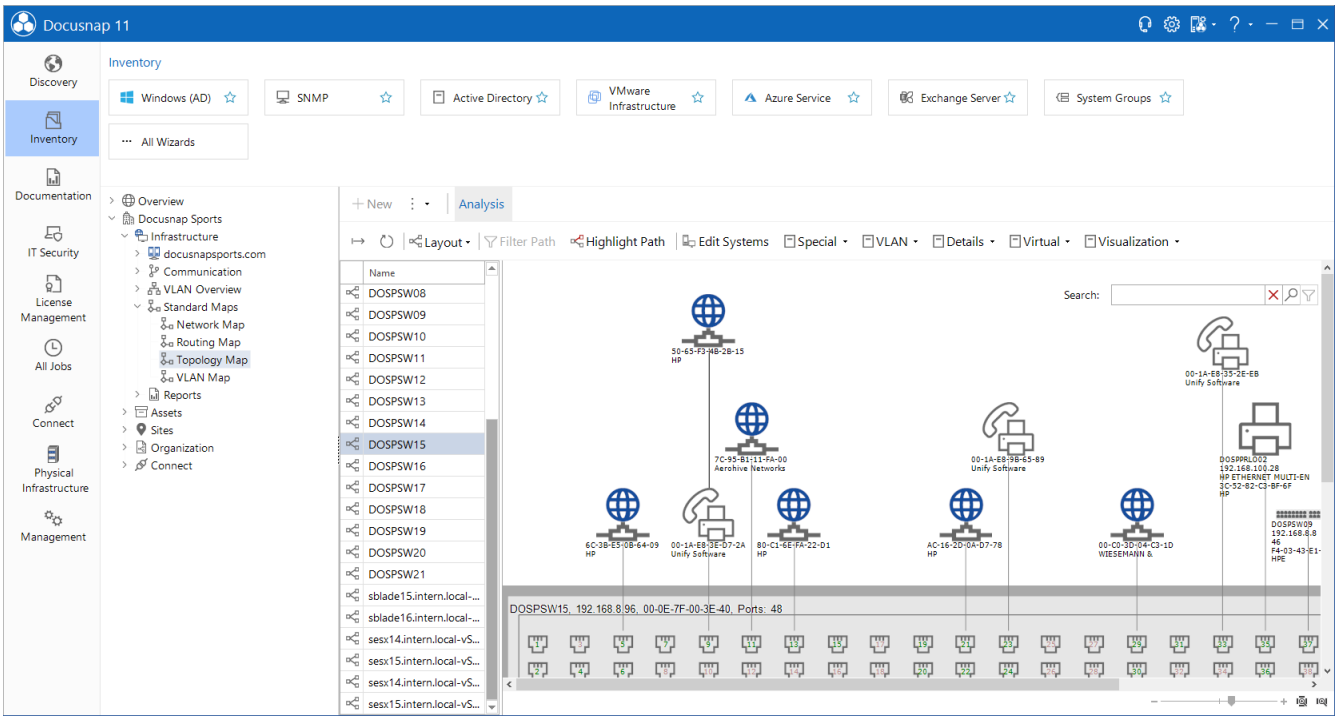

Fig. 11 - Topology Map - Phones

5. DATA PREPARATION

The inventoried data can be prepared accordingly. For example, systems can be assigned to the correct type so that they appear as such in maps and reports. Thus the quality of these increases, since e.g. it becomes immediately apparent that it is a printer.

5.1 AUTOMATICALLY ASSIGN SNMP TYPES

Here are various SNMP types such as printers, switches, and UPSs. These can be viewed and maintained in the **administration - Inventory - SNMP Types**. A corresponding search word must be stored there (see Figure 12).

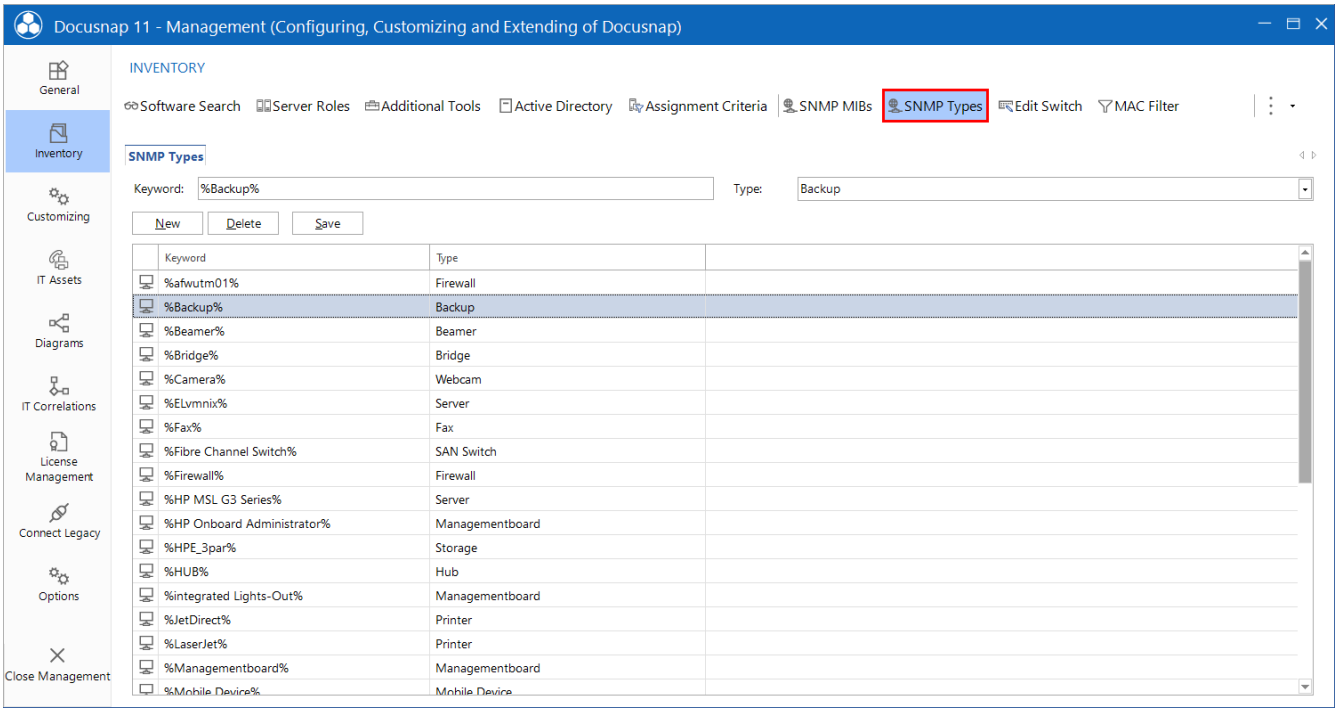

Fig. 12 - SNMP Types

In Figure 12, for example, the search word %Switch% is defined. If this is recognized in the description of an SNMP system, it is categorized as a switch. The description of an SNMP system can be found in the **General** section.

Furthermore, it should be noted here that incorrect assignments can occur if the search words overlap. For example, you can see the search word %HUB% in Figure 12. In practice it is noticeable again and again that Konica BizHub devices are recognized as hubs. Such overlaps should be resolved.

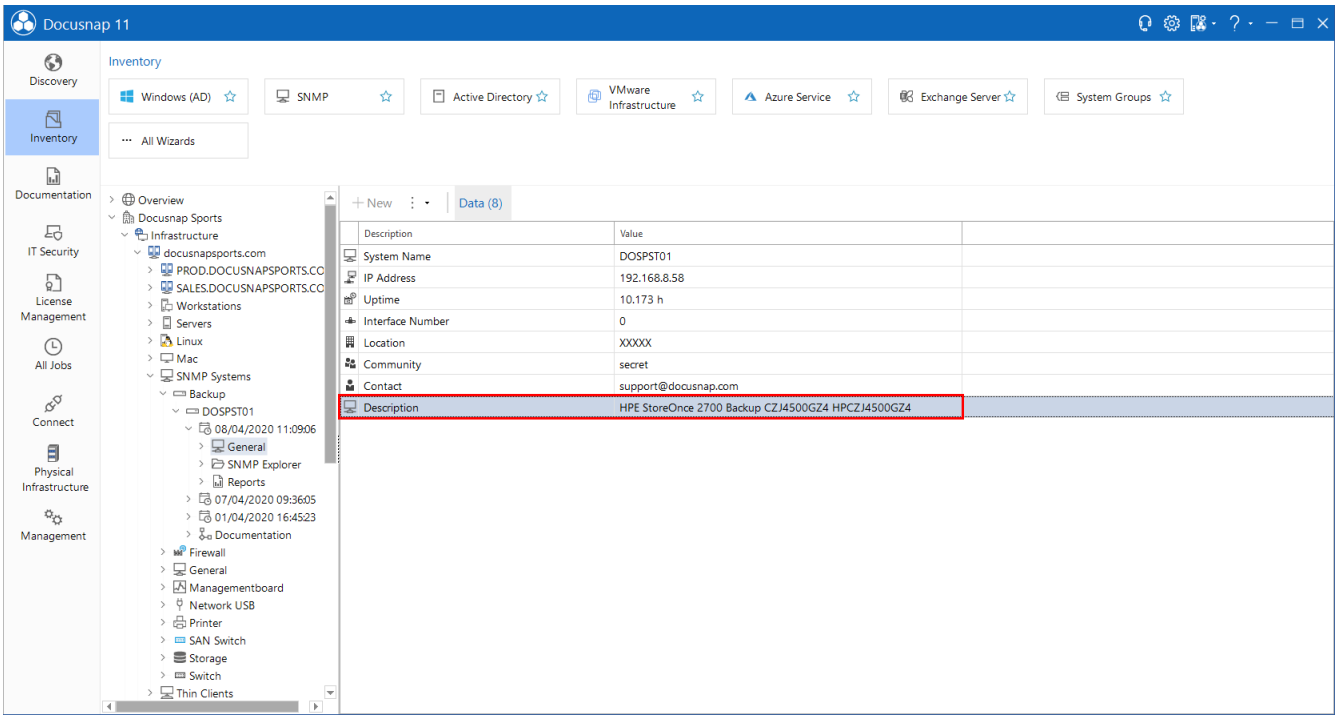

Fig. 13 - Hierarchical Structure - SNMP - General

5.2 MANUALLY ASSIGN SNMP TYPES

In addition to automatic assignment using search words, you can also assign SNMP systems manually. This may be necessary if an SNMP system does not provide a description or this cannot be used for a unique assignment. **The manual assignment is not overwritten by the use of search words!**

The manual assignment can be done directly in the data area or in the context menu.

Data area

In the data area, several devices can be assigned to an SNMP type using the checkboxes. After selecting the devices, you can assign them to an SNMP type. You can also remove the manual assignment.

The column Fixed SNMP Type informs whether this device was assigned to the SNMP type via an automatism or via manual assignment.

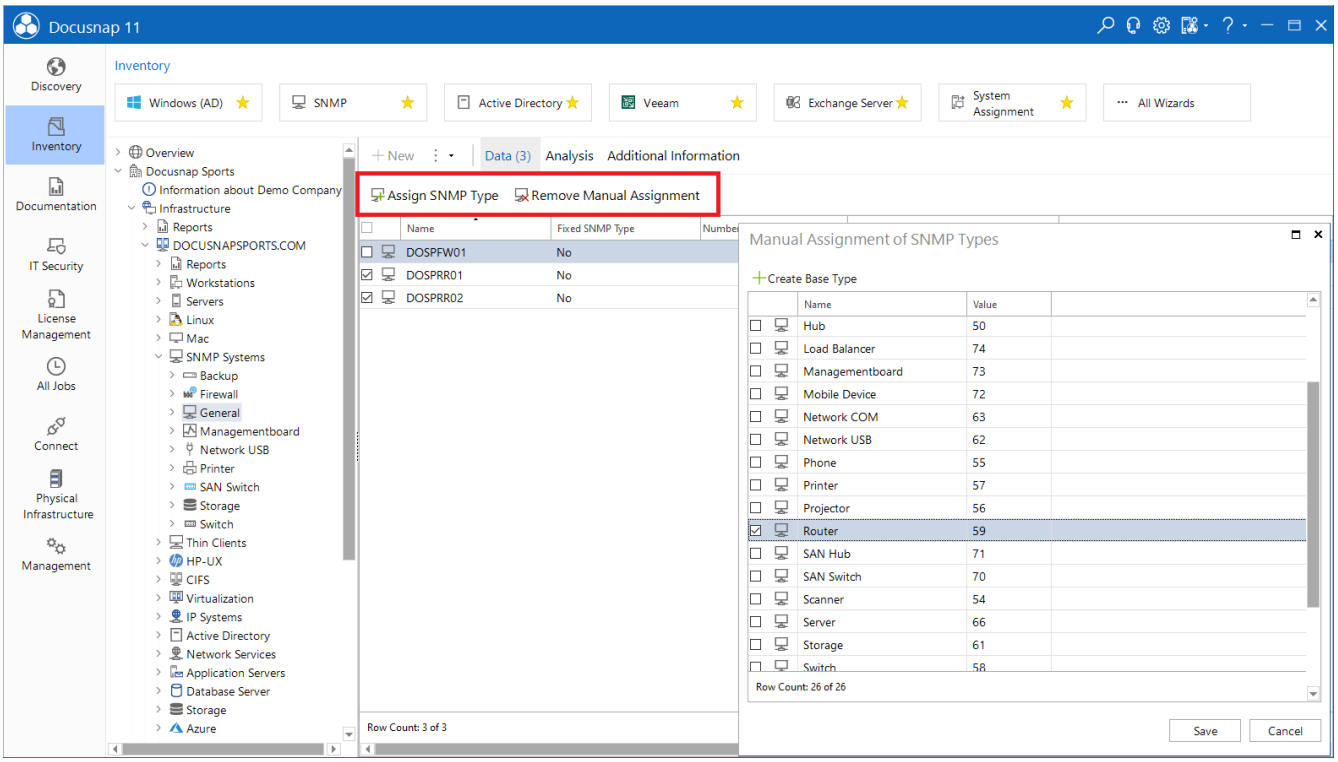

Fig. 14 - Assign SNMP Types Manually from the Data Pane

Context menu

From the context menu (right click on the system in the tree structure) a specific system can be manually assigned to an SNMP type.

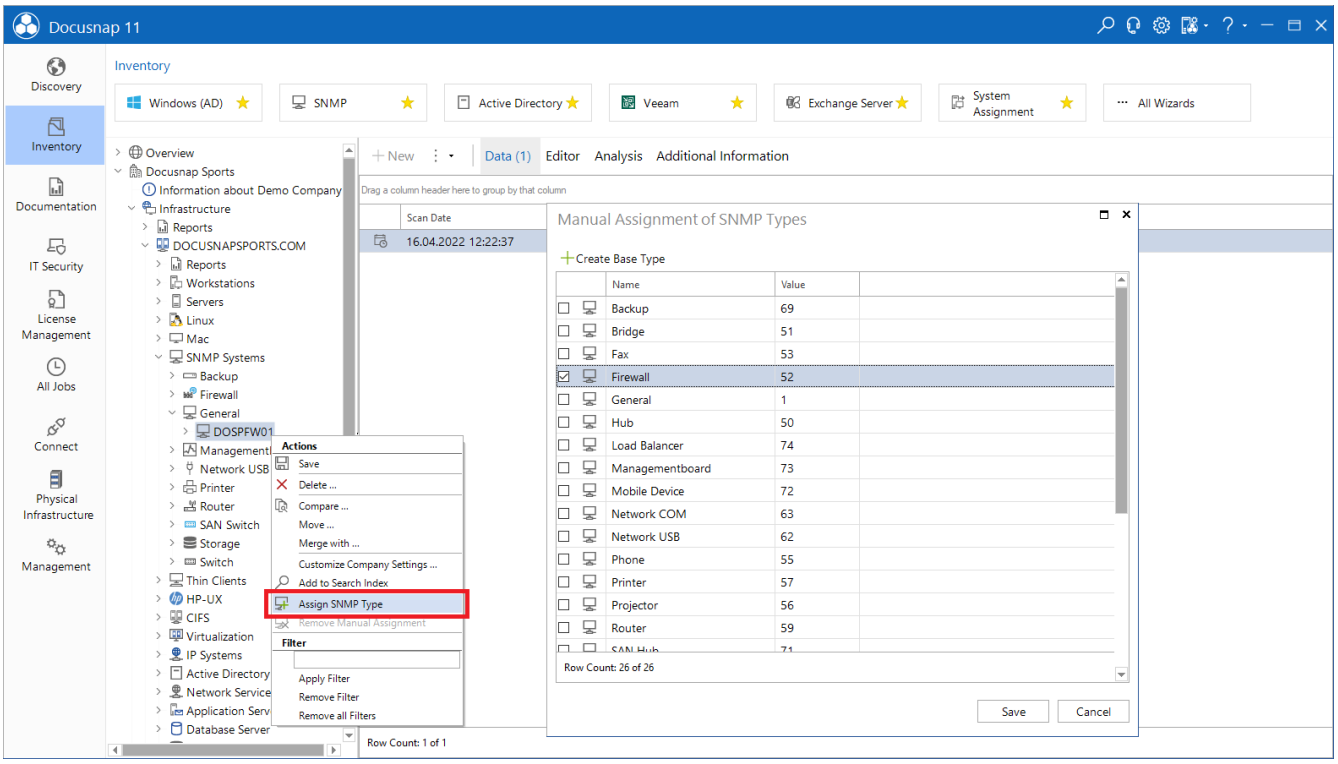

Fig. 15 - Assigning SNMP Types Manually from the Context Menu

5.3 DEFINE OWN SNMP TYPES

You also have the possibility to create your own SNMP types - in case the predefined SNMP types are not sufficient.

Own SNMP types are created and managed in **Administration - Inventory - SNMP - SNMP Base Types**.

With the button **New** you can give the type a **name** as well as a **German and English text**. Furthermore, a value is needed. Here it is recommended to use an own number range, for example starting from 1000. However, this is not mandatory.

Subsequently, as described in the previous chapter, the assignment to this SNMP type can take place.

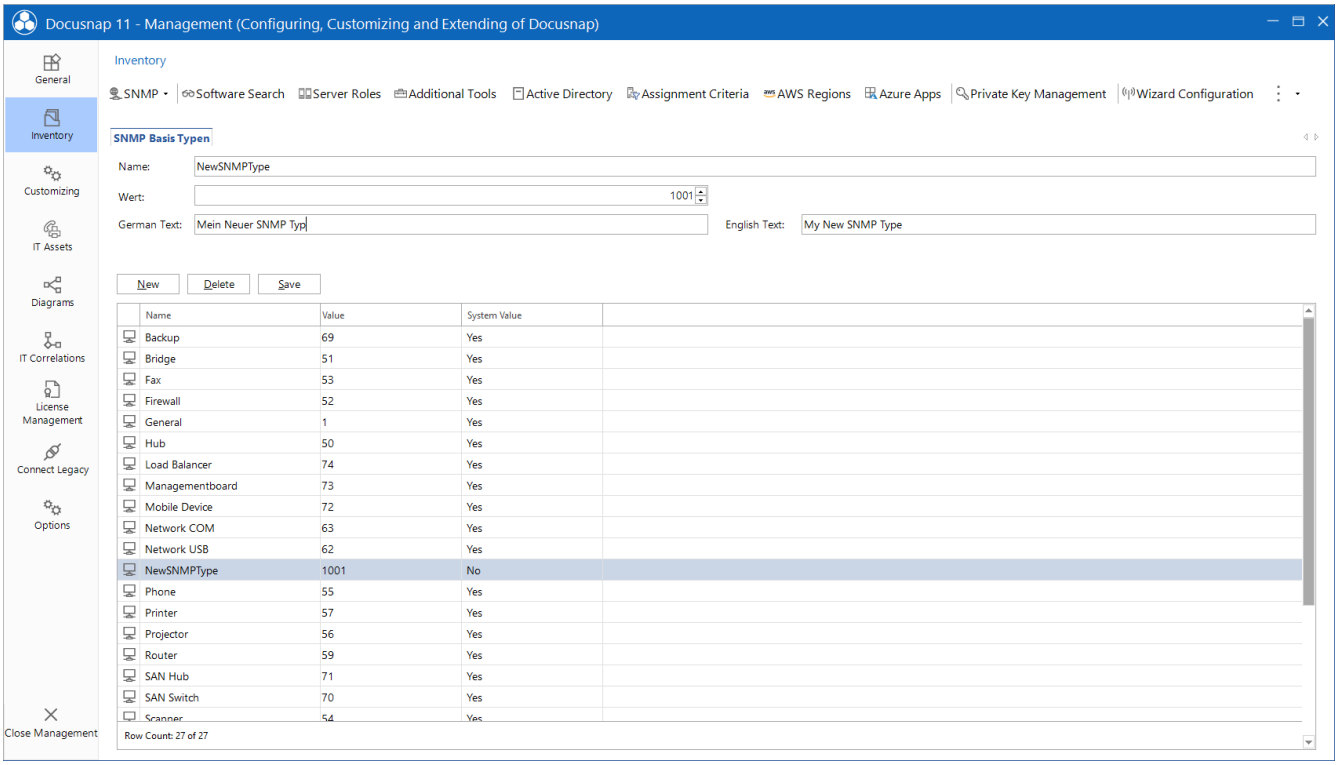

Fig. 16 - Define own SNMP Types

In the next step, an icon should also be stored for the newly created SNMP type. This is done in Administration - Customizing - Icons - Icons.

Select New and then the SNMP as group. Afterwards, you can either enter the previously assigned value manually or determine the value using the Reference Value button.

In the next step you need the icon in duplicate. The standard icon should have a size of 16x16 and the preview icon a size of 100x100. The preview icon is also used within the plans and diagrams, for this reason the size should be absolutely kept!

Furthermore, it is recommended to use the icons in PNG format, with transparent background!

You can find the Docusnap Icon Pack for download in our Community, in the section Benefits, Customizing - Docusnap Icon Pack.

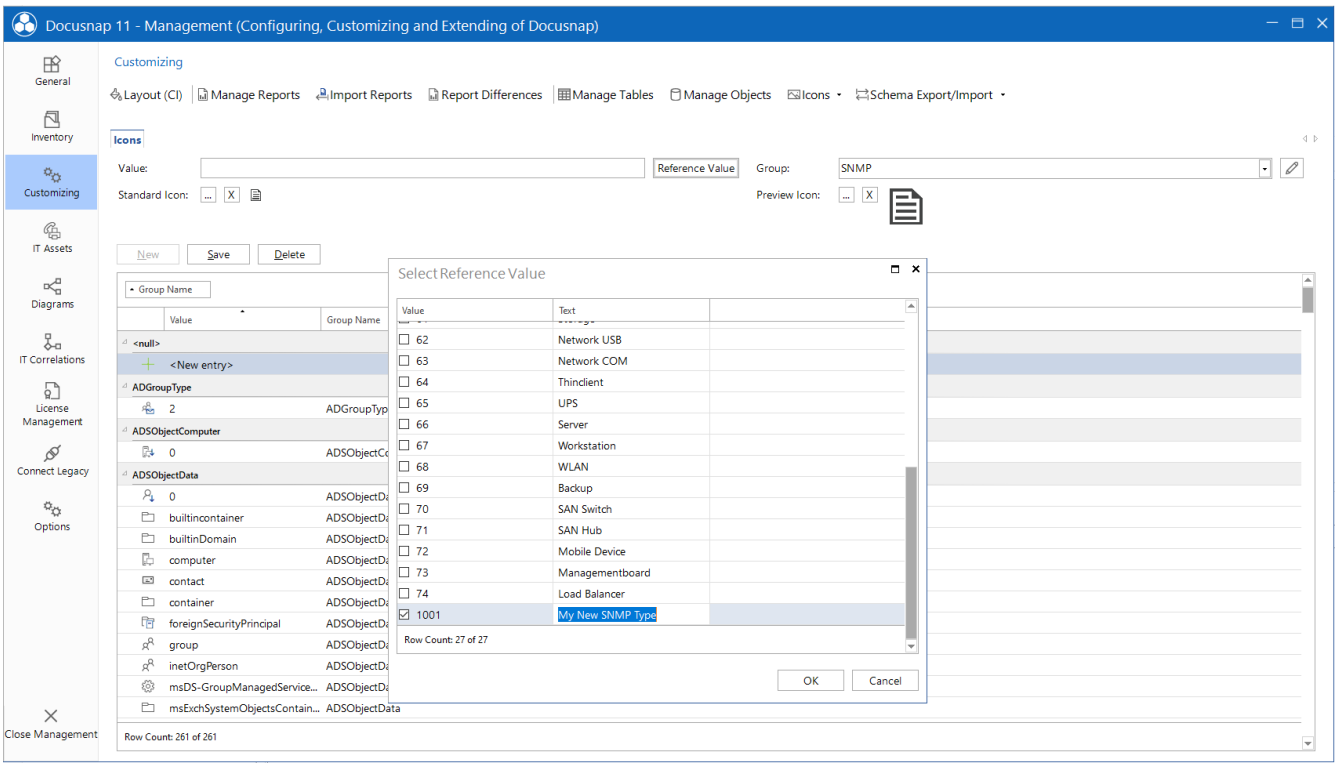

Fig. 17 - Create an icon for the new SNMP type

5.4 INTEGRATING MANUALLY CREATED DEVICES

Both manual systems (Windows, Linux, Mac, SNMP) and other assets can be included in maps (topology- and network-maps).

The following requirements must be met.

- Other assets - completed network information
- Manual systems - created network or interface

For the representation in the network map the IP address and subnet mask are necessary and for the representation in the topology map the MAC address.

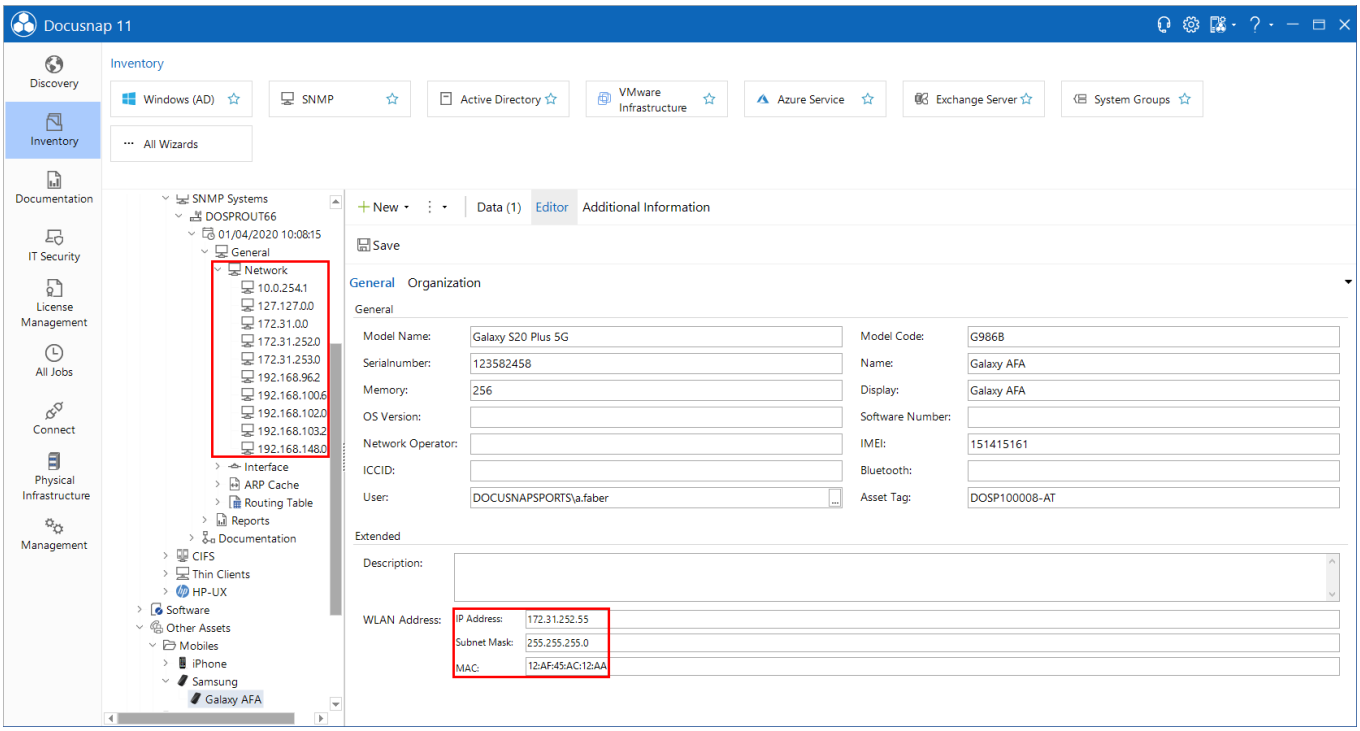

Fig. 18 - Manual Systems - Other Assets

5.5 EFFECTS OF ADJUSTMENTS

The described adjustments result in a better representation of the systems in Docusnap. The adjustments can be seen in the following areas:

- Hierarchical Structure (Icons) - SNMP Types
- Network Map (Icons) - SNMP Types
- Topology / network map - manually added systems (systems, other assets)

6. EXTENSION

The SNMP inventory can be extended by the integration of manufacturer MIBs. This allows additional OIDs to be read during inventory. It should be noted that this additional information must be prepared accordingly (view, report), since these are only visible in the SNMP Explorer.

6.1 INTEGRATE MANUFACTURER-SPECIFIC MIBS

The following example describes how manufacturer specific MIBs can be integrated. The Entity.mib was used to read additional information of a switch (model, serial number). Further MIBs can be imported in the administration (Figure 15).

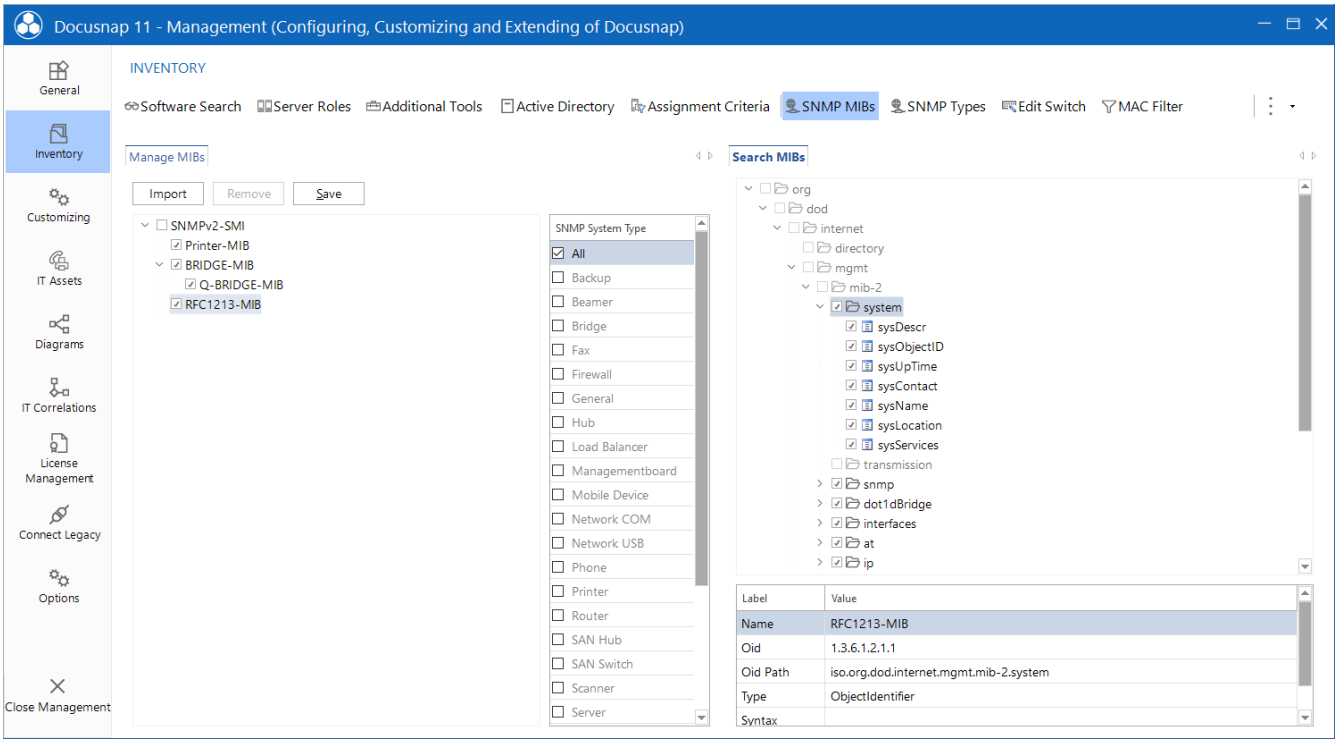

Fig. 19 - SNMP MIBs

MIBs can have various dependencies to other MIBs. If you import a MIB, an error message may appear if the dependency has not yet been resolved. Importing the **Entity.mib** causes the following error (Figure 16). How to resolve these dependencies is described later.

The following error message appears after importing the Entity.mib.

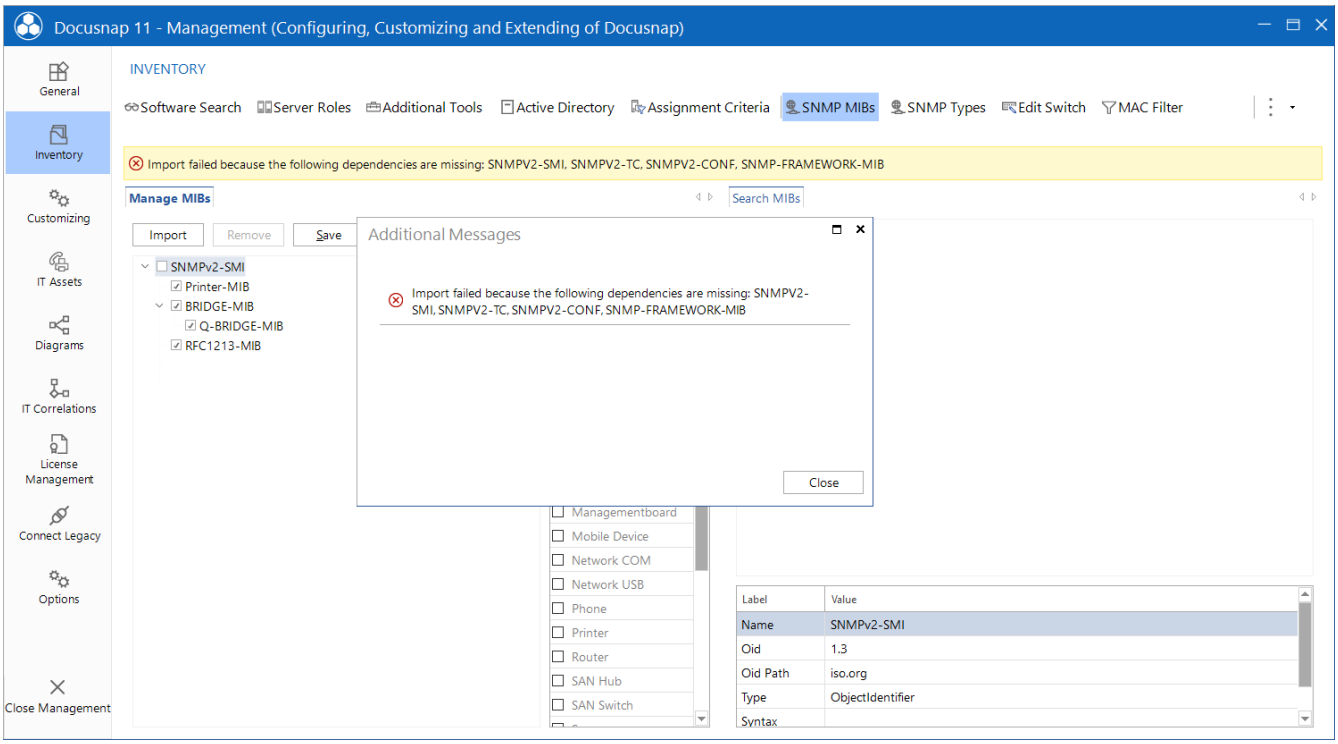

Fig. 20 - MIB Import Error

After the successful import (Figure 17), the MIB can be searched and the system type for which this MIB is read can be selected. Since the **Entity.mib** is a generally valid MIB, it should be read for all systems. It is therefore advisable to select the relevant types.

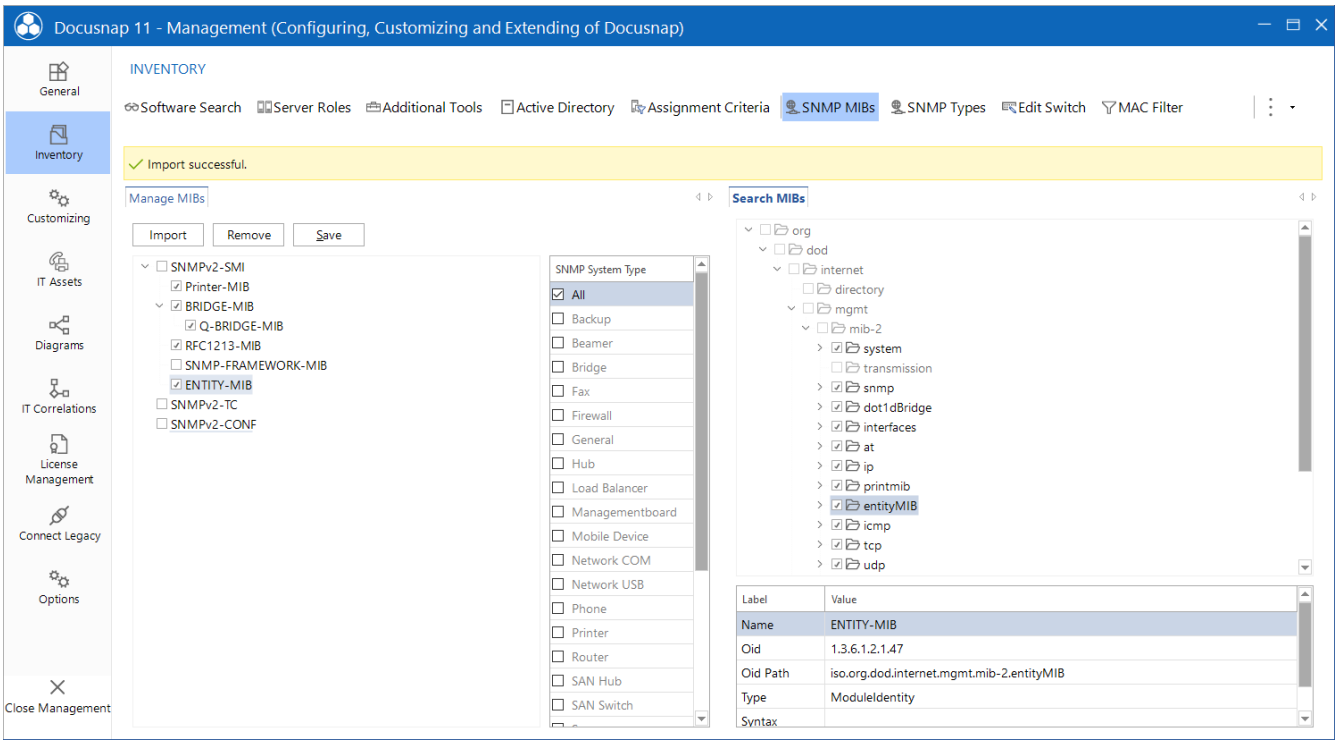

Fig. 21 - SNMP MIB – Entitiy MIB

If an import error occurs when importing a MIB because dependencies are missing, they can be resolved as described below.

The following error occurs when importing the Entity.mib:

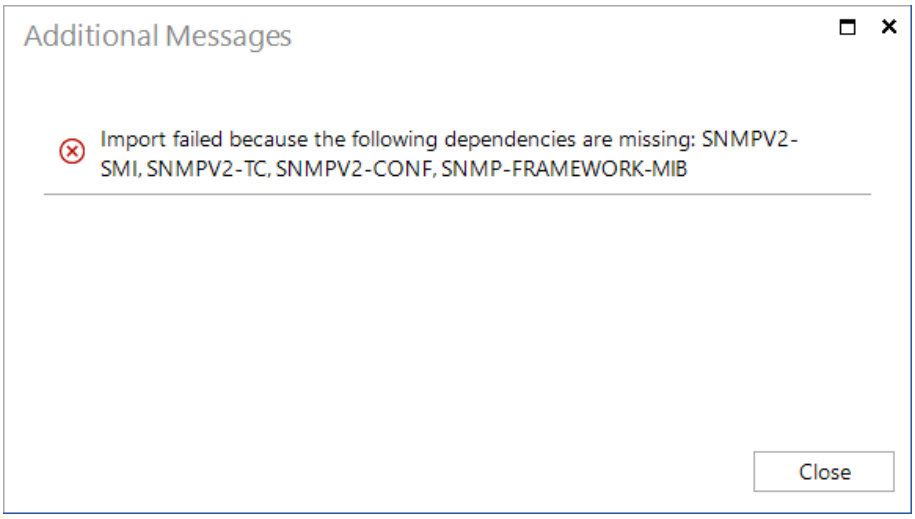

Fig. 22 - Error Message - Missing Dependencies

To resolve the dependencies, the required MIBs must be stored in the Docusnap settings path in the directory of the same name.

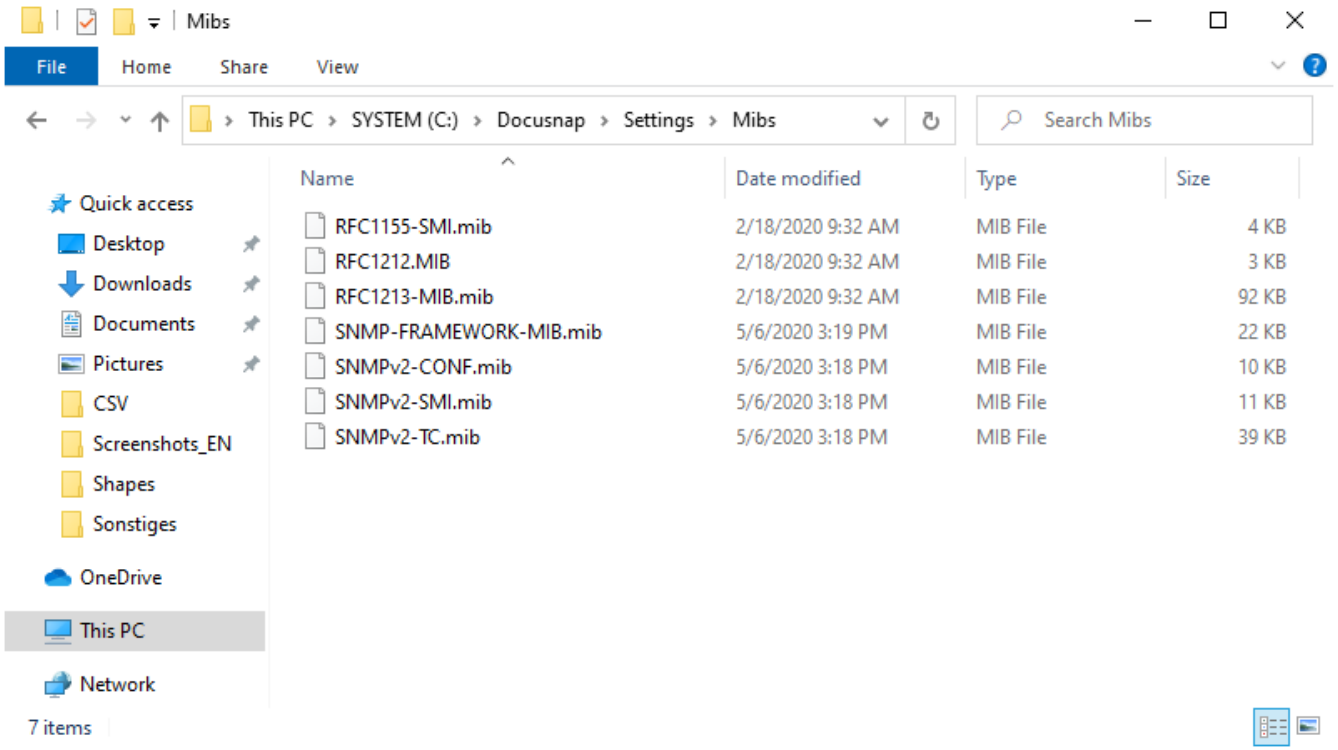

Fig. 23 - Setting Path - MIB Tray

6.1.1 EVALUATE DATA

The additional information that is read by the MIB import can be found in the SNMP Explorer. This information can be formatted to appear in a report or in a new node in the hierarchical structure.

The following information is formatted in the following example:

- Product information such as model, serial number, software version, etc.

To display the information in the hierarchical structure, a new view was created - xvSNMPMibSophosFirewall

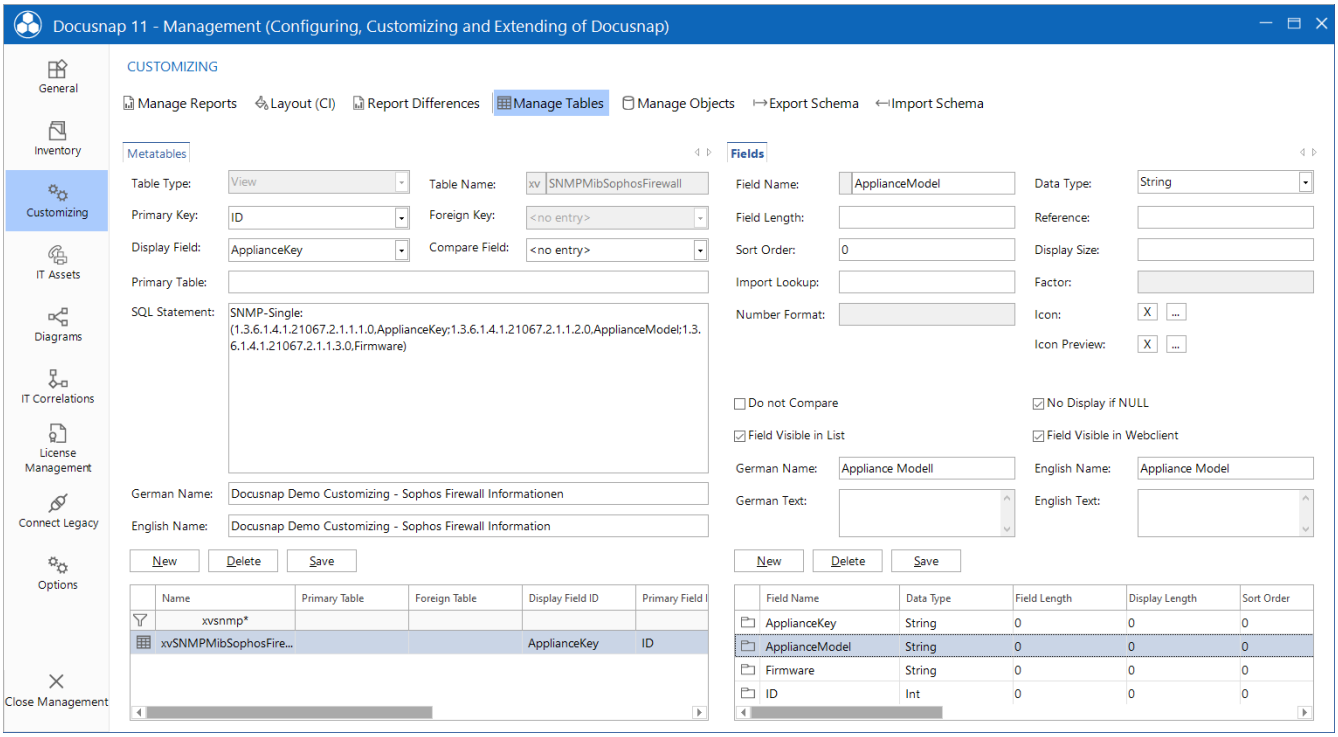

Fig. 24 - Create SNMP MIB View

The following statement was used:

```
SNMP-Single:
(1.3.6.1.4.1.21067.2.1.1.1.0,ApplianceKey;1.3.6.1.4.1.21067.2.1.1.2.0,ApplianceModel;1.3.6.1.4.1.21067
.2.1.1.3.0,Firmware)
```

To ensure that the view is also visible in the hierarchical structure, new headings and data objects have been added.

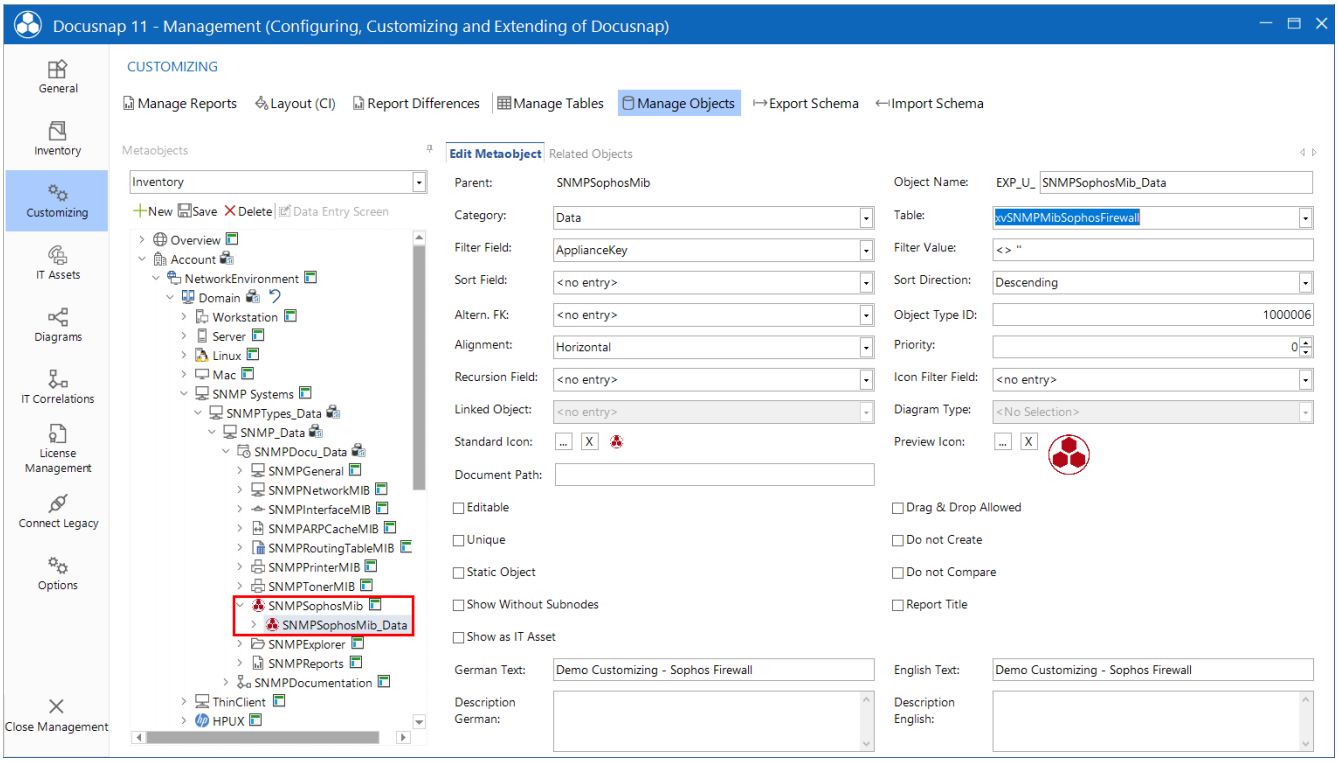

Fig. 25 - Extend Hierarchical Structure

When viewing the hierarchical structure, additional information is now displayed.

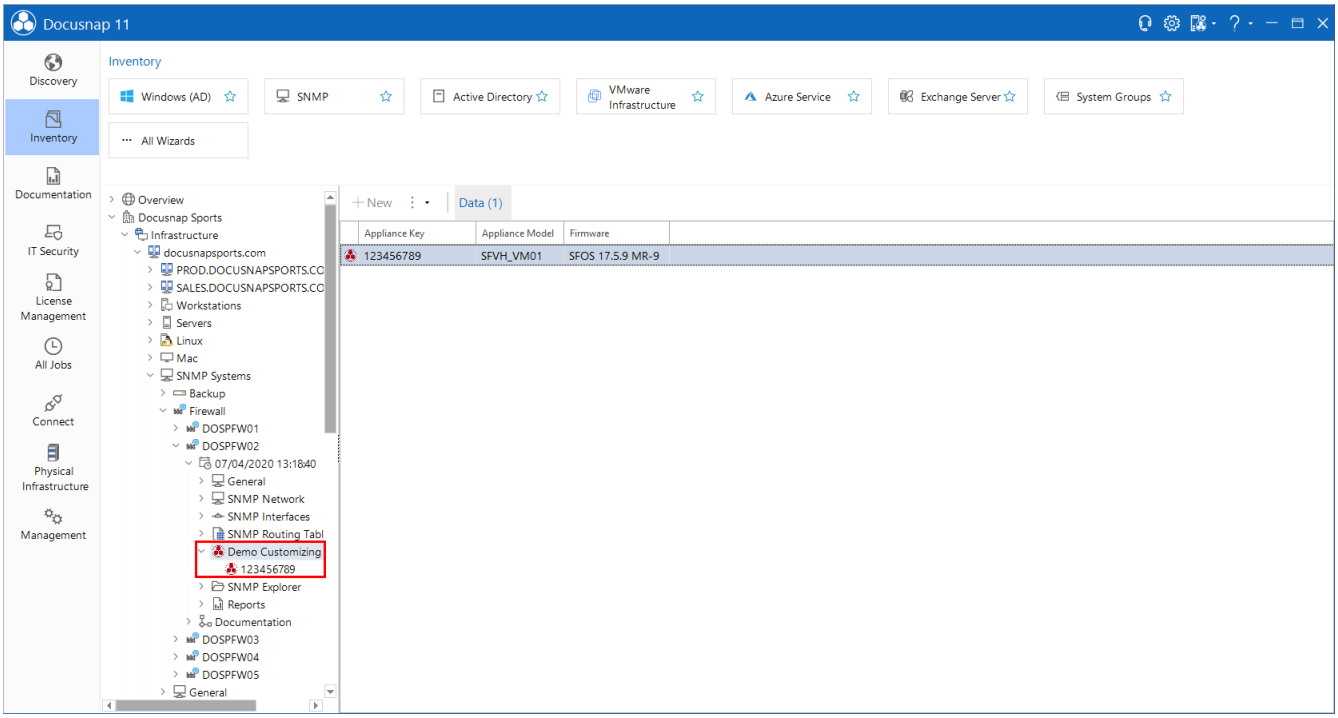

Fig. 26 - Extended Hierarchical Structure

7. SNMP TROUBLESHOOTING - CHECKLISTS

Often the same errors occur with the SNMP inventory. To provide you with an opportunity for quick analysis and troubleshooting outside the classical support, two checklists are available for SNMP inventory. Docusnap Support first checks the same points for SNMP problems.

The first checklist deals with the solution of the SNMP inventory itself. The second checklist covers troubleshooting for missing topology information.

The checklists speak of SNMP agents and SNMP managers. These two terms essentially describe the function of the respective system.

SNMP Manager

Query system, e.g. Docusnap Server or Docusnap Client.

SNMP Agent

The queried system (to be inventoried). E.g. printer, switch, router, or other SNMP capable network devices.

7.1 CHECKLIST - SNMP INVENTORY NOT POSSIBLE

1. ☐ Supports SNMP target system
    a. ☐ Yes: continue with next step
    b. ☐ No: SNMP inventory is not possible. Device must be recorded manually
2. ☐ Is the SNMP protocol enabled on the agent?
    a. ☐ Yes: continue with next step
    b. ☐ No: Activate SNMP
3. ☐ Is communication via ping between SNMP agent and manager possible?
    a. ☐ Yes: continue with next step
    b. ☐ No: Check network connection or do not check system availability during SNMPv1/v2c scan
4. ☐ Does the communication between SNMP agent and manager take place via an additional network device, e.g. a firewall?
    a. ☐ No: continue with next step
    b. ☐ Yes: Check firewall log. If necessary, this blocks the connection.
5. ☐ Which SNMP version is supported?
    a. ☐ SNMP v1/ v2
        i. ☐ Is the correct community string used?
            1. ☐ Yes: continue with next step
            2. ☐ No: Customize Community String
    b. ☐ SNMP v3
        i. ☐ Authentication data correct?
            1. ☐ Yes: continue with next step
            2. ☐ No: Adapt authentication data
6. ☐ Check if there is a Backslash or an @ in the Community String / Username / Password
    a. ☐ No: continue with next step
    b. ☐ Yes: Change password. Many systems have a problem with special characters
7. ☐ Is the SNMP Manager (querying system, Docusnap client or server) authorized for SNMP queries?
    a. ☐ No: Authorize SNMP Manager to SNMP Agent for SNMP Polling.
    b. ☐ Yes
        i. ☐ Is the right SNMP manager querying the right system?
            1. ☐ Yes: continue with next step
            2. ☐ No: Select the correct SNMP manager-system
8. ☐ Does the configured access have to be authorized to the OID tree?
    a. ☐ Yes: continue with next step
    b. ☐ No: Assign permissions to the community or group.
9. ☐ If the query is blocked by (monitoring) firewalls or security solutions (flooding protection, intrusion protection), if necessary
    a. ☐ No: continue with next step
    b. ☐ Yes: configure appropriate exceptions
10. ☐ Check if Docusnap can perform an inventory.
    a. ☐ Yes: Checklist successfully completed
    b. ☐ No: check if SNMP Agent is part of the configured IP segment
        i. ☐ Yes: continue with next step
        ii. ☐ No: Add IP segment
11. ☐ Check if 3rd party tools, like the Paessler SNMP Tester, can read the data (Description, Interfaces)
    a. ☐ No: continue with next step
    b. ☐ Yes: Contact Docusnap Support

12. ☐ Is the firmware of the SNMP agent up to date?
    a. ☐ Yes: continue with next step
    b. ☐ No: Check update for current version. (no warranty on the part of Docusnap Support)
13. ☐ Contact Docusnap Support

7.2 CHECKLIST - MISSING TOPOLOGY INFORMATION

LLDP

Link Layer Discovery Protocol

CDP

Cisco Discovery Protocol

1. ☐ Supports SNMP system neighborhood protocols (CDP, LLDP)
    a. ☐ Yes: continue with next step
    b. ☐ No: Topology only possible via manual configuration
2. ☐ Is LLDP or CDP activated?
    a. ☐ Yes: continue with next step
    b. ☐ No: Activate LLDP or CDP
3. ☐ Is a uniform neighbourhood protocol used?
    a. ☐ Yes: continue with next step
    b. ☐ No: Configure uniform neighborhood protocol
4. ☐ Does the configured access still have to be authorized on the OID tree?
    a. ☐ No: continue with next step
    b. ☐ Yes: Assign permissions to the community or group.
5. ☐ Is the firmware up to date?
    a. ☐ Yes: continue with next step
    b. ☐ No: Check update for current version. (no warranty on the part of Docusnap Support)
6. ☐ Contact Docusnap Support

LIST OF FIGURES

FIG. 1 - SNMP INVENTORY - SNMP V2C 7
FIG. 2 - SNMP INVENTORY - SNMP V3 8
FIG. 3 - LIST OF SNMP SYSTEMS IN THE DATA TREE 10
FIG. 4 – TOPOLOGY MAP OVERVIEW MAP 12
FIG. 5 – TOPOLOGY MAP - SWITCH OVERVIEW 13
FIG. 6 - VLAN DETAIL MAP 16
FIG. 7 - ACTIVE PORTS WITHOUT ARP CACHE 19
FIG. 8 - ASSIGN MAC ADDRESS TO A SWITCH PORT 20
FIG. 9 - TOPOLOGY DETAIL MAP WITH ASSIGNED SYSTEMS 20
FIG. 10 - ACTIVATION OF THE MAC FILTER 21
FIG. 11 - TOPOLOGY MAP - PHONES 22
FIG. 12 - SNMP TYPES 23
FIG. 13 - HIERARCHICAL STRUCTURE - SNMP - GENERAL 24
FIG. 14 - ASSIGN SNMP TYPES MANUALLY FROM THE DATA PANE 25
FIG. 15 - ASSIGNING SNMP TYPES MANUALLY FROM THE CONTEXT MENU 26
FIG. 14 - DEFINE OWN SNMP TYPES 27
FIG. 15 - CREATE AN ICON FOR THE NEW SNMP TYPE 28
FIG. 16 - MANUAL SYSTEMS - OTHER ASSETS 29
FIG. 17 - SNMP MIBS 30
FIG. 18 - MIB IMPORT ERROR 31
FIG. 19 - SNMP MIB – ENTITIY MIB 32
FIG. 20 - ERROR MESSAGE - MISSING DEPENDENCIES 33
FIG. 21 - SETTING PATH - MIB TRAY 33
FIG. 22 - CREATE SNMP MIB VIEW 34
FIG. 23 - EXTEND HIERARCHICAL STRUCTURE 35
FIG. 24 - EXTENDED HIERARCHICAL STRUCTURE 35

VERSION HISTORY

Date	Description
April 16, 2019	Version 1.0 created
September 27, 2019	Description Topology Map and VLAN Map adapted and extended
December 19, 2019	Added checklist for SNMP troubleshooting and SNMP inventory with Docusnap
May 06,2020	Version 2.0 - Revision of the HowTos for Docusnap 11
June 3, 2022	Created Chapter 5.2 - Define own SNMP types

 | ©2022 Docusnap – All rights reserved

© Docusnap GmbH - www.docusnap.com