



## Defining Notifications

*Send reminders by e-mail / perform maintenance tasks*

|                |                                   |
|----------------|-----------------------------------|
| <b>TITLE</b>   | Defining Notifications            |
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## 1. Introduction

Docusnap provides the ability to send notifications about events automatically via email. This document describes how to create a notification definition and subsequently a notification task in Docusnap.

The notification definition uses SQL statements to define the event for which a notification should be sent. The notification task executes the definition and sends an email when the event occurs.

To use email messaging, the Docusnap server must be configured, and an email server must be available. More information about this can be found in the Docusnap user manual or in the **HowTo Installation and Configuration**.

It also describes how you can use notification definitions for regular maintenance tasks. For example, you can use a maintenance task to periodically populate the virtualization host field of the inventoried systems.

## 2. Basics

The notification definitions are SQL queries. The notification definition defines the event for which you want to be notified by e-mail. E.g., that a license or maintenance contract has expired, that a certain software has been found during inventory, etc.

For a notification definition (the actual SQL statement) to be executed, a notification task is required. This notification task executes the SQL statement on the database and in case of a result, an email is sent with this result in an Excel list.

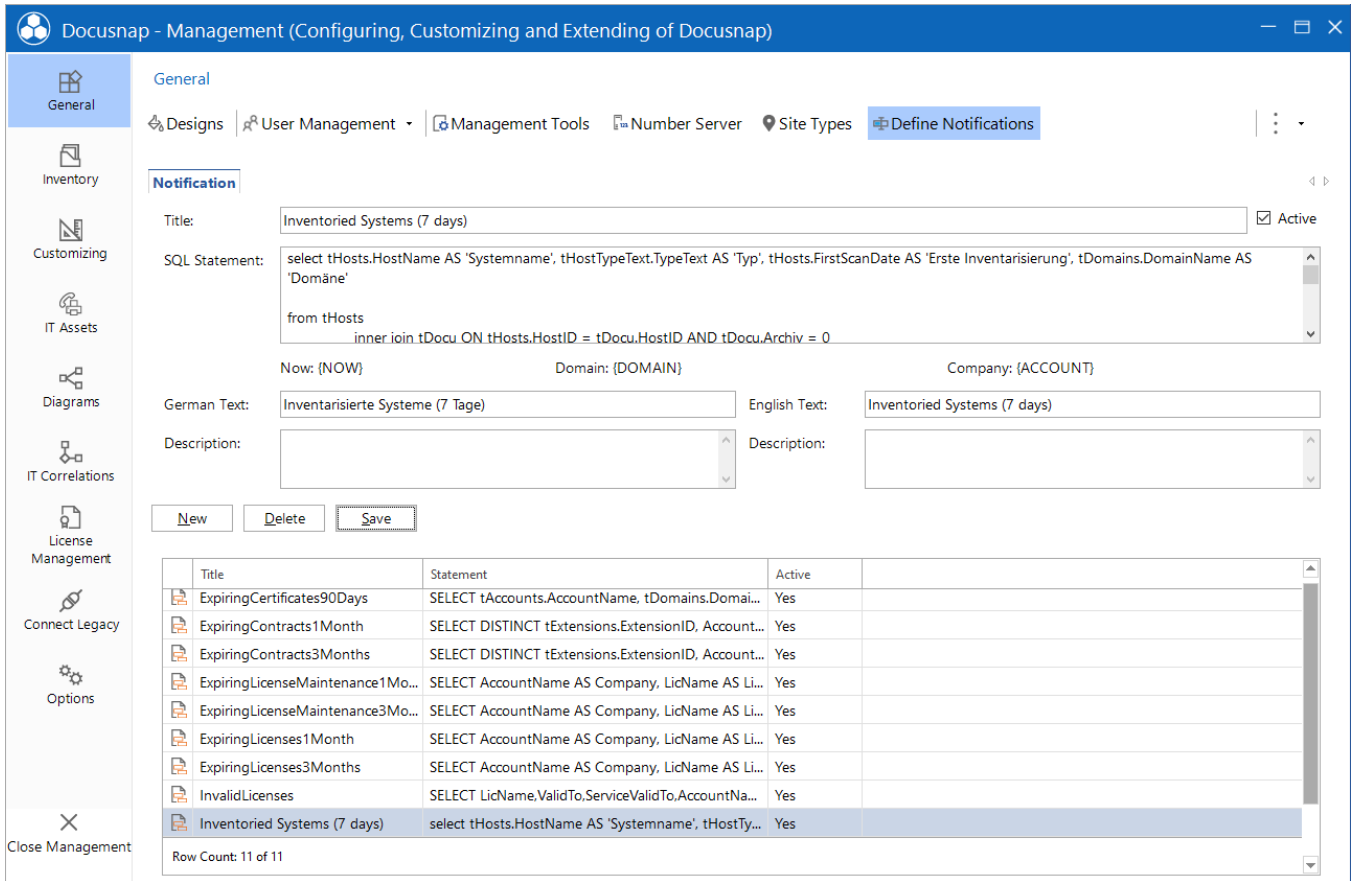
The important thing here is that Docusnap saves the last result. If a change is detected within the result during the next execution, a new email is sent. If there is no change, no new e-mail will be sent!

Furthermore, it should be noted that the Excel file receives the name of the scheduled notification task. Please use only characters that are allowed in a file name.

### 3. Notification definitions

#### 3.1 Accessing the notification definition

Message definitions are created and managed in Administration – General – Message Definitions.



**Notification**

Title:  ☒ Active

SQL Statement: 

```
select tHosts.HostName AS 'Systemname', tHostTypeText.TypeText AS 'Typ', tHosts.FirstScanDate AS 'Erste Inventarisierung', tDomains.DomainName AS 'Domäne'
from tHosts
inner join tDocu ON tHosts.HostID = tDocu.HostID AND tDocu.Archiv = 0
```

Now: {NOW} Domain: {DOMAIN} Company: {ACCOUNT}

German Text:  English Text:

Description:

| Title                            | Statement                                           | Active |
|----------------------------------|-----------------------------------------------------|--------|
| ExpiringCertificates90Days       | SELECT tAccounts.AccountName, tDomains.Domai...     | Yes    |
| ExpiringContracts1Month          | SELECT DISTINCT tExtensions.ExtensionID, Account... | Yes    |
| ExpiringContracts3Months         | SELECT DISTINCT tExtensions.ExtensionID, Account... | Yes    |
| ExpiringLicenseMaintenance1Mo... | SELECT AccountName AS Company, LicName AS Li...     | Yes    |
| ExpiringLicenseMaintenance3Mo... | SELECT AccountName AS Company, LicName AS Li...     | Yes    |
| ExpiringLicenses1Month           | SELECT AccountName AS Company, LicName AS Li...     | Yes    |
| ExpiringLicenses3Months          | SELECT AccountName AS Company, LicName AS Li...     | Yes    |
| InvalidLicenses                  | SELECT LicName,ValidTo,ServiceValidTo,AccountNa...  | Yes    |
| Inventoried Systems (7 days)     | select tHosts.HostName AS 'Systemname', tHostTy...  | Yes    |

Row Count: 11 of 11

Fig. 1 - Accessing the notification definition

For the creation is needed:

- Title
- SQL Statement
- German Text
- English Text

## 3.2 Application samples

### 3.2.1 Newly inventoried systems

The following SQL statement serves as an application example in this case:

```
SELECT
tHosts.HostName AS 'Systemname',
tHostTypeText.TypeText AS 'Type',
tHosts.FirstScanDate AS 'First Inventory',
tDomains.DomainName AS 'Domain'

FROM tHosts
INNER JOIN tDocu ON tHosts.HostID = tDocu.HostID AND tDocu.Archiv = 0
INNER JOIN tHostTypeText ON tHosts.HostTypeID = tHostTypeText.TypeID
INNER JOIN tDomains ON tHosts.DomainID = tDomains.DomainID

WHERE tHosts.FirstScanDate > CURRENT_TIMESTAMP - 7 /* 7 = days */
AND tHostTypeText.LanguageID = 1 /* 0 for german */
AND tDomains.AccountID = {ACCOUNT}

ORDER BY FirstScanDate DESC, HostName
```

The SQL statement lists all systems that were inventoried for the first time in the last 7 days.

The expression

```
and tDomains.AccountID = {ACCOUNT}
```

filters the systems to the company for which the notification will be set up later. If you remove this filtering, all systems, across all companies, that exist in the database would be listed.

In addition to the account variable, you can also use {NOW} and {DOMAIN} for filtering on today or a specific domain. You can choose the domain in the notification task.

| Meaning | Placeholder in Docusnap | Replacement in SQL Server Mgmt Studio | Remark                                                                                                                                       |
|---------|-------------------------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| Today   | {NOW}                   | CURRENT_TIMESTAMP<br><br>'2021-07-27' | Make sure to indicate the date in the correct format as used in the database. Alternatively, you can use the SQL variable CURRENT_TIMESTAMP. |
| Domain  | {DOMAIN}                | DomainID                              | The Docusnap domain IDs can be displayed via the following SQL query:<br><br><b>SELECT DomainID,DomainName FROM tDomains</b>                 |
| Company | {ACCOUNT}               | AccountID                             | The Docusnap account IDs can be displayed via the following SQL query:<br><br><b>SELECT AccountID,AccountName FROM tAccounts</b>             |

### 3.2.2 Microsoft 365 inventory – Expiring and expired Entra ID app registrations

During Microsoft 365 inventory, a Microsoft Entra ID app (app registration) is created in Docusnap.

The stored client secret/certificate is valid for one year. To ensure that the inventory remains error-free in the long term, update the app registration in Docusnap in good time.

The query below informs you 30 days in advance which app registrations are due for renewal or have already expired:

```
SELECT
    tAccounts.AccountName AS 'Company',
    tAzureOAuthApps.TenantName AS 'Primary domain',
    tAzureOAuthApps.AppName AS 'Entra app display name',
    tAzureOAuthApps.Description AS 'Description Entra-ID-App',
    tAzureOAuthApps.CertNotValidAfter AS 'Certificate valid until',
    tAzureOAuthApps.SecretNotValidAfter AS 'Client secret valid until'
FROM tAzureOAuthApps
INNER JOIN tAccounts ON tAccounts.AccountID = tAzureOAuthApps.AccountID
WHERE
    (
        (
            tAzureOAuthApps.CertNotValidAfter IS NOT NULL
            AND tAzureOAuthApps.CertNotValidAfter <= DATEADD(day, 30, GETDATE())
        )
        OR
        (
            tAzureOAuthApps.SecretNotValidAfter IS NOT NULL
            AND tAzureOAuthApps.SecretNotValidAfter <= DATEADD(day, 30, GETDATE())
        )
    )
AND tAzureOAuthApps.AccountID = {ACCOUNT}
```

## 4. Creating a notification

You can find the wizard for creating notifications in

All jobs - All wizards - Notification

In the first step the company is selected.

In the second step, select the message definition you created earlier. If you use the {DOMAIN} variable in the SQL statement, you can now select the domain. At least one recipient and a subject line are required for the email to be sent. A list of the information returned by the SQL query is attached to the email as an Excel file.

If you want to store multiple recipients, you can separate them with a semicolon.

In the Scheduling step you define the execution of the notification task - e.g.

- Task type = Repeated
- Occurrence = Weekly
- Repeated every 1 week on Monday at 9:00 a.m.

Please note that the Excel file is given the name of the scheduled notification task. Please use only characters that are allowed in a file name here.

## 5. Maintenance tasks

As discussed previously, message definitions are SQL statements that are executed on the database via the notification task. Instead of SELECT queries, UPDATE statements can also be executed. The steps for creating the message definition, as well as the notification task, are the same as previously described.

Only for scheduling it makes sense to run the notification task more frequently - e.g., daily.

A regular use case for these maintenance tasks is, for example, the automatic filling of the virtualization host field of the inventoried virtual systems.

In addition to the actual systems, Docusnap also inventories the virtualization solutions HyperV, VMware, Citrix Hypervisor, Nutanix and Proxmox.

In this case, the systems are assigned via the Mac address. The Mac address of the VMs inventoried via the virtualization solution is compared with those of the inventoried systems (Windows, Mac, Linux).

## 5.1 VMWare

```

UPDATE tHosts SET VirtualServer = CONCAT(ServiceHostName, ' - ', DataCenterName, ' - ', ESXHostName)
FROM    tESXVirtualMachine,    tESXHost,    tHosts,    tESXComputeResource,    tESXDataCenterHostFolder,
tESXDataCenter, tESXFolder, tESXServiceDocu, tESXDataCenterFolder, tDomains AS HostDomain, tESXService,
tDomains AS ESXDomain, tESXVmHwNic, tESXVmHardware,
(
    select tNetworkAdapter.*, tHosts.HostID, tDomains.AccountID from tNetworkAdapter, tDocu, tHosts,
tDomains
    where tNetworkAdapter.AdapterID in (
        select tNetworkAdapterConfiguration.AdapterID from tNetworkAdapterConfiguration)
    and tNetworkAdapter.DocuID = tDocu.DocuID
    and tDocu.Archiv = 0
    and tDocu.HostID = tHosts.HostID
    and tDomains.DomainID = tHosts.DomainID
) as vNetworkAdapter
WHERE tESXVmHwNic.MacAddress = vNetworkAdapter.MacAddress
and tHosts.HostID = vNetworkAdapter.HostID
AND tESXVirtualMachine.HostIdentifier = tESXHost.Identifier
AND tESXComputeResource.ComputeResourceID = tESXHost.ComputeResourceID
AND tESXDataCenterHostFolder.HostFolderID = tESXComputeResource.HostFolderID
AND tESXDataCenter.DataCenterID = tESXDataCenterHostFolder.DataCenterID
AND tESXFolder.ESXFolderID = tESXDataCenter.ESXFolderID
AND tESXServiceDocu.DocuID = tESXFolder.DocuID
AND tESXDataCenterFolder.DataCenterID = tESXDataCenter.DataCenterID
AND tESXDataCenterFolder.FolderID = tESXVirtualMachine.FolderID
AND tESXServiceDocu.Archiv = 0
AND tHosts.DomainID = HostDomain.DomainID
AND tESXServiceDocu.ServiceID = tESXService.ServiceID
AND tESXService.DomainID = ESXDomain.DomainID
AND tESXVmHardware.VirtualMachineID = tESXVirtualMachine.VirtualMachineID
AND tESXVmHwNic.VmHardwareID = tESXVmHardware.VmHardwareID
AND HostDomain.AccountID = ESXDomain.AccountID
AND vNetworkAdapter.AccountID = HostDomain.AccountID
AND ESXDomain.AccountID = {ACCOUNT} --Filtering on the selected company
AND HostDomain.AccountID = {ACCOUNT} --Filtering on the selected company

```

The statement adds the following information as a virtualization host:

- ESX Service Name (the inventoried vCenter).
- Data Center Name
- ESX Host

Furthermore, within the statement, the last two columns filter on the account/company for which the notification task is set up. If there are multiple companies in your Docusnap database and you do not want to set up a separate notification task for each, then simply remove the last two lines.

## 5.2 Hyper-V-Legacy

```

update tHosts set VirtualServer = tHVNode.Name
from tHosts, tHVNode, tHVComputerSystem, tHVDocu, tDocu, tHVSystemService, tDomains AS HostDomain,
tDomains AS HyperVDomain, tHVVirtualSystemSettings, tHVEthernet,
(
    select tNetworkAdapter.*, tHosts.HostID, tDomains.AccountID from tNetworkAdapter, tDocu, tHosts,
tDomains
    where tNetworkAdapter.AdapterID in (
        select tNetworkAdapterConfiguration.AdapterID from tNetworkAdapterConfiguration)
    and tNetworkAdapter.DocuID = tDocu.DocuID
    and tDocu.Archiv = 0
    and tDocu.HostID = tHosts.HostID
    and tDomains.DomainID = tHosts.DomainID
) as vNetworkAdapter
where tHVNode.HVNodeID = tHVComputerSystem.HVNodeID
and tHosts.HostID = vNetworkAdapter.HostID
and tHVComputerSystem.HVComputerSystemID = tHVVirtualSystemSettings.HVComputerSystemID
and tHVEthernet.HVVirtualSystemSettingsID = tHVVirtualSystemSettings.HVVirtualSystemSettingsID
and vNetworkAdapter.MACAddress = tHVEthernet.Address
and tHosts.HostID = tDocu.HostID
and tHVNode.HVDocuID = tHVDocu.HVDocuID
and tHVSystemService.HVSystemServiceID = tHVDocu.HVSystemServiceID
and tDocu.Archiv = 0
and tHVDocu.Archiv = 0
and tHosts.DomainID = HostDomain.DomainID
and tHVSystemService.DomainID = HyperVDomain.DomainID
and HostDomain.AccountID = HyperVDomain.AccountID
and HostDomain.AccountID = vNetworkAdapter.AccountID
and HyperVDomain.AccountID = {ACCOUNT}           -- Filtering on the selected company
and HostDomain.AccountID = {ACCOUNT}             -- Filtering on the selected company

```

The statement adds the HyperV host. The statement is based on the legacy inventory.

Furthermore, the last two columns within the statement filter on the account/company for which the notification task is set up. If there are multiple companies in your Docusnap database and you do not want to set up a notification task for each of them, simply remove the last two lines.

### 5.3 Citrix Hypervisor

```

UPDATE tHosts SET VirtualServer = tXenHost.Name
FROM tXenHost, tXenHostVMs, tXenPoolDocu, tHosts, tXen, tDomains AS HostDomain, tDomains AS XenDomain,
tXenVMNICs,
(
    select tNetworkAdapter.*, tHosts.HostID, tDomains.AccountID from tNetworkAdapter, tDocu, tHosts,
tDomains
    where tNetworkAdapter.AdapterID in (
        select tNetworkAdapterConfiguration.AdapterID from tNetworkAdapterConfiguration)
    and tNetworkAdapter.DocuID = tDocu.DocuID
    and tDocu.Archiv = 0
    and tDocu.HostID = tHosts.HostID
    and tDomains.DomainID = tHosts.DomainID
) as vNetworkAdapter
WHERE tXenHost.HostID = tXenHostVMs.HostID
and tHosts.HostID = vNetworkAdapter.HostID
and tXenVMNICs.MAC = vNetworkAdapter.MACAddress
AND tXenVMNICs.VMID = tXenHostVMs.VMID
AND tXenPoolDocu.DocuID = tXenHost.DocuID
and tHosts.DomainID = HostDomain.DomainID
and tXenPoolDocu.XenID = tXen.XenID
and tXen.DomainID = XenDomain.DomainID
and HostDomain.AccountID = XenDomain.AccountID
and vNetworkAdapter.AccountID = HostDomain.AccountID
AND tXenPoolDocu.Archiv = 0
and XenDomain.AccountID = {ACCOUNT}          -- Filtering on the selected company
and HostDomain.AccountID = {ACCOUNT}          -- Filtering on the selected company

```

The statement adds the Xen host.

Furthermore, within the statement, the last two columns filter on the account/company for which the notification task is set up. If there are multiple companies in your Docusnap database and you do not want to set up a separate notification task for each, then simply remove the last two lines.

## 5.4 Nutanix

```

UPDATE tHosts
SET VirtualServer = h.Name
FROM tHosts
JOIN tDocu ON tDocu.HostID = tHosts.HostID
      AND tDocu.Archiv = 0
JOIN tDomains AS HostDomain ON HostDomain.DomainID = tHosts.DomainID
JOIN (
  SELECT na.*, h.HostID, dom.AccountID
  FROM tNetworkAdapter na
  JOIN tDocu doc ON doc.DocuID = na.DocuID AND doc.Archiv = 0
  JOIN tHosts h ON h.HostID = doc.HostID
  JOIN tDomains dom ON dom.DomainID = h.DomainID
  WHERE na.AdapterID IN (
    SELECT cfg.AdapterID FROM tNetworkAdapterConfiguration cfg
  )
) AS vNetworkAdapter ON vNetworkAdapter.HostID = tHosts.HostID
JOIN tNtnxVMNicSpecDTO nic ON nic.MacAddress = vNetworkAdapter.MACAddress
JOIN tNtnxClusterVMs vm ON vm.NtnxClusterVMID = nic.NtnxClusterVMID
JOIN zNtnxDocu nd ON nd.DocuID = vm.DocuID AND nd.Archiv = 0
JOIN tNtnxCluster nx ON nx.NtnxClusterID = nd.NtnxClusterID
JOIN tDomains AS NtnxDomain ON NtnxDomain.DomainID = nx.DomainID
JOIN tNtnxClusterHosts h ON h.DocuID = vm.DocuID
      AND h.Uuid = vm.HostUuid
WHERE HostDomain.AccountID = NtnxDomain.AccountID
      AND HostDomain.AccountID = vNetworkAdapter.AccountID
      AND NtnxDomain.AccountID = {ACCOUNT}      -- Filtering on the selected company
      AND HostDomain.AccountID = {ACCOUNT}      -- Filtering on the selected company

```

The statement adds the Nutanix host.

Furthermore, the last two columns within the statement filter on the account/company for which the notification task is set up. If there are multiple companies in your Docusnap database and you do not want to set up a notification task for each of them, simply remove the last two lines.

## 5.5 Hyper-V

```

UPDATE tHosts
SET VirtualServer = s.Name
FROM tHosts
JOIN tDocu ON tDocu.HostID = tHosts.HostID
      AND tDocu.Archiv = 0
JOIN tDomains AS HostDomain ON HostDomain.DomainID = tHosts.DomainID
JOIN (
  SELECT na.*, h.HostID, dom.AccountID
  FROM tNetworkAdapter na
  JOIN tDocu doc ON doc.DocuID = na.DocuID AND doc.Archiv = 0
  JOIN tHosts h ON h.HostID = doc.HostID
  JOIN tDomains dom ON dom.DomainID = h.DomainID
  WHERE na.AdapterID IN (
    SELECT cfg.AdapterID FROM tNetworkAdapterConfiguration cfg
  )
) AS vNetworkAdapter ON vNetworkAdapter.HostID = tHosts.HostID
JOIN tHyperVVMNetworkAdapter vmna ON vmna.MacAddress = vNetworkAdapter.MACAddress
JOIN tHyperVVirtualMachine vm ON vm.HyperVVirtualMachineID = vmna.HyperVVirtualMachineID
JOIN zHyperVDocu hvd ON hvd.DocuID = vm.DocuID AND hvd.Archiv = 0
JOIN tHyperVServer s ON s.HyperVServerID = hvd.HyperVServerID
JOIN tDomains AS HyperVDomain ON HyperVDomain.DomainID = s.DomainID
WHERE HostDomain.AccountID = HyperVDomain.AccountID
      AND HostDomain.AccountID = vNetworkAdapter.AccountID
      AND HyperVDomain.AccountID = {ACCOUNT}    -- Filtering on the selected company
      AND HostDomain.AccountID = {ACCOUNT}      -- Filtering on the selected company

```

The statement adds the Hyper-V host.

Furthermore, the last two columns within the statement filter on the account/company for which the notification task is set up. If there are multiple companies in your Docusnap database and you do not want to set up a notification task for each of them, simply remove the last two lines.

## 5.6 Proxmox

```

UPDATE tHosts
SET VirtualServer = n.Node
FROM tHosts
JOIN tDocu ON tDocu.HostID = tHosts.HostID
AND tDocu.Archiv = 0
JOIN tDomains AS HostDomain ON HostDomain.DomainID = tHosts.DomainID
JOIN (
    SELECT na.*, h.HostID, dom.AccountID
    FROM tNetworkAdapter na
    JOIN tDocu doc ON doc.DocuID = na.DocuID AND doc.Archiv = 0
    JOIN tHosts h ON h.HostID = doc.HostID
    JOIN tDomains dom ON dom.DomainID = h.DomainID
    WHERE na.AdapterID IN (
        SELECT cfg.AdapterID FROM tNetworkAdapterConfiguration cfg
    )
) AS vNetworkAdapter ON vNetworkAdapter.HostID = tHosts.HostID
JOIN tProxVMNICs nic ON nic.Virtio = vNetworkAdapter.MACAddress
JOIN tProxVMs vm ON vm.ProxVMsID = nic.ProxVMsID
JOIN zProxDocu pd ON pd.DocuID = vm.DocuID AND pd.Archiv = 0
JOIN tProxmox px ON px.ProxmoxID = pd.ProxmoxID
JOIN tDomains AS ProxDomain ON ProxDomain.DomainID = px.DomainID
JOIN tProxNodeVMs nvm ON nvm.ProxVMsID = vm.ProxVMsID
JOIN tProxNodes n ON n.ProxNodesID = nvm.ProxNodesID
WHERE HostDomain.AccountID = ProxDomain.AccountID
AND HostDomain.AccountID = vNetworkAdapter.AccountID
AND ProxDomain.AccountID = {ACCOUNT} -- Filtering on the selected company
AND HostDomain.AccountID = {ACCOUNT} -- Filtering on the selected company

```

The statement adds the Proxmox host.

Furthermore, the last two columns within the statement filter on the account/company for which the notification task is set up. If there are multiple companies in your Docusnap database and you do not want to set up a notification task for each of them, simply remove the last two lines.

LIST OF FIGURES

FIG. 1 - ACCESSING THE NOTIFICATION DEFINITION ..... 6

VERSION HISTORY

| Date       | Description                                                                              |
|------------|------------------------------------------------------------------------------------------|
| 1/3/2016   | Statement modified (2.4.6)                                                               |
| 3/3/2017   | List of figures modified                                                                 |
| 24/10/2018 | Screenshots updated; Statement modified (2.4.5, 2.4.7 und 2.4.8); Insert Version history |
| 29/04/2020 | Version 2.0 - Revision of the HowTo for Docusnap 11                                      |
| 19/12/2022 | Version 3.0 – Revision of the HowTo for Docusnap 12                                      |
| 13/11/2023 | Version 4.0 – Revision of the HowTo for Docusnap 13                                      |
| 15/12/2025 | Version 4.1 - Adding an application example (Entra ID app update)                        |
| 08/12/2026 | Version 4.2 – Maintenance tasks expanded to include Nutanix, Hyper-V and Proxmox         |

