

UNIFY Open Scape Fault Management

Installation and configuration

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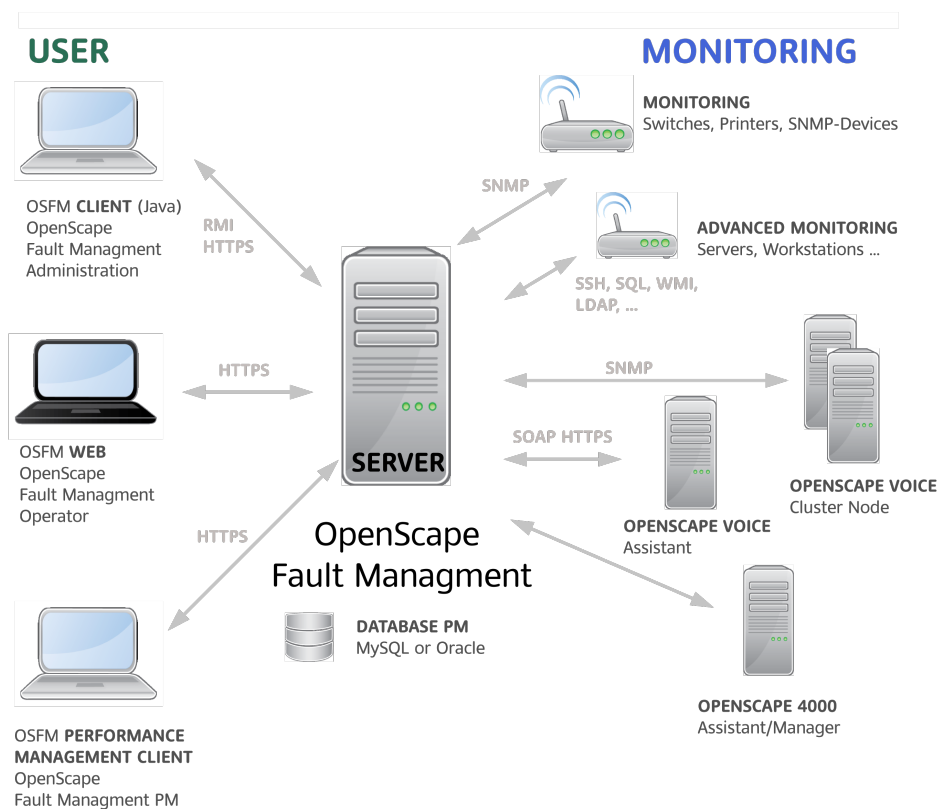
Product description

OpenScope Fault Management (OSFM) is a network management tool that performs two tasks (bold print) according to FCAPS, an ISO model for network management:

- ▶ **Fault Management**
- ▶ **Configuration Management**
- ▶ **Accounting Management**
- ▶ **Performance Management**
- ▶ **Security Management**

OSFM monitors all or individual networks and their members and start actions if these devices report errors or alarms. Additionally monitoring all SNMP-enabled devices and any technology with the advanced Monitoring is possible. As the only network monitoring/management product, OSFM has special support for UNIFY OpenScope technologies. This makes out-of-the-box monitoring possible for OpenScope 4000, Voice and Business.

OSFM structure and communication



Installation OSFM Server

Requirements Hardware

- **Server Testlab "minimum"**
 - Bare Metal oder virtual (VMWare ESX, HyperV)
 - 4 GB RAM
 - 50 GB HDD
 - 2x CPU Core
- **Server production use "minimum"**
 - Bare Metal or virtual (VMWare ESX, HyperV)
 - 8 GB RAM
 - 600 GB HDD
 - 4x CPU Core
- **Server production use "big"**
 - Bare Metal oder virtual (VMWare ESX, HyperV)
 - 16 GB RAM
 - 600 GB HDD
 - 8x CPU Core

Flash/SSD storage should be used for optimal performance.

Requirements operating system

Starting OSFM version 10, only 64-bit operating systems are supported:

- **Windows 7 SP1 64 Bit**
- **Windows 8.1 64 Bit**
- **Windows 10 64 Bit**
- **Windows Server 2012R2 64 Bit**
- **Windows Server 2016 64 Bit**
- **SuSE Linux Enterprise 11 64 Bit**
- **SuSE Linux Enterprise 12 64 Bit**

Requirements Java

A Java Runtime is required for the installation and operation of OSFM Server. The current version of the following versions can always be used:

- **Oracle Java Runtime 8 64 Bit Windows**
- **Oracle Java Runtime 8 64 Bit Linux**
- **Oracle Java Runtime 11 64 Bit Windows**
- **Oracle Java Runtime 11 64 Bit Linux**

► **IBM Java Runtime 8 64 Bit Linux**

Requirements UNIFY Customer License Agent

For the licensing of OSFM Server a UNIFY Customer License Agent CLA must be available, which provides a suitable license for the OSFM Server. Before installing OSFM V10 a compatible version of the CLA should always be available.

Database Server Requirements for Monitoring or Performance Management

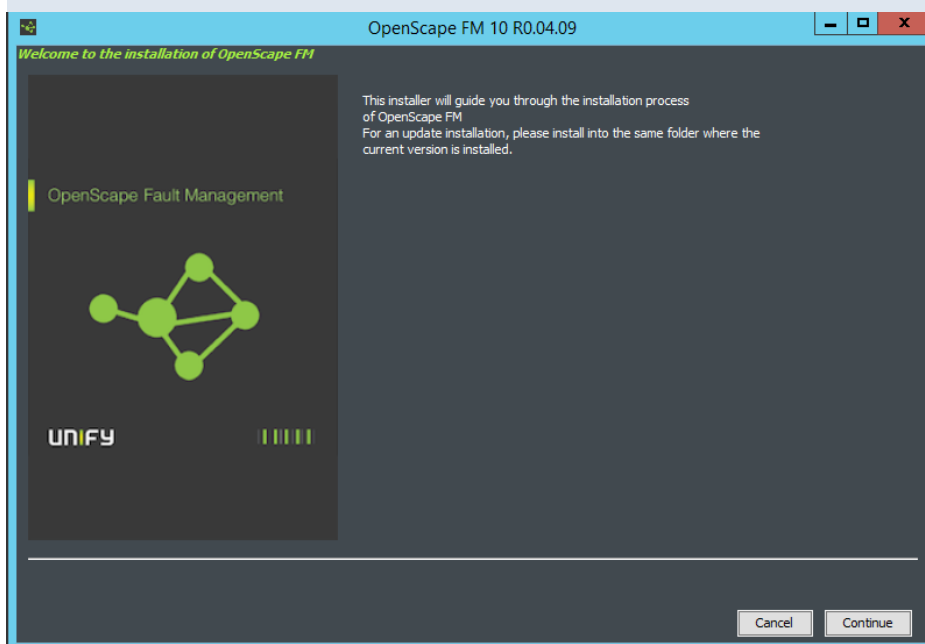
For storing the monitoring data, a copy in a MySQL database server can optionally be set. If the OSFM "Performance Management" feature is used, the installation of a MySQL or Oracle database server is required and mandatory.

TASK 1 > Installing the UNIFY Customer License Agent (CLA)

- Download Installer of UNIFY Customer License Agent CLA from UNIFY SWS-Server
- Installing CLA using the setup program: Installation with default values of the installer

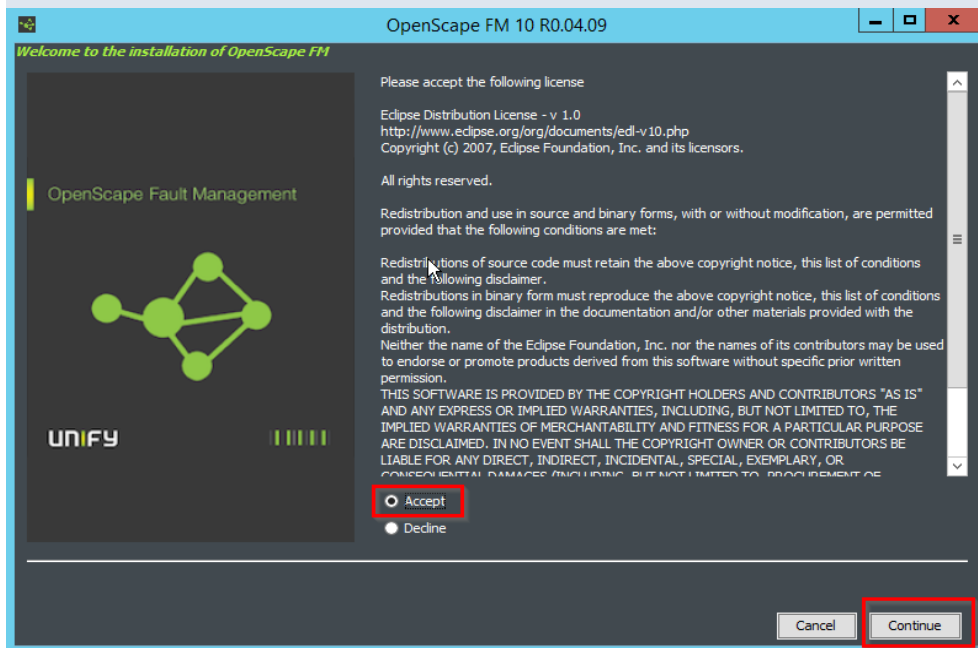
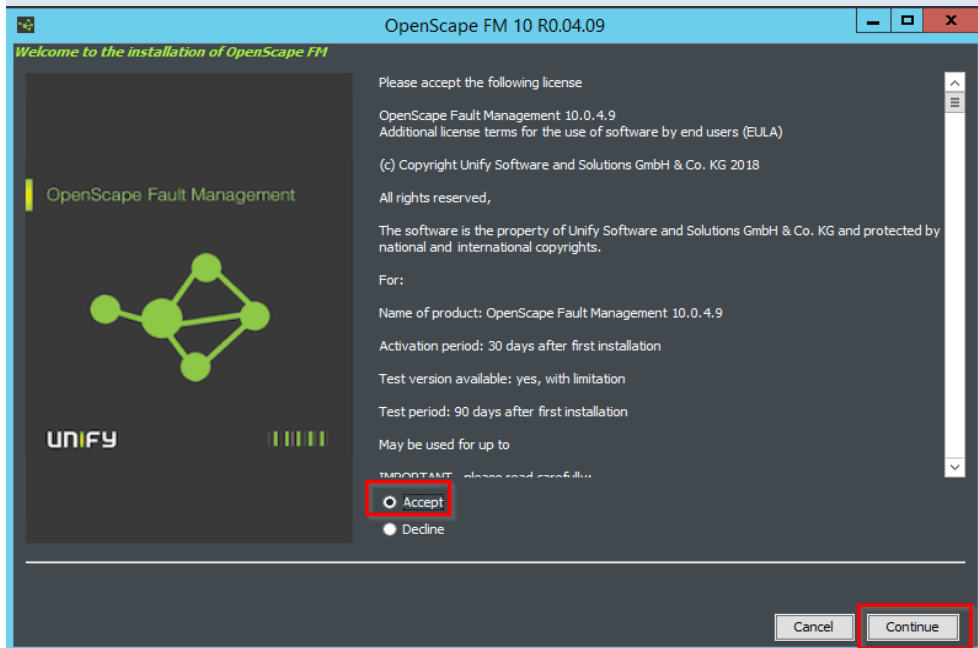
TASK 2 > Windows platform: Install OSFM Server

- Download Installer of Oracle Java 1.8 64-Bit:
- <http://www.oracle.com/technetwork/java/javase/downloads/jre8-downloads-2133155.html>
- Installing Java using the setup program
 - Download Installer of UNIFY OpenScope Fault Management from UNIFY SWS Server
 - Use "setup_osfm.exe" and start it with administrator authorization

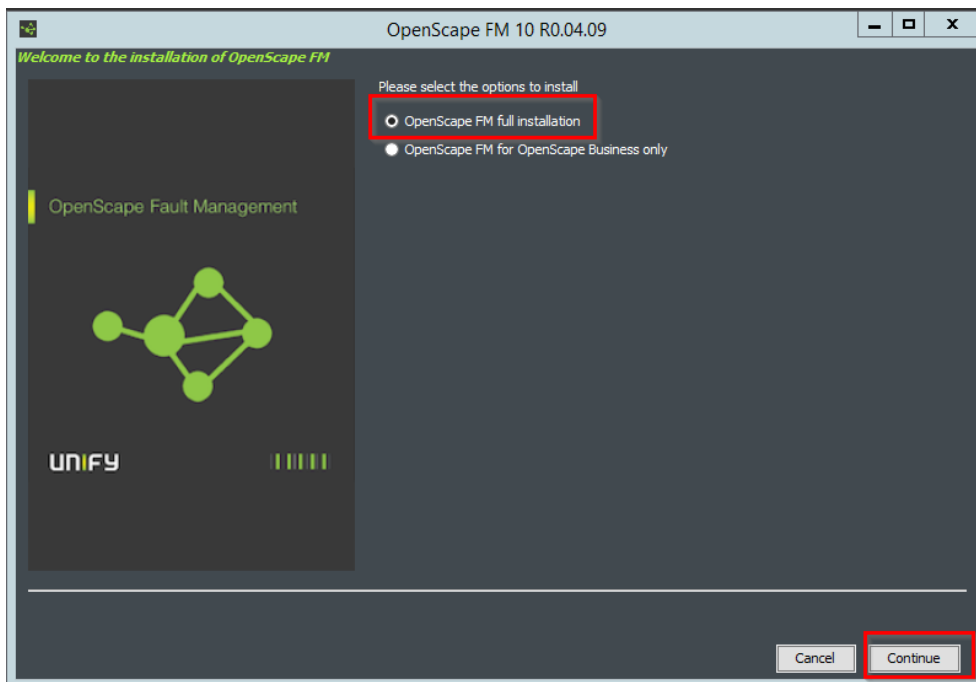


- Accept license for OSFM

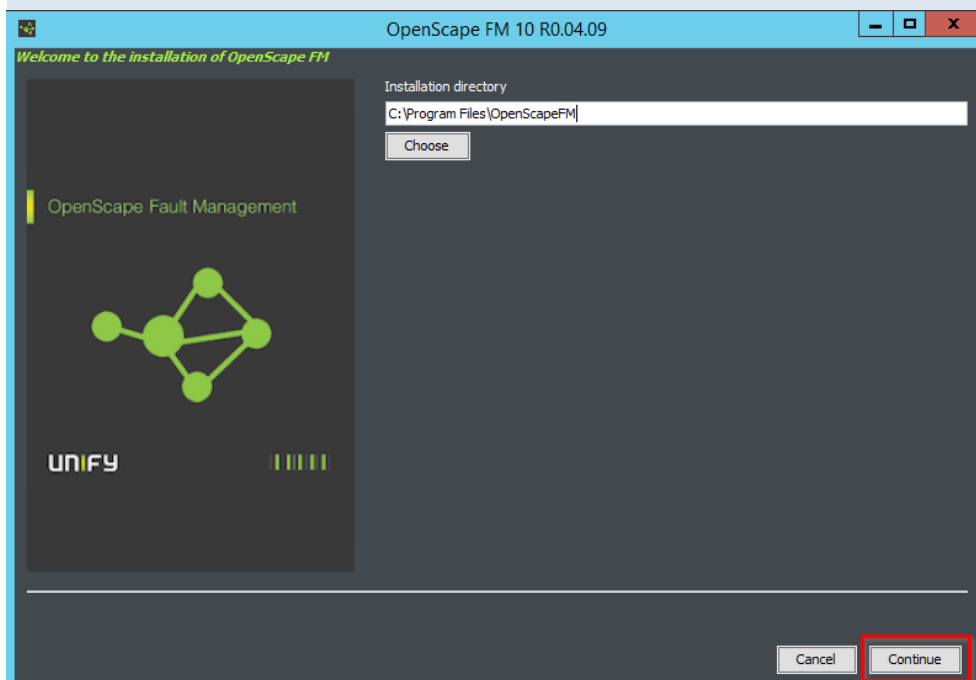
→ Accept license for OpenSource components



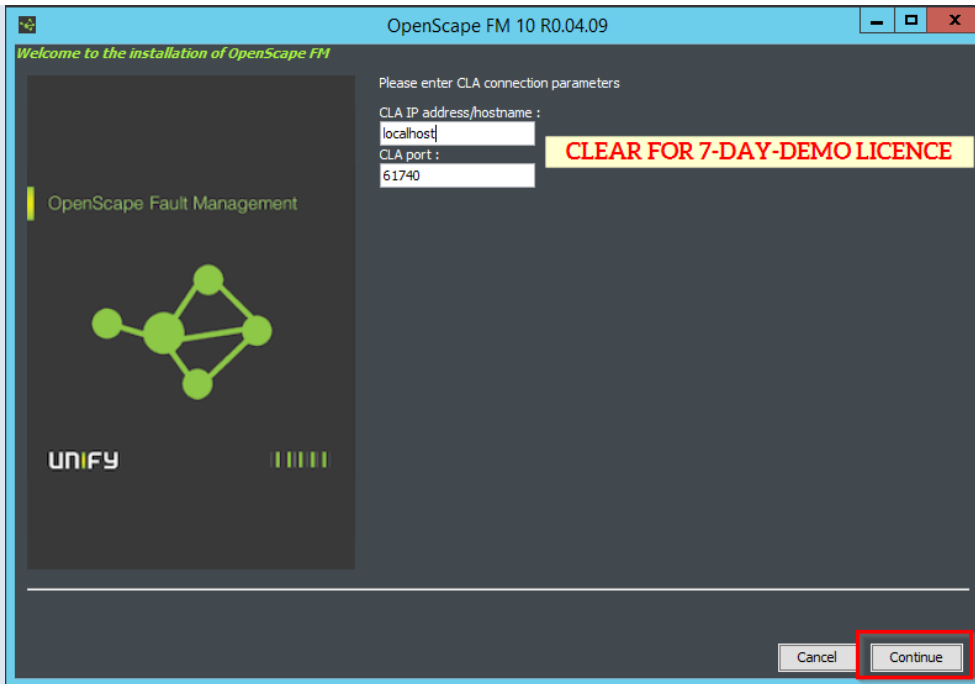
→ Select „Full Installation" Installation



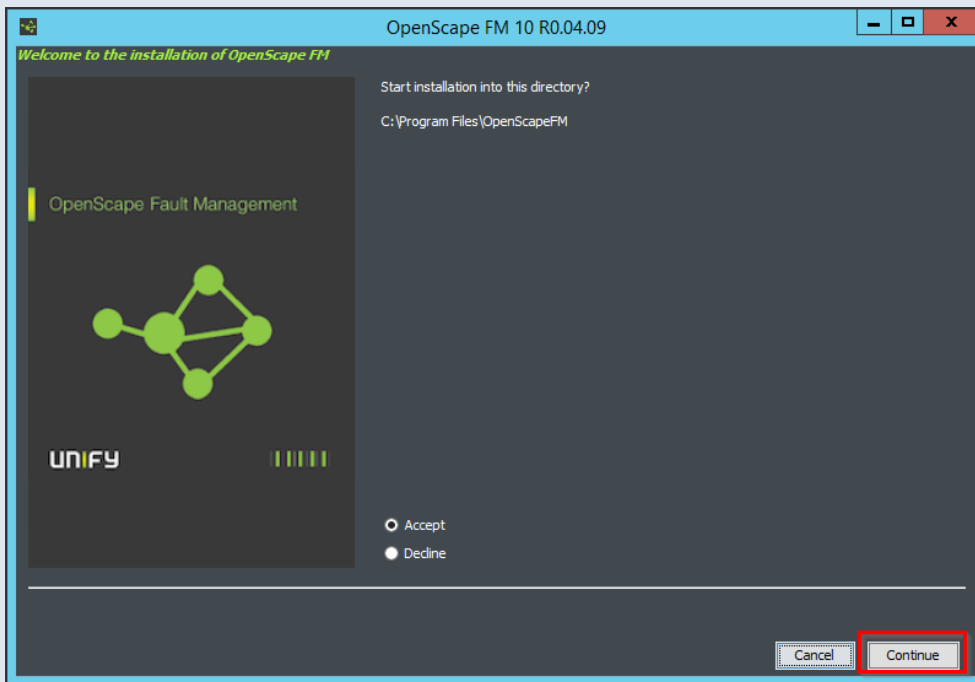
→ Adopt or adapt installation folder

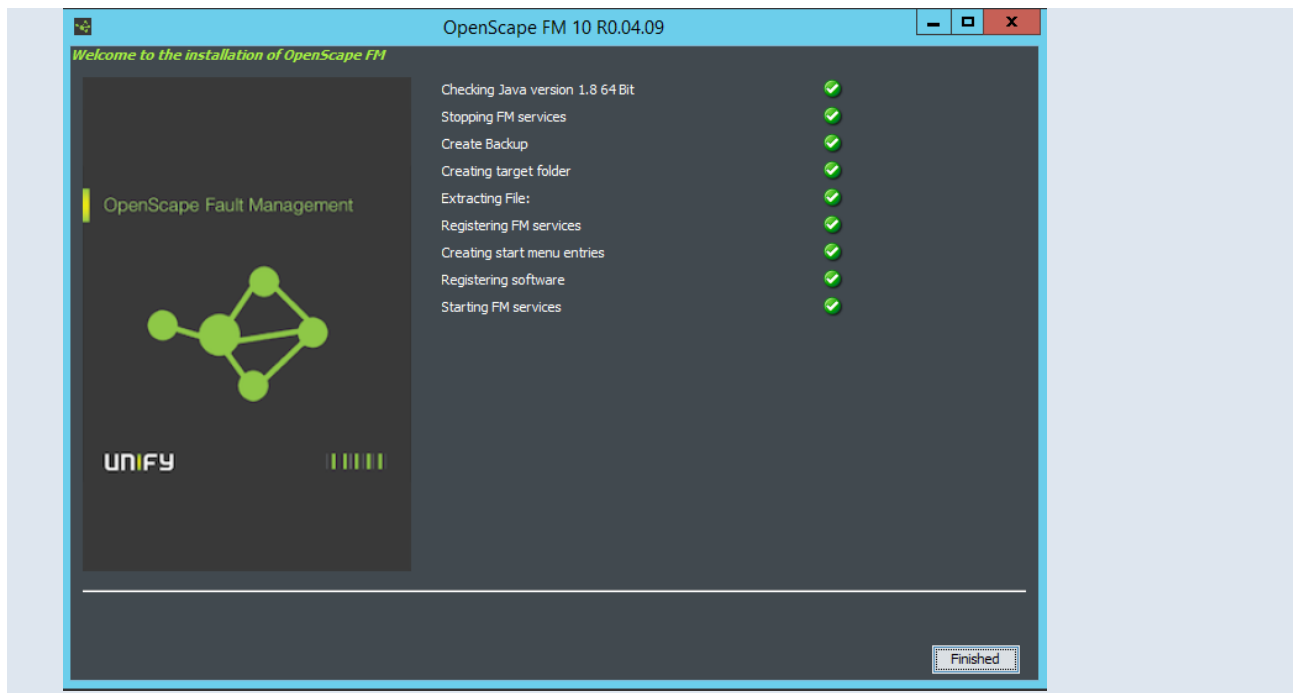


→ Hostname "localhost" and port for the CLA (if it runs on the same machine)



→ Start installation





After finishing the OSFM Server installation the installer starts the OSFM service which creates a new internal object database. This process briefly generates a high system load, which is normal again after completion.

Debugging the OSFM Server Installation

Every installation or update process of OSFM is logged in log files. In the event of an error, these can be analyzed (with a text editor) or made available to support.

...\\OpenScape FM\\install_**DATE**.log -> Installation Log

...\\OpenScape FM\\patch_**VERSION**.log -> Patch Log

Log files are also written at the start of the OSFM system service and at runtime:

...\\OpenScape FM\\startup\\log\\startup.service.log -> Service Startup

...\\OpenScape FM\\startup\\log\\OpenScapeFM.log -> Service Startup

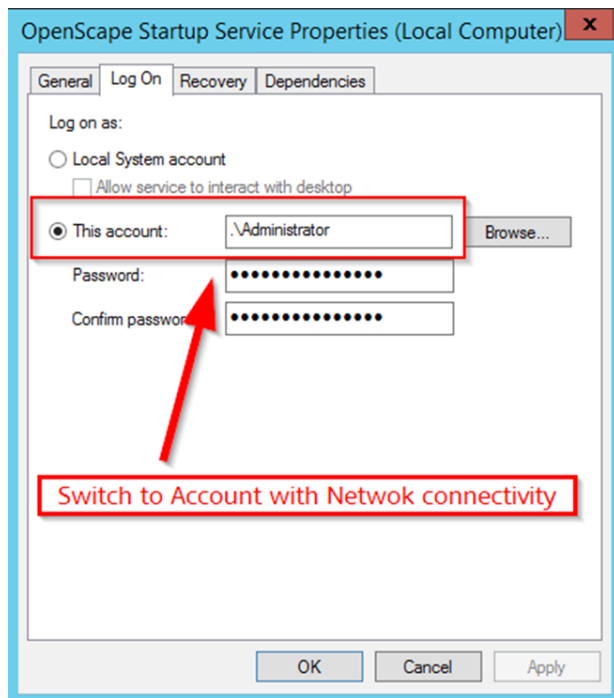
...\\OpenScape FM\\server\\log\\server.log -> Runtime Log (eg: License Error)

Options after completion of the installation

After completion of a new installation, some settings can be adapted to the customer's environment:

► Change user ID of OSFM Windows system service

If the "Advanced Monitoring" feature monitoring perform remote WMI monitoring, the user ID of "Local System Account" must be to a user with permission to connect to the network. Configuration in Windows Service Manager:



► Change used JAVA Runtime

The OSFM installer saves the JAVA runtime version used during the installation and uses it to start the system service. In case of a JAVA update the information of the JAVA Runtime to be used must be adapted in the following file:

`..\OpenScapeFM\java.properties`

and adjust an entry similar to this one:

`java_home=C:\Java\jre1.8.0_92`

► JAVA Runtime VM Memory-Option: Adjust RAM usage

The memory used by the JAVA Runtime Virtual Machine is set to 2 GByte with the installation. In the case of many monitored hosts, this value must be adjusted, e.g. to half of the total available RAM. Example:

`..\OpenScapeFM\startup\conf\OpenScapeFM.properties`

Insert this entry for the use of 4 GByte RAM:

`jvmarg-Xmx4096m`

► Configure Firewall

If the Windows firewall is used, ports must be opened for the operation of OSFM. The latest UNIFY Security Checklist should be used as information source.

Using the OSFM Client for Administration

After successful installation of OSFM Server, the login to the user interface CLIENT for administration can take place. A Java Runtime must be available to start the CLIENT.

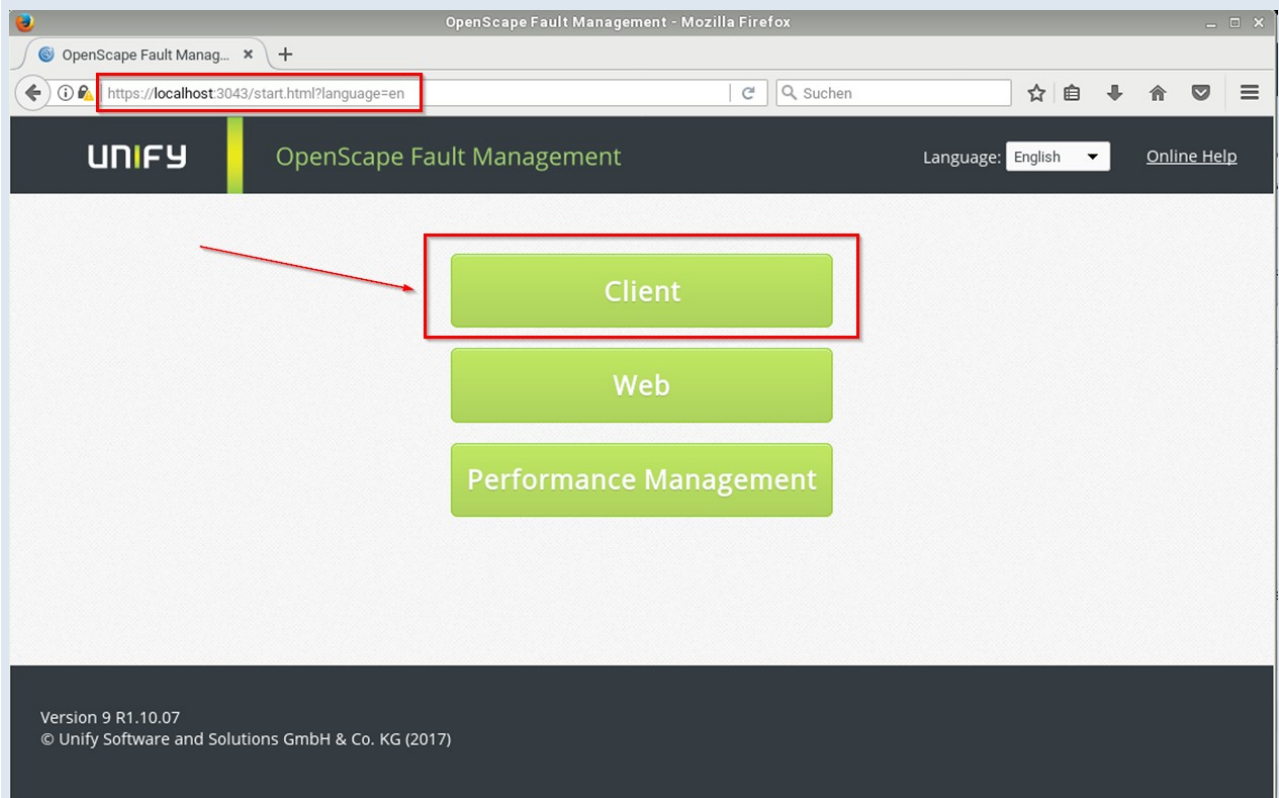
TASK 3 > Start CLIENT user interface for administration

→ Start the Firefox Internet browser and navigate to the landing page of your OSFM server:

`https://localhost:3043`

`https://*yourservername*:3043`

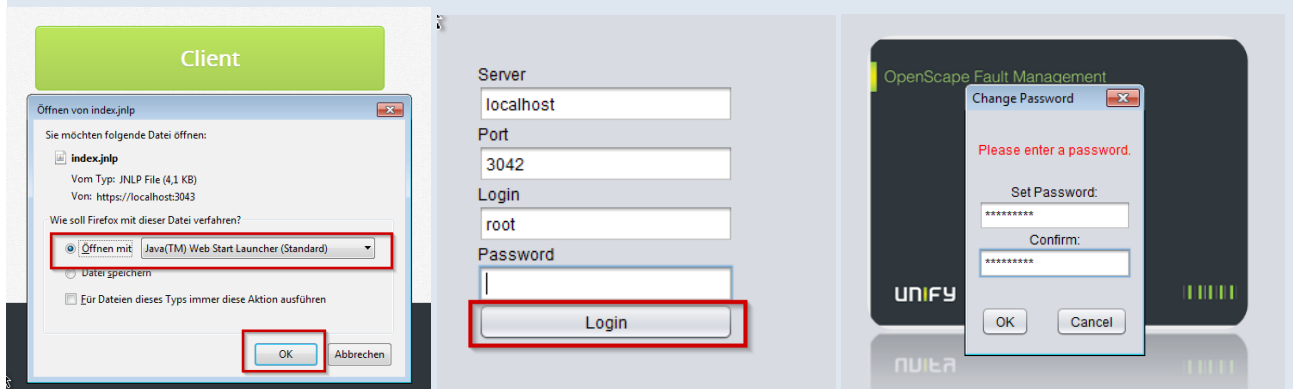
→ Selection of "Client"



→ Open the file offered for download with JAVA Webstart

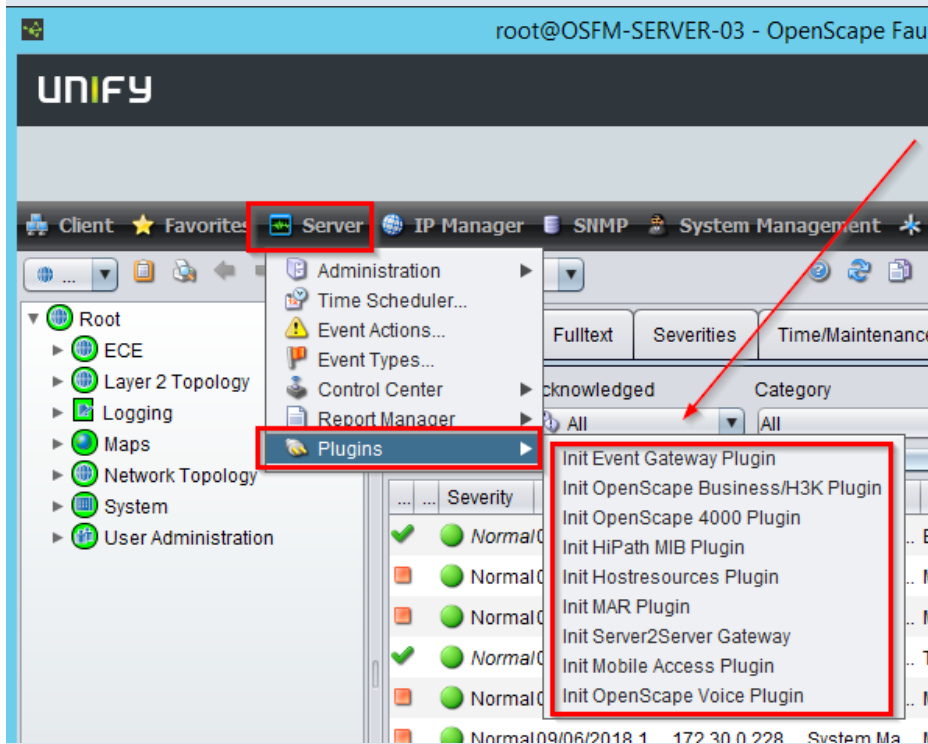
→ Login mask: Check the entry for Server and log in with the user "root" without any password

→ Set the password of the user "root" and use min. 8 characters with numbers/special characters



TASK 4 > CLIENT: Enable Feature Plugins

- Perform a login with the user "root" into the CLIENT.
- Activate all plugins, selecting SERVER -> PLUGINS from the menu.
(The entry for the plugin disappear after activation)



Plugins in OSFM Server provide additional features or support for a specific technology. A valid license is required to use some plugins.

▶ **Event Gateway Plugin**

Feature Plugin. Can forward events as a freely definable SNMP trap. License included in Base.

▶ **OpenScape Business/H3K Plugin**

Technologie Plugin. Automatic discovery of OS Business and Hipath 3000 systems. License required.

▶ **OpenScape 4000 Plugin**

Technologie Plugin. Automatic discovery of OS 4000 and Hipath 4000 systems. License required.

▶ **HiPath MIB Plugin**

Technologie Plugin. Used by other plugins. No extra license required.

▶ **Hostresources Plugin**

Feature Plugin. Easy use of certain SNMP MIB-II information. No extra license required.

▶ **MAR Plugin**

Feature Plugin. Send email/SMS/App response to events. License included in Base.

► **Server2Server Gateway**

Feature Plugin. Connect multiple OSFM servers, e.g. for central administration. License required.

► **Mobile Access Plugin**

Feature Plugin. Using the iOS/Android App over the Internet. License included in Base.

► **OpenScape Voice Plugin**

Technologie Plugin. Automatic discovery of OS Voice systems. License required.

Use of external databases

OSFM Server can be connected to external databases. Two features use storage in external databases:

► **(Advanced) Monitoring: Export of monitoring data to MySQL Server**

- Usage OPTIONAL, data is also stored in internal JAVA SQL database
- Data can be stored over a longer period of time
- useful for many monitored hosts

► **Performance Management: Store VoIP QoS data in MySQL or Oracle SQL Server**

- Usage REQUIRED, data will only be stored externally
- PM and Advanced Monitoring can share MySQL

TASK 5 > Windows platform: Install MySQL Server

→ **Download the latest version of MySQL Server 5.7:**

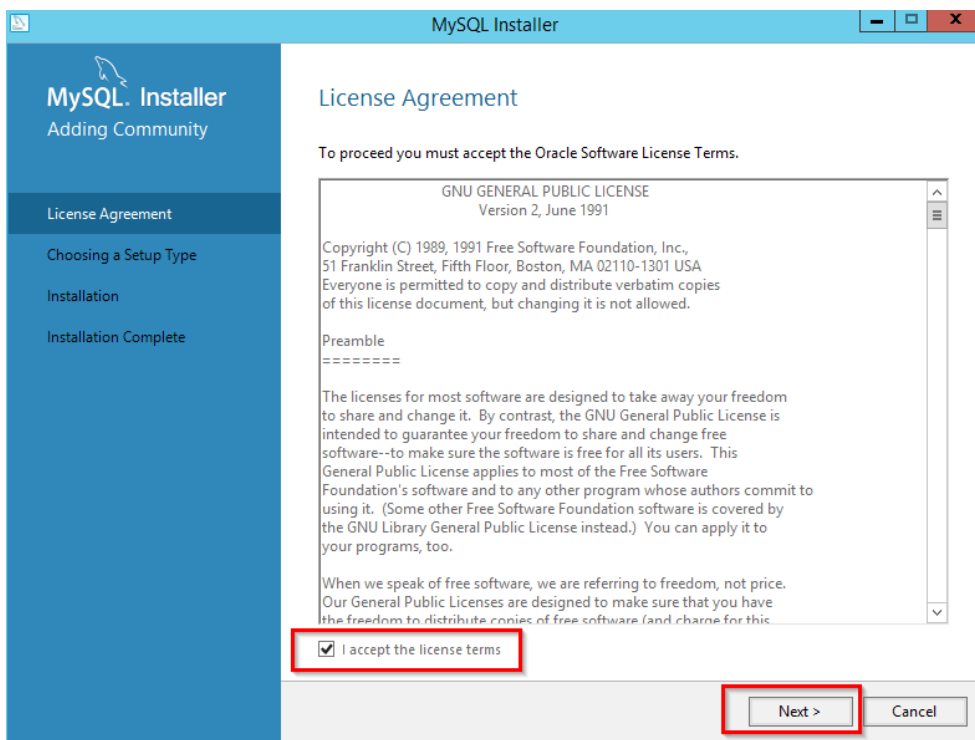
<https://dev.mysql.com/downloads/mysql/>

→ **If you are not connected to the Internet, please install the following before
Microsoft VisualC++ Runtime 2015 und 2013**

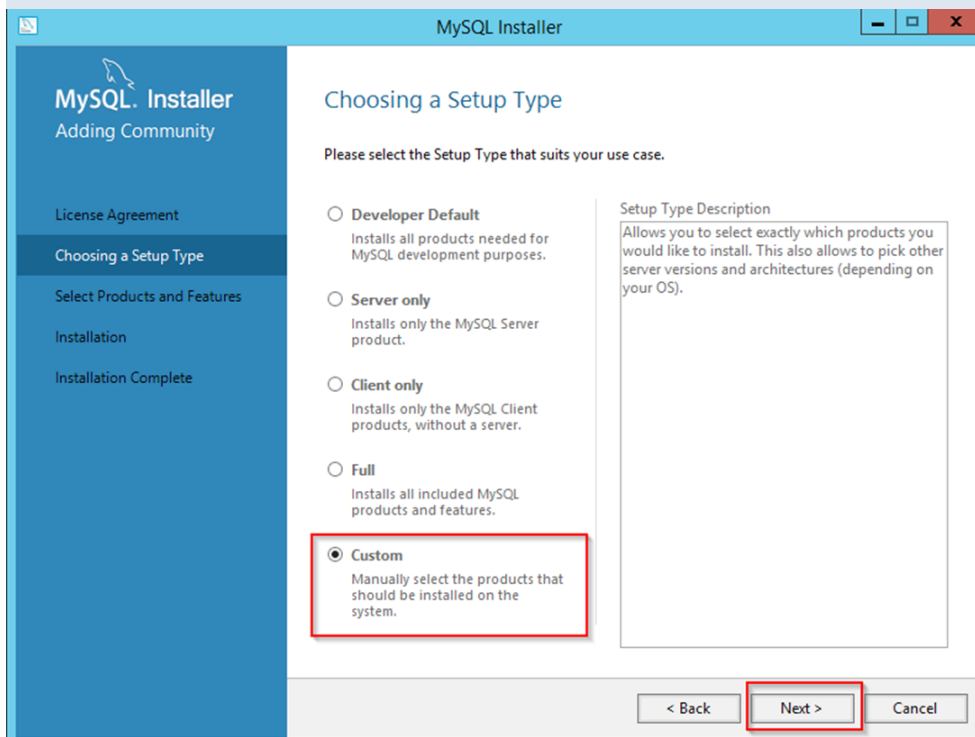
→ **Run the MySQL Server 5.7 setup:**

→ **Accept License Agreement**

| Installer ▶ MySQL Server | | |
|--|------------------|----------------------|
| Name | Änderungsdatum | Typ |
| mysql-installer-community-5.7.23.0.msi | 27.08.2018 14:03 | Windows Installer... |
| vc_redist2010_x64.exe | 25.10.2016 21:37 | Anwendung |
| vc_redist2010_x86.exe | 25.10.2016 21:55 | Anwendung |
| vc_redist2012_x64.exe | 30.10.2013 13:15 | Anwendung |
| vc_redist2012_x86.exe | 30.10.2013 13:15 | Anwendung |
| vc_redist2013_x64.exe | 07.07.2016 17:23 | Anwendung |
| vc_redist2013_x86.exe | 07.07.2016 17:23 | Anwendung |
| vc_redist2017_x64.exe | 10.04.2018 06:49 | Anwendung |
| vc_redist2017_x86.exe | 10.04.2018 09:35 | Anwendung |



→ **Select Setup Type "Custom"**



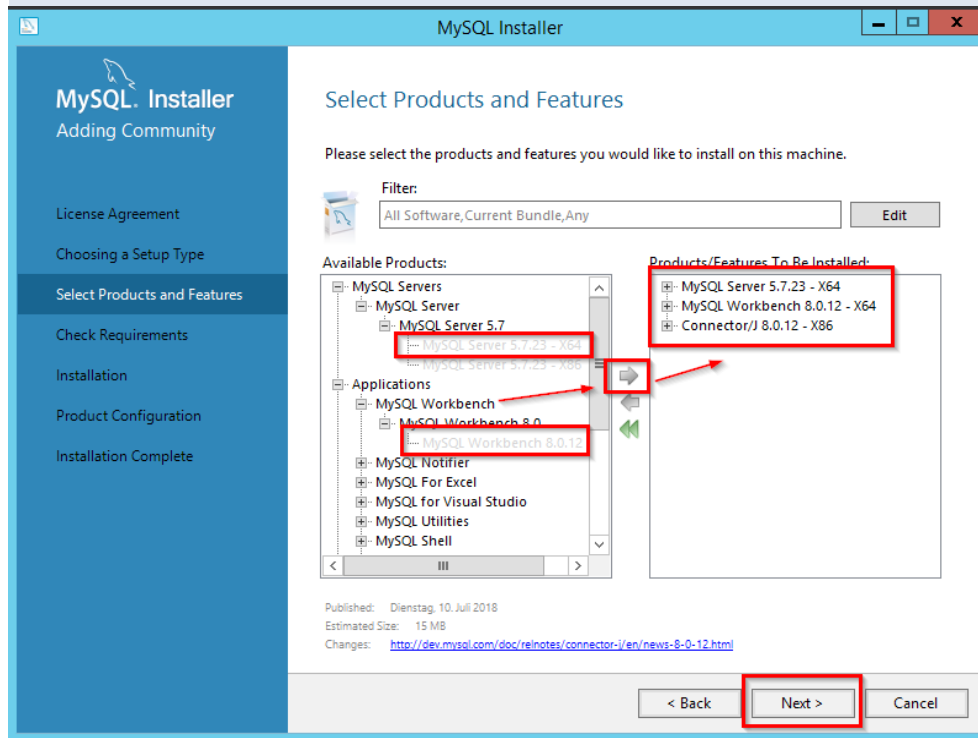
→ **Select following "Products and Features"**

MySQL Server -> MySQL Server 5.7 -> MySQL Server 5.7.x.x - X64

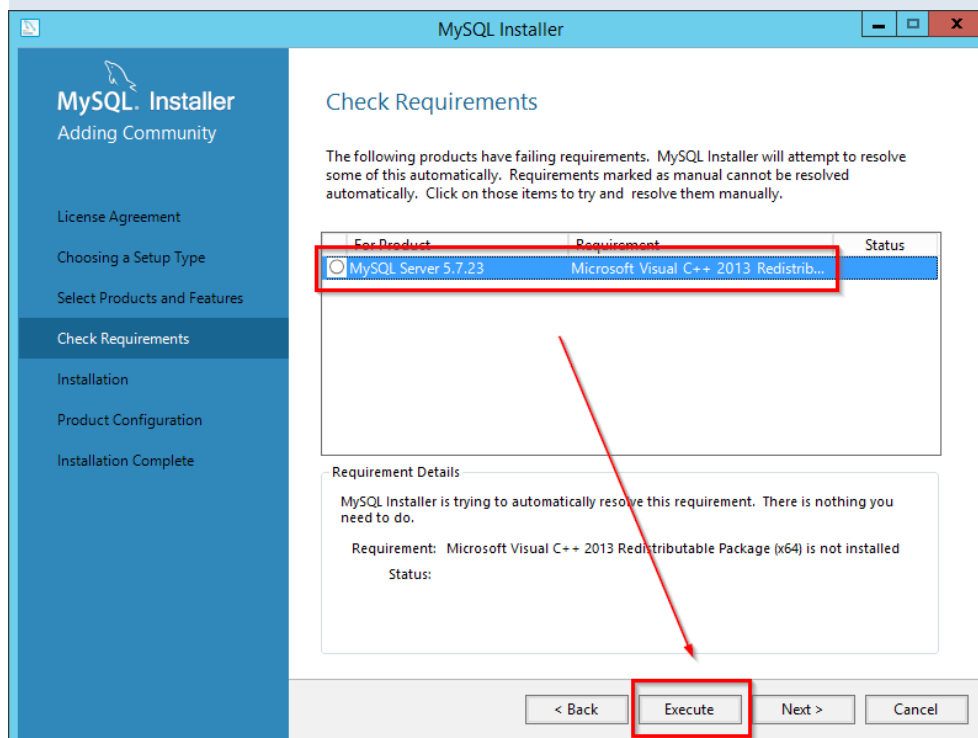
Applications -> MySQL Workbench -> MySQL Workbench 8.0 -> MySQL Workbench 8.x.x - X64

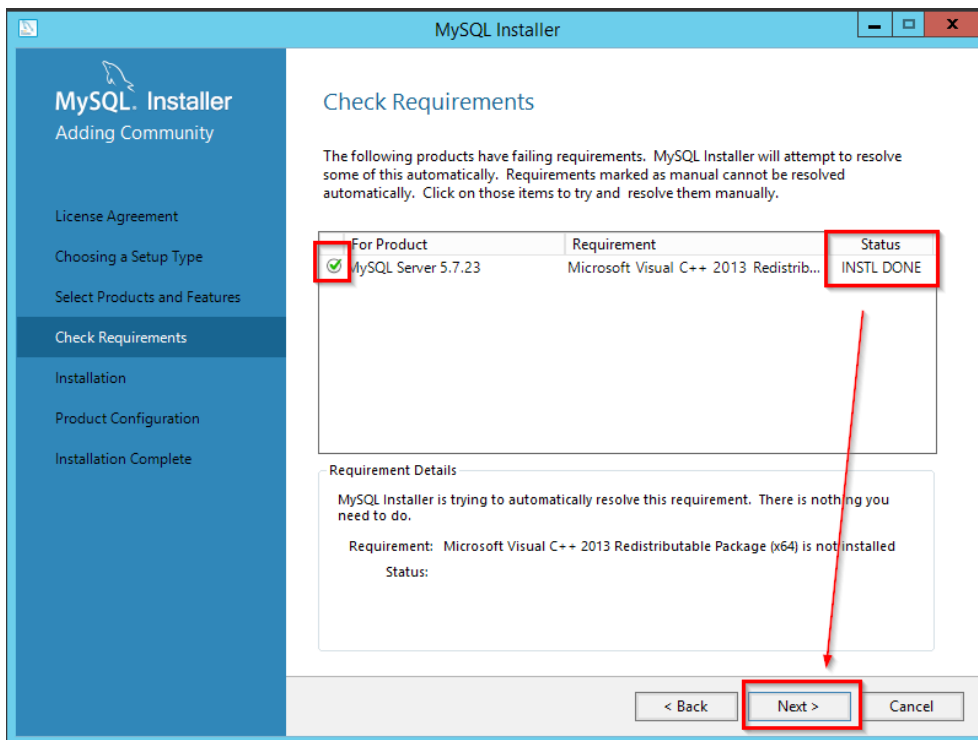
MySQL Connectors -> Connector/J 8.0 -> Connector/J 8.x.x - X86

→ "Installation" of the selected components

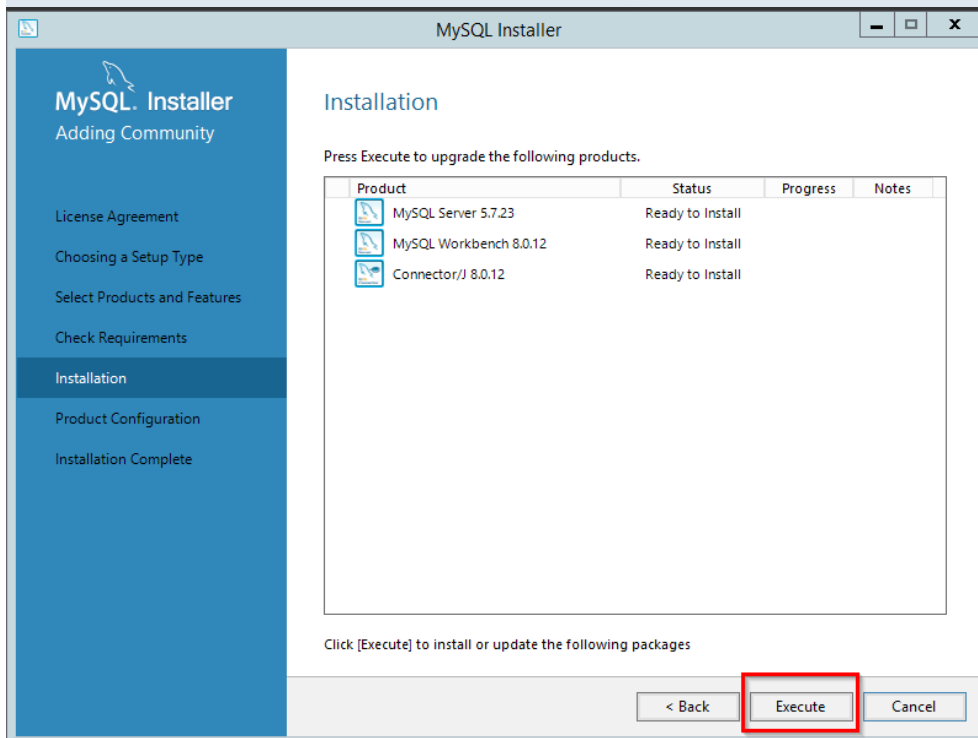


→ Microsoft Visual C++ Runtime installation if necessary (Execute)

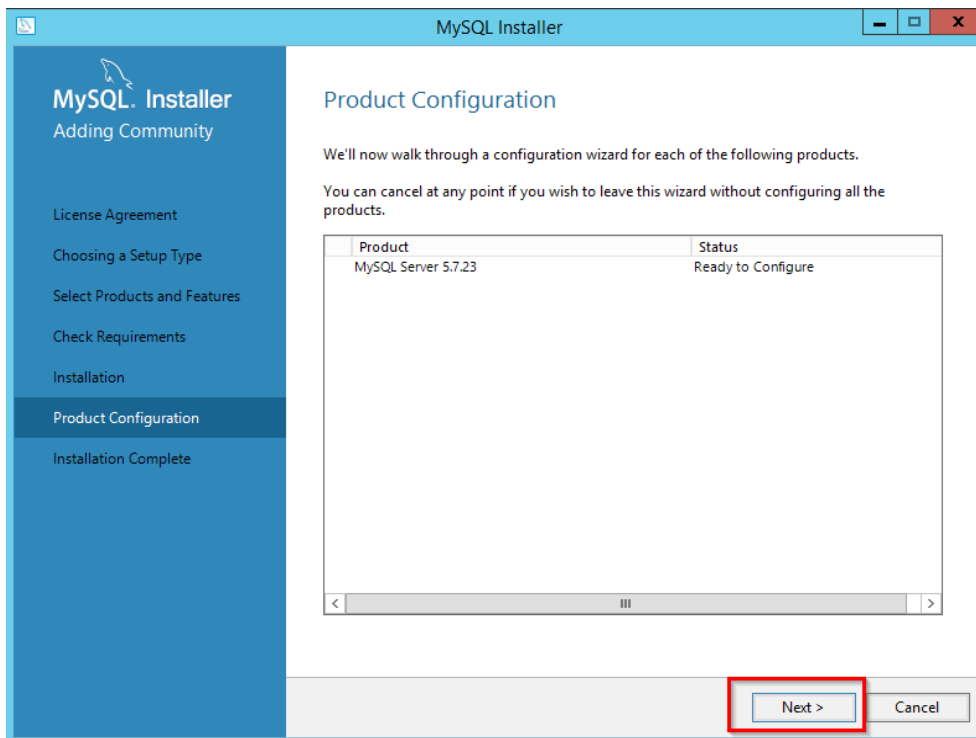




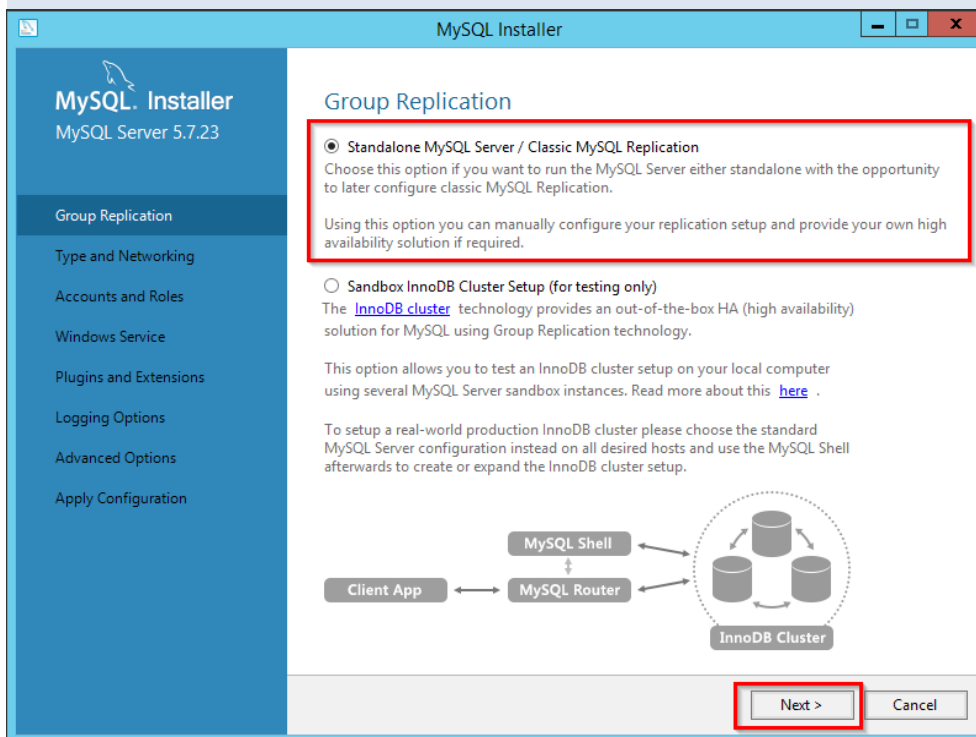
→ **Start "Product Installation" (Execute)**



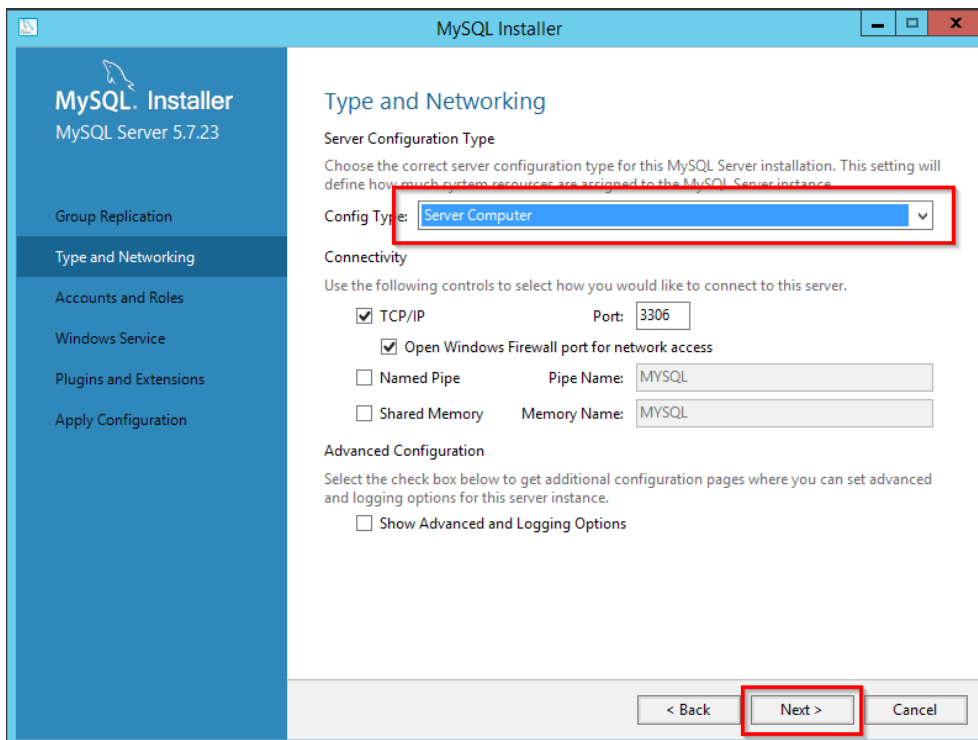
→ **Start Product Configuration"**



→ "Group Replication" : Standalone MySQL Server ...



→ "Type and Networking": Config Type "Server Machine"



MySQL Installer
MySQL Server 5.7.23

Type and Networking

Server Configuration Type
Choose the correct server configuration type for this MySQL Server installation. This setting will define how much system resources are assigned to the MySQL Server instance.

Config Type: **Server Computer**

Connectivity
Use the following controls to select how you would like to connect to this server.

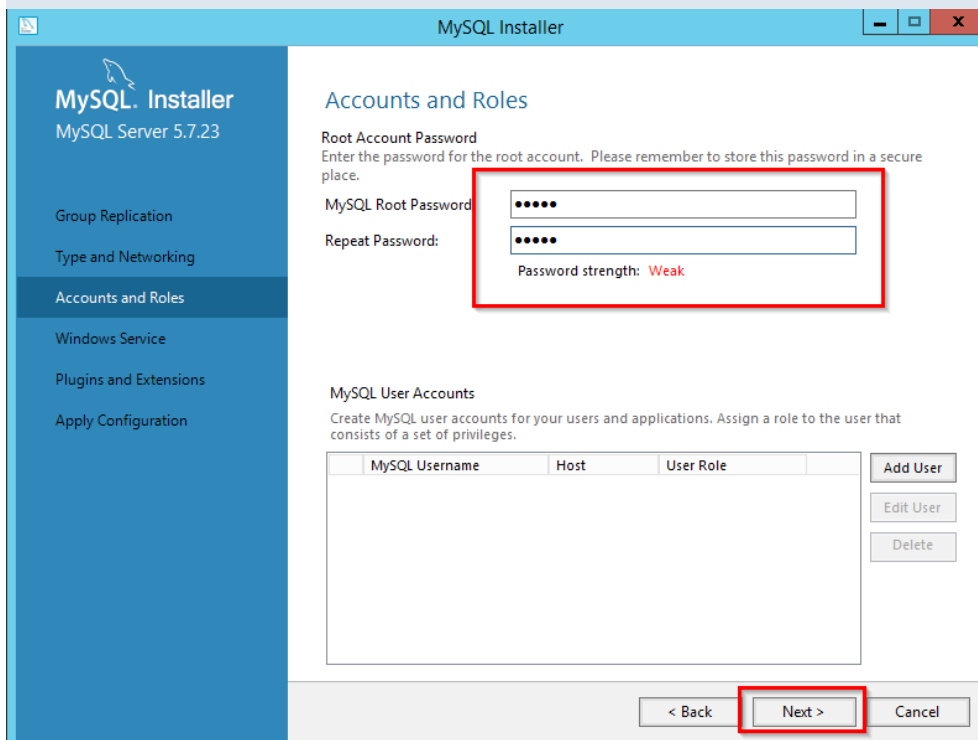
☒ TCP/IP Port: 3306
☒ Open Windows Firewall port for network access
☐ Named Pipe Pipe Name: MYSQL
☐ Shared Memory Memory Name: MYSQL

Advanced Configuration
Select the check box below to get additional configuration pages where you can set advanced and logging options for this server instance.

☐ Show Advanced and Logging Options

< Back **Next >** Cancel

→ **"Accounts and Roles": configure MySQL Password**



MySQL Installer
MySQL Server 5.7.23

Accounts and Roles

Root Account Password
Enter the password for the root account. Please remember to store this password in a secure place.

MySQL Root Password:

Repeat Password:

Password strength: **Weak**

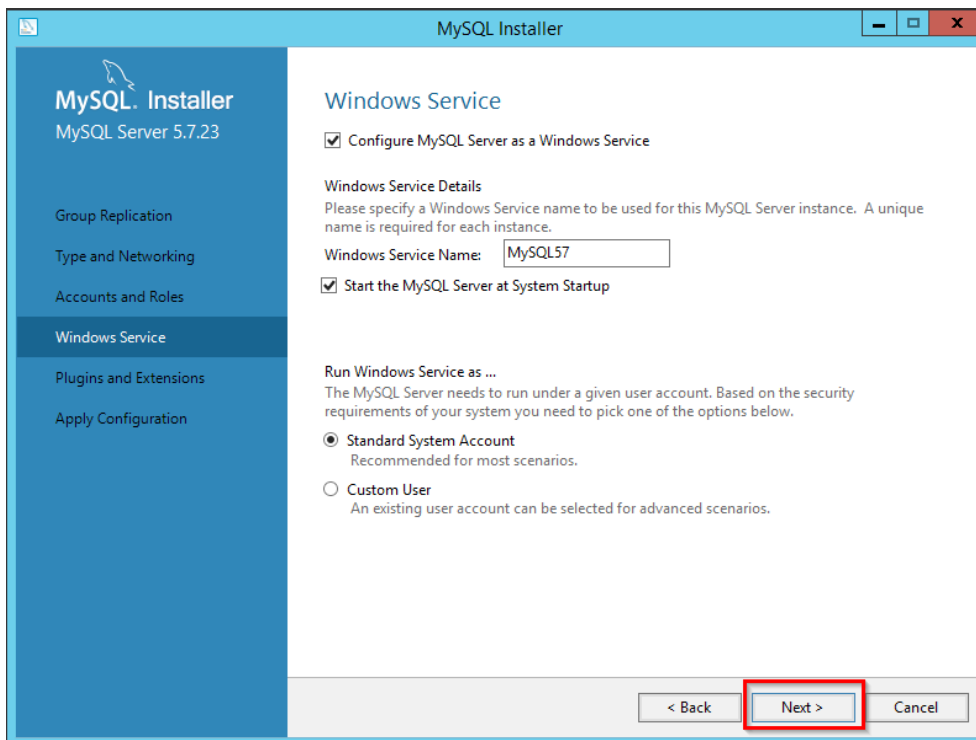
MySQL User Accounts
Create MySQL user accounts for your users and applications. Assign a role to the user that consists of a set of privileges.

| MySQL Username | Host | User Role |
|----------------|------|-----------|
| | | |

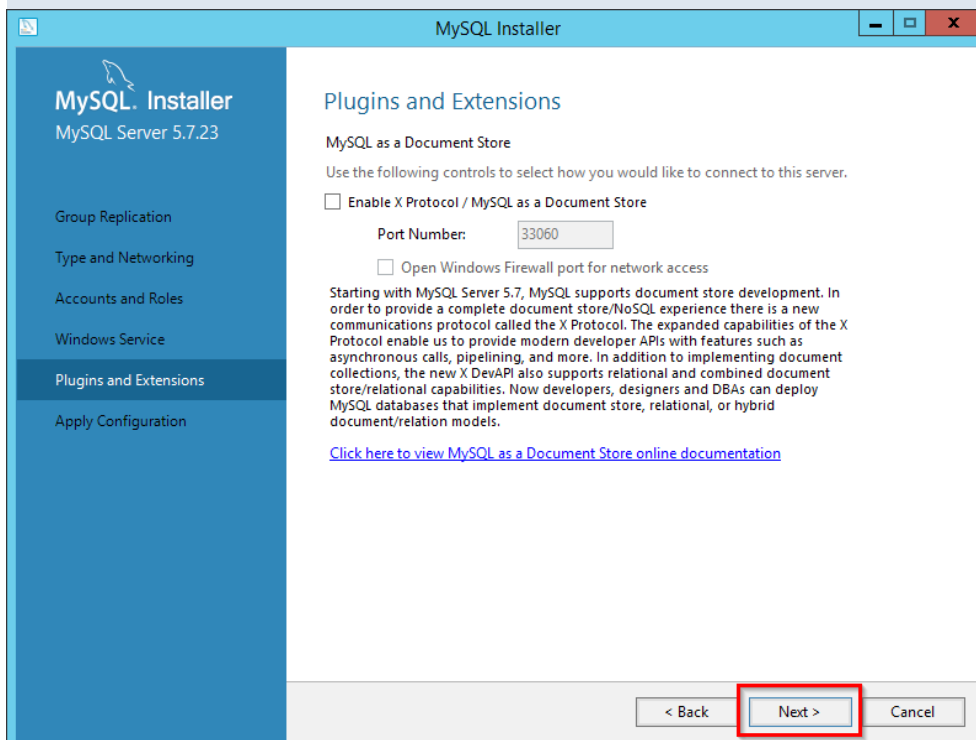
Add User
Edit User
Delete

< Back **Next >** Cancel

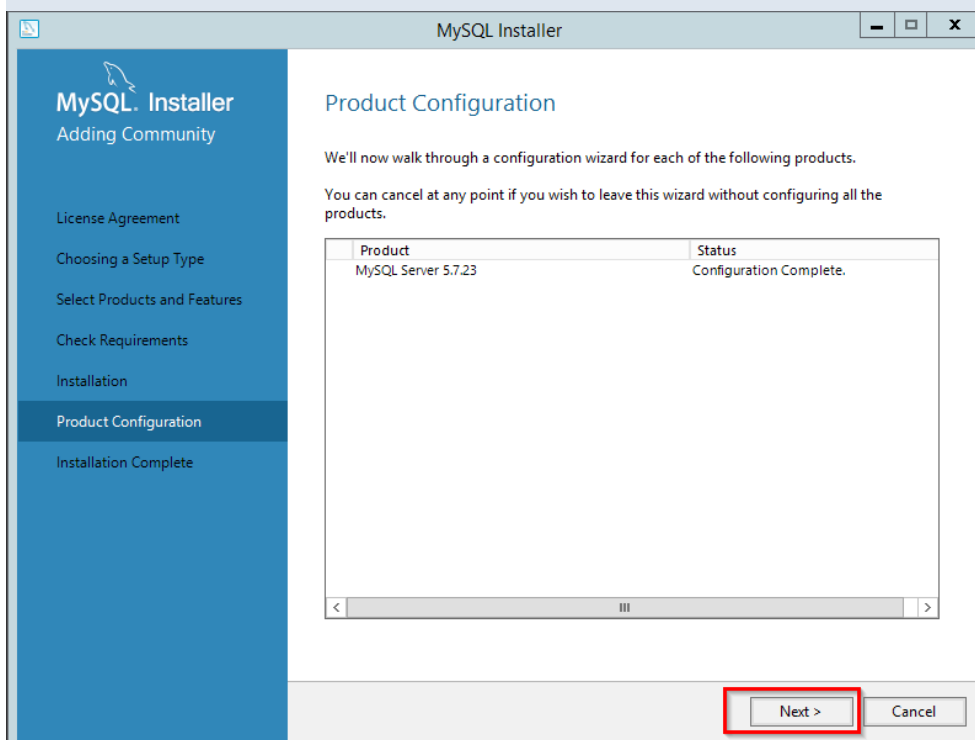
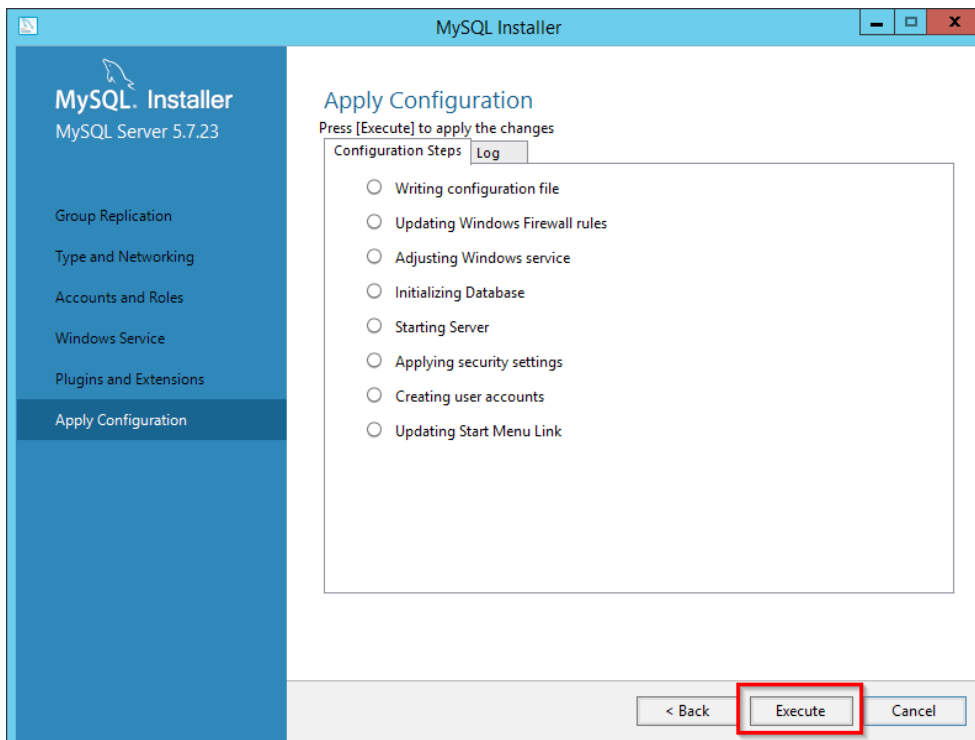
→ **"Windows Service": go with default (Next)**



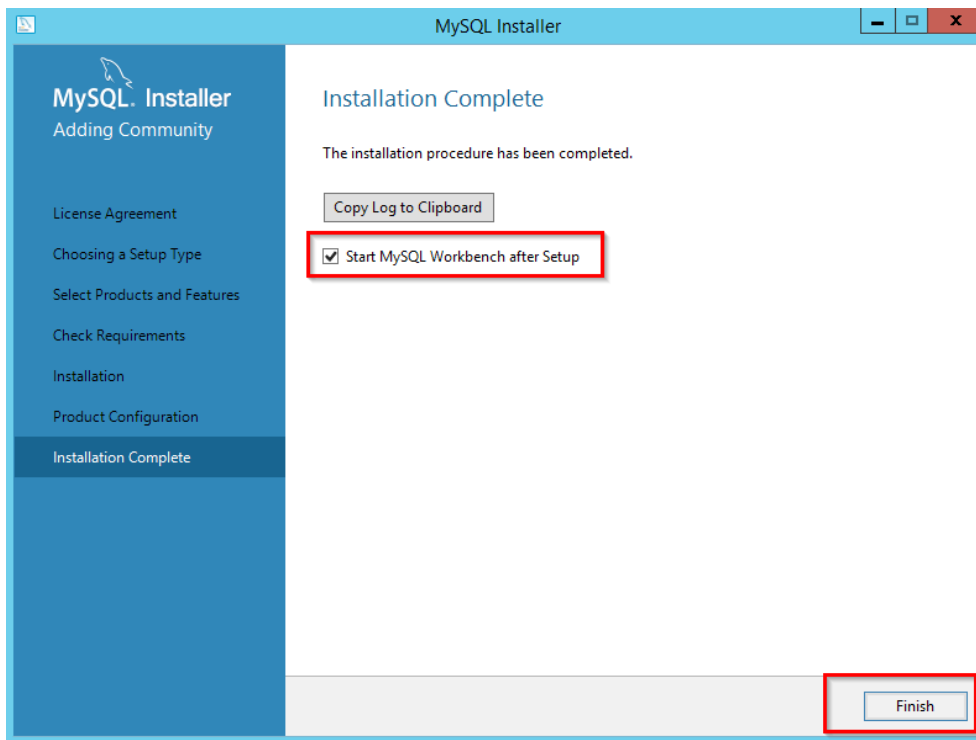
→ "Plugins und Extensions" go with defaults (Next)



→ "Apply Server Configuration": Execute + Next

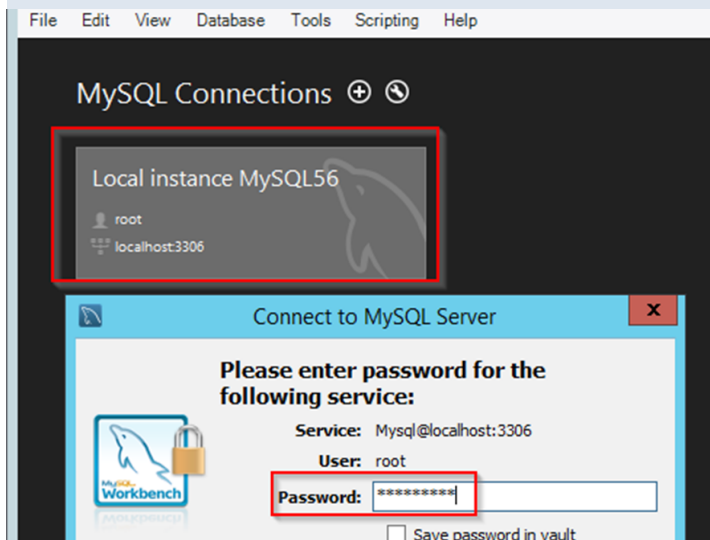


→ "Installation Complete" : go with defaults (Finish)

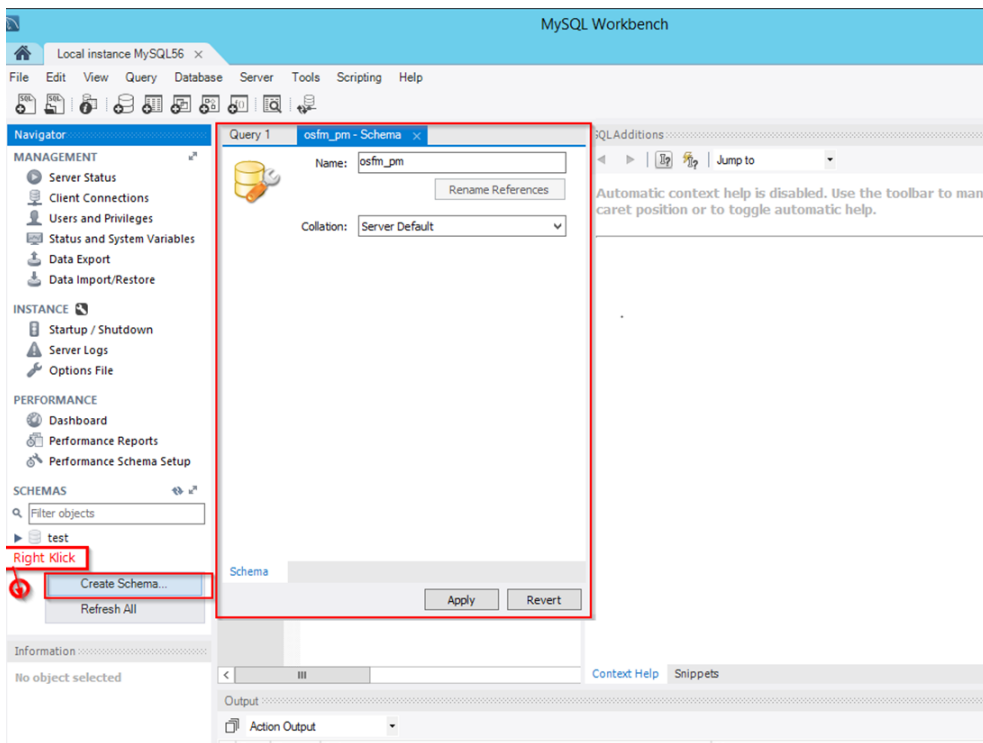


TASK 6 > MySQL server: Create database for OSFM

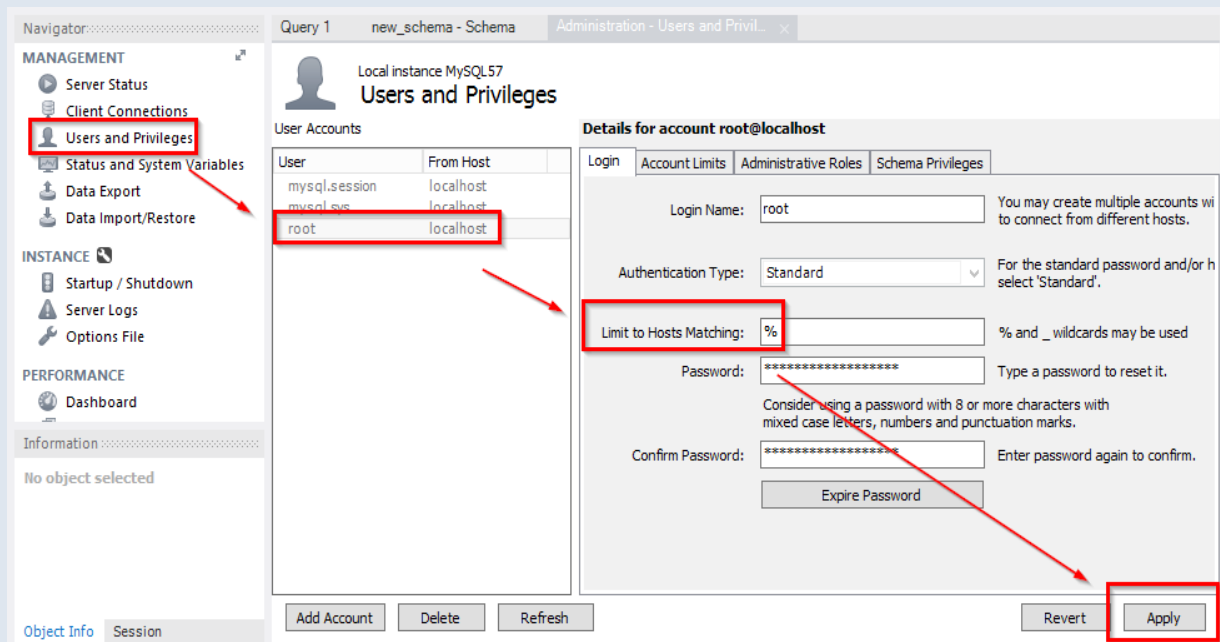
- Starting MySQL Server Workbench for Administration
- login with "root"



- Select "Create Schema"
- configure name for Schema e.g. "osfm"
- create with APPLY

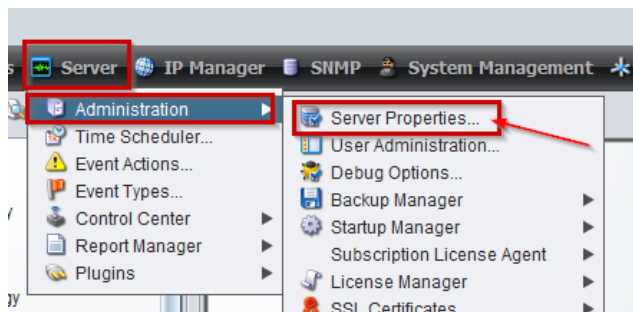


→ configure the user "root" in "Limit to Hosts Matching" with "%" to allow access from all hosts on the network

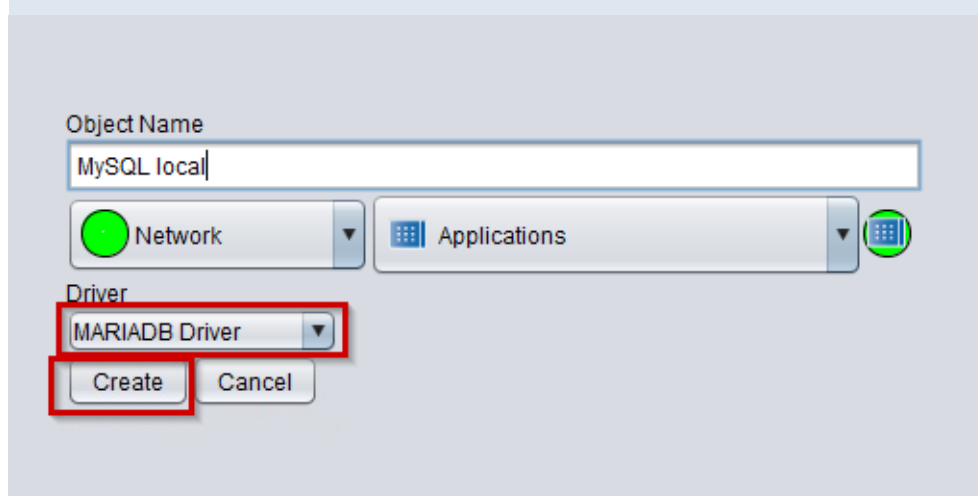
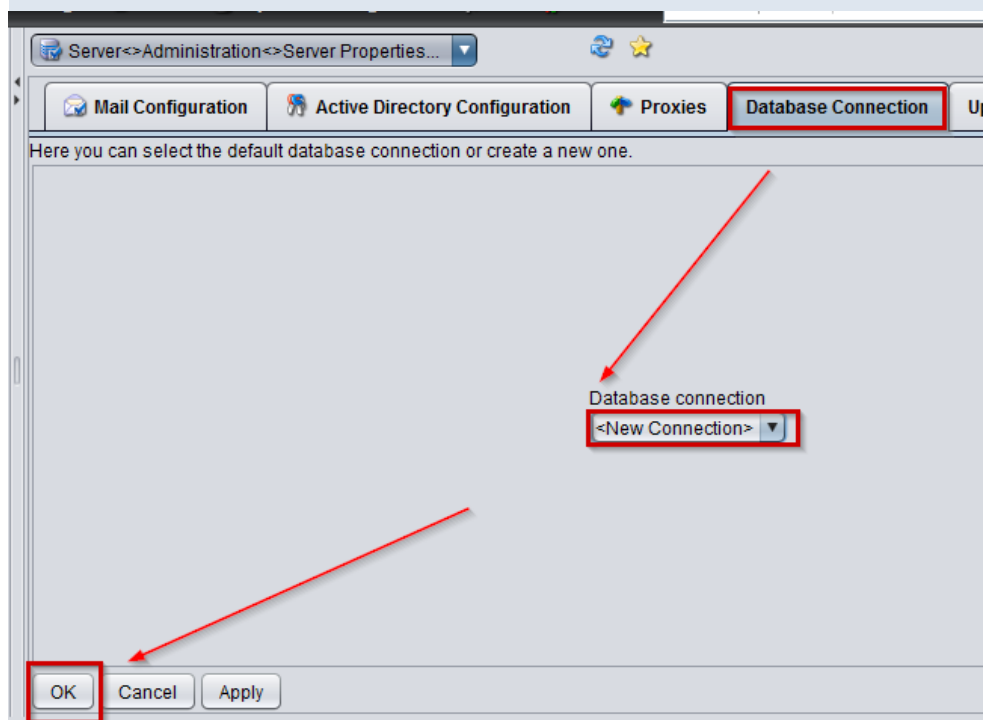


TASK 7 > Connecting OSFM Server to MySQL Server

- Start the Administration CLIENT of OSFM Server
- In the main menu select SERVER -> ADMINISTRATION -> SERVER PROPERTIES ...



- pick tab "DATABASE CONNECTION"
- Select "Database Connection" -> "<New Connection"
- Enter connection name "Object Name, for example "MySQL Server"



- Choose "MARIADB Driver" as driver type and confirm with CREATE.

→ Enter the connection data for the (currently installed) database.

```
Server = localhost

Port = 3306

Database = osfm

User = root

Password = *****
```

→ Testing connection data with APPLY

→ If the connection was successful, save the connection data with OK.

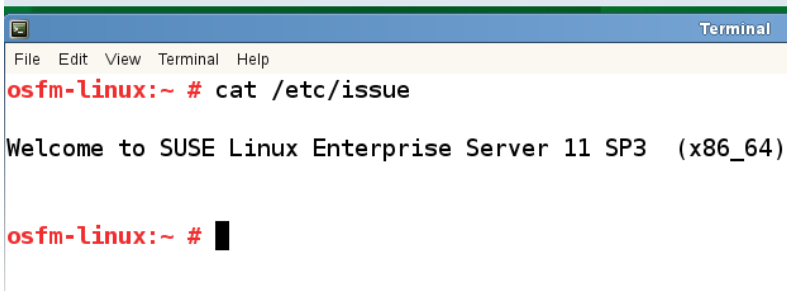
→ Find new object in object tree

TASK 8 > SUSE Enterprise Linux Platform: meet requirements

→ Download Installer Oracle Java 1.8 64-Bit RPM:

<http://www.oracle.com/technetwork/java/javase/downloads/jre8-downloads-2133155.html>

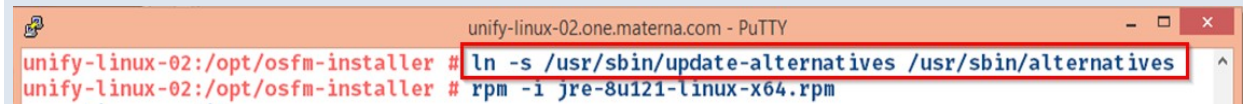
→ ONLY FOR SUSE LINUX ENTERPRISE 11: update "alternatives" for JAVA-Installer



```
osfm-linux:~ # cat /etc/issue

Welcome to SUSE Linux Enterprise Server 11 SP3 (x86_64)

osfm-linux:~ #
```



```
unify-linux-02:/opt/osfm-installer # ln -s /usr/sbin/update-alternatives /usr/sbin/alternatives
unify-linux-02:/opt/osfm-installer # rpm -i jre-8u121-linux-x64.rpm
```

→ Install Java using RPM on the command line:

```
cd /opt/osfm-installer

rpm -i jre-8u181-linux-x64.rpm
```



```
unify-linux-02:/opt/osfm-installer # ln -s /usr/sbin/update-alternatives /usr/sbin/alternatives
unify-linux-02:/opt/osfm-installer # rpm -i jre-8u121-linux-x64.rpm
Unpacking JAR files...
  plugin.jar...
  javaws.jar...
  deploy.jar...
  rt.jar...
  jsse.jar...
  charsets.jar...
  localedata.jar...
update-alternatives: using /usr/java/jre1.8.0_121/bin/java to provide /usr/bin/java (java) in auto
mode
unify-linux-02:/opt/osfm-installer #
```

- Download Installer from UNIFY Custer License Agent CLA (UNIFY SWS-Server)
- Install CLA using the setup program: Installation with default values of the installer

```
cd /opt/osfm-installer/cla
rpm -i cla-v1-r39.1.0.x86_64.rpm
```

TASK 9 > SUSE Enterprise Linux Platform: Install OSFM Server

- Download Installer from UNIFY OpenScape Fault Management (UNIFY SWS-Server)
- Start "setup_osfm.sh" with administrator authorization (root)

```
cd /opt/osfm-installer/OSFM-V10R0
sh ./setup_osfm.sh
```

- Accept license for OSFM
- Accept license for OpenSource components

```
unify-linux-02:/opt/osfm-installer/OSFM-V10R0 # sh ./setup_osfm.sh
VI.3 These End User License Terms are governed by German substantive la
w without reference to its conflicts of laws provisions. The United Nati
ons Convention on Contracts for the International Sale of Goods (CISG) o
f April 11, 1980, shall not apply. The place of jurisdiction shall be Mu
nich, Germany.

VI.4 If there are any discrepancies between this translation of the End
User License Terms and the German original version, the German version
shall apply.
Accept (y/n) [n]y
```

```

unify-linux-02.one.materna.com - PuTTY
to this page in your credits.

Are you using this icon set? Send me an email
(including a link or picture if available) to
mjames at gmail dot com
PRESS <ENTER> TO CONTINUE

Any other questions about this icon set please
contact mjames at gmail dot com
Accept (y/n) [n]y
  
```

→ Choose "OpenScape FM Full Installation" installation option

```

unify-linux-02.one.materna.com - PuTTY
Please select the options to install
-----
1) OpenScape FM full installation[X]
2) OpenScape FM for OpenScape Business only[ ]
0) Continue

Selection: 0
  
```

→ Adopt or adapt installation folder

```

unify-linux-02.one.materna.com - PuTTY
Selection: 0
Installation directory
[/opt/OpenScapeFM] :
  
```

→ Accept default "localhost" and port "61740" for the CLA

```

192.168.100.10 - PuTTY
Please enter CLA connection parameters
-----
CLA IP address/hostname : [localhost]
CLA port : [61740]
Type <y> to continue, <c> to clear the input or <n> to reset to defaults: [y]
  
```

→ Start installation

Options after completion of the installation

After completion of a new installation, some settings can be adapted to the customer's environment:

► Starting and stopping OSFM services

For the stop and the start of the OSFM Server services the installation under Linux offers two programs to call up:

`/opt/OpenScapeFM/startStartupService`

`/opt/OpenScapeFM/stopStartupService`

► Change used JAVA Runtime

The OSFM installer saves the JAVA runtime version used during the installation and uses it to start the system service. In case of an JAVA update the information of the JAVA Runtime to be used must be adapted in the following file:

```
/opt/OpenScapeFM/java.properties
```

and adjust an entry similar to this one:

```
java_home=/opt/java/jre1.8.0_92
```

► **JAVA Runtime VM Memory-Option: Adjust RAM usage**

The memory used by the JAVA Runtime Virtual Machine is set to 2 GByte with the installation. In the case of many monitored hosts, this value must be adjusted, e.g. to half of the total RAM available. Example:

```
vi /opt/OpenScapeFM/startup/conf/OpenScapeFM.properties
```

Insert this entry for the use of 4 GByte RAM:

```
jvmarg-Xmx4096m
```

► **Firewall konfigurieren**

If the SUSE-Linux firewall is used, ports must be opened for the operation of OSFM. The latest UNIFY Security Checklist should be used as a source of information for this purpose..

Patching and updating OSFM Server

► **Updates for Version 10**

For OSFM version 10 only full installers are available for updates, which can be used for a new installation as well as an update installation. The update process corresponds to the new installation with additional questions about the update.

► **Updates for Version 9 und older**

For older versions, cumulative (much smaller) patches were provided in addition to a full installer for space reasons. It's necessary to install the release version and then install the latest patch. This is also necessary for an upgrade to a higher major version..

License OSFM Server

Select and configure license package

The license for OSFM-Server consists of a basic package and in case of the "Full" license of a variable part. In this case, the licensing model of OSFM as a major determining factor depends on the number of Dynamic Port licenses available in the communication systems to be monitored. This has the advantage that even smaller communication systems can be operated relatively cheaply with a mature fault management system.

Choice between "Full" and "OpenScape Business" packages:

| package name | Features included | Features variable |
|---------------------------|--|---|
| Full Installation | <ul style="list-style-type: none"> Base System for installation 500x Hosts 5x System Management Advanced Monitoring Service Workbench Base 2x Service Workbench Ticket Agents | <ul style="list-style-type: none"> OpenScape/HiPath 4000 Ports OpenScape Voice Ports Performance Management VoIP Openscape Business Systeme Host System Management Advanced Monitoring FM2FM Gateway SERVER2SERVER Service Workbench Redundanz License |
| OpenScape Business | <ul style="list-style-type: none"> Base System for installation 1x OpenScape Business System 1x Host 1x System Management/ Advanced Monitoring | Not possible! |
| DEMO 7 days | <ul style="list-style-type: none"> Base System for installation 10000x Port for OS3K/4K/Voice 100x OS Voice VoIP Endpoint 5x OpenScape Business System 5x Advanced Monitoring 250 x Hosts 2 xServiceDesk Agents 1x SERVER2SERVER Master 2x Slave | Not possible! |
| DEMO 90 days | <ul style="list-style-type: none"> Base System for installation 10000x Port for OS3K/4K/Voice 100x OS Voice VoIP Endpoint 5x OpenScape Business System 5x Advanced Monitoring 250 x Hosts 5 xServiceDesk Agents 1x SERVER2SERVER Master 2x Slave | Not possible! |

Variable: FM Port license

Example for FM port licenses: A network of two OS 4k and one OSV shall be monitored.

- **OS 4K 1** = 800 flex licenses
- **OS 4k 2** = 1200 flex licenses
- **OS Voice** = 3000 dynamic + 500 mobile licenses
- **Sum** = 5500 FM+Port Lizenzen in addition to the fixed "Full" license

With this licensing, all communication systems can be monitored (three of the five System Management licenses are assigned to the two OS4K and the OSV system,). In this case, two system management licenses are free for other servers. If, for example, a UC server, a management server, an Xpert server and a VMware monitoring system are used, 2 additional system management licenses must be ordered in this case.

Variable: FM IP node for hosts

IP node licenses are required for each IP device to be monitored by OSFM. An IP node license allows you to monitor a network element based on ICMP ("ping") and the standard MIB2. This allows basic status information such as "on / off", or "reachable / not reachable" to be displayed. can be determined. Up to 500 IP nodes can be monitored via SNMP-MIB2 and ICMP with the basic license. If a complete SNMP management/monitoring based on any MIBs is desired, this requires the use of one FM system management license per system.

Variable: FM System Management Licenses for Advanced Monitoring

An FM system management license is required for complete monitoring and management of IP devices. This allows you to monitor any type of server, including VMware. Monitoring includes CPU utilization related to each process, memory utilization, disk space, network traffic, etc. one. Hardware parameters such as temperature, etc. can also be set. can be monitored. The FM basic package already includes 5 system management licenses. A system management license covers the monitoring of an IP node via SNMP using any Enterprise MIBs or FM's own system management agent. It does not matter whether an IP node is monitored via SNMP, the FM system management agent or both simultaneously.

Variable: FM2FM Gateway licenses for multiple centrally managed OSFM servers

An FM2FM license is required if FM is to be used distributed in different network locations and a hierarchical management is to be established. One or more FM slave systems are connected to one FM master system. Reasons for this can be scaling aspects as well as location-related rights assignments. The total number of FM port licenses does not need to be changed when using FM2FM licenses.

FOR EXAMPLE: you can manage a complete network of 10,000 ports with multiple FM slave systems to which the port licenses are distributed as needed. One license per FM slave is required. The FM master requires a Master Manager license.

Example: One customer has three locations with one OS4K each with 200 ports each. An FM slave is to be operated at two locations. An FM master is to be operated at the main site, to which the two slaves are connected. The following licenses are required:

- ▶ **600 port licenses - these are distributed to the two slaves and the master, which simultaneously monitors the OS4K at the main site.**
- ▶ **3x base-license (2 Slaves, 1 Master)**
- ▶ **1x Master Manager license (package contains 1x Slave license)**
- ▶ **1x additional slave**

Variable: FM Workbench Ticket Agent licenses for ticket system (support and assets)

Two ticket agents (users) are included in the basic FM license. If more than two users are to have access in order to work with the ticket management of the Workbench, licenses must be used for these additional ticket agents.

Variable: Performance Management licenses for VoIP Phones

Performance Management is an additional option for OSFM. Before Performance Management can be used, the FM system must be correctly licensed for error monitoring. The correct number of FM port licenses must be available.

For performance management, an additional basic license and performance management port licenses must be scheduled. A performance management port license is required for each IP device to be monitored for VoIP quality. It is not necessary to procure performance management port licenses for all IP endpoints. The number of performance management port licenses can also be smaller than the number of FM ports. As an example: Only 20% of all IP endpoints should be permanently monitored for VoIP quality. Configuration in FM and integration with DLS ensures that only 20% of IP endpoints deliver QoS data.

KEEP IN MIND: The number of PM licenses may not and cannot be LARGER than the number of FM ports.

Variable: Redundancy Licenses

If it is necessary to run fault management in a hot standby mode on another server, ensure that this server has the correct number of redundancy licenses. Not every FM license is also available as a redundancy license. is required as a redundancy license.

License calculator

| Technology | To count |
|-------------------------------|-------------------|
| OpenScape 3000 | Ports |
| OpenScape 4000 | Ports |
| OpenScape Voice | Ports |
| OpenScape VoIP Phones for QoS | VoIP Endpoints |
| OpenScape Business | OSB-Systems |
| Hosts (added to OSFM) | Hosts (IP Nodes) |
| Advanced Monitoring | Hosts (IP Nodes) |
| FM2FM | Master und Slaves |
| Service Workbench | Agents |

A sample calculation:

The following technologies are to be monitored:

- **OpenScope 4000 = 1x Manager, 1x Cluster, 3000x Phone**
- **OpenScope Voice = 1x Assistant, 1x OSV Cluster, 1500x VoIP Phone**
- **OpenScope Branch = 50x Branch**
- **OpenScope misc. = 1x Xpression Server, 1x Xpert Server**
- **Network: 50x Switch, 13x Windows Server**

| Component | FM Base | FM Port | FM IP Node | A. Monitoring | PM Port |
|---|----------|-------------|------------|-------------------------------|-------------|
| OpenScope 4000 1x Manager, 3xNode A+B+Q 1x PBX, 3x Frames, 3000 Telephones | 1 | 3000 | 8 | | |
| OpenScope Voice Node A+B, Assistant UC, 1500 Telephones VoIP | 1 | 1500 | 3 | 3 | 1500 |
| 50x OpenScope Branch SBC | | | 50 | 50 (Channelmonit oring) | |
| 50x Switches / Router | | | 50 | | |
| 15x Windows Server Xpression, XPert, etc. | | | 15 | 15 | |
| SUM | 2 | 4500 | 126 | 68 | 1500 |
| covered in Base license | 1 | 0 | 500 | 5 | 0 |
| to order | 1 | 4500 | 0 | 63 | 1500 |

Request Unify licenses for the CLA

In order to calculate the license for OSFM servers, the ordered OpenScope Fault Management license modules as well as the details of the ports, number of IP nodes and number of system management nodes together with the License Authorization Code (=LAC) are transferred to the license server CLS. After logging on to the license server, you can enter the LAC's and the locking ID (MAC address for native environment or Advanced Locking ID for virtual environment) to generate a license key for this installation.

The license key generated in the CLS license server is required for commissioning OpenScope Fault Management. This is imported into the Customer License Agent (CLA). OSFM Server connects to the CLA to retrieve the valid licenses from CLA.

The URL to the license server is:

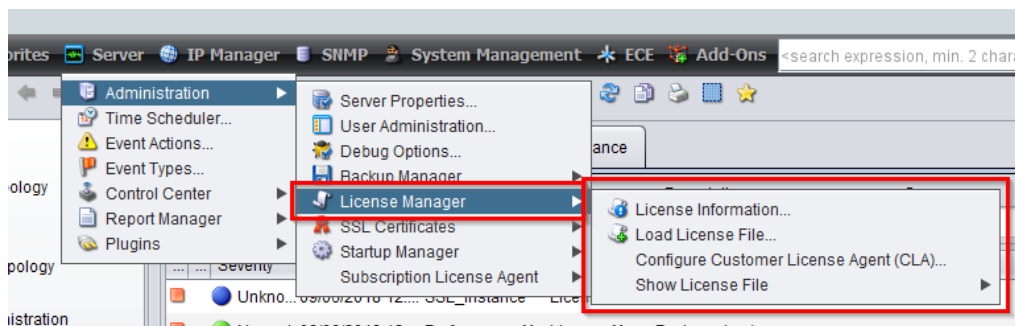
<https://www.central-license-server.com/license-management/session/login.htm>

Managing licenses with OSFM

- ▶ OSFM asks CLA = valid license from UNIFY license server, the server starts
- ▶ OSFM asks CLA = without valid license, it starts the 90-day demo version
- ▶ OSFM asks CLA = no answer/valid (demo) license, OSFM Server does NOT start!
- ▶ No specification of a CLA (configuration of the CLA remains empty), it starts the 7-day demo.
- ▶ Developer license (user-defined) in the file "../server/conf/license.txt".

From the Administration CLIENT → License Manager you can:

- ▶ inspect and check
- ▶ load a file (developer license only!)
- ▶ specify a different CLA.



IMPORTANT: If the number of licenses is exceeded, the OSFM server generates warnings in the form of events. Upon expiry of a period of time **features will be disabled**.