A MITEL
PRODUCT
GUIDE

Mitel OpenScape Business

OpenScape Business V3, Installing OpenScape Business S

Installation Guide
01/2026

A31003-P3030-J104-14-7631

Mitel

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Contents

1 History of changes

Changes mentioned in the following list are cumulative.

Changes in V3R4 FR3

Impacted chapters	Change description
How to Install and Configure SLES 15 SP6/SP7 without a Software RAID on page 20 How to upgrade from SLES 12 SP5 to SLES 15 SP6/SP7 on page 24 How to Install and Configure SLES 15 SP6/SP7 with a Software RAID on page 28 How to upgrade from SLES 15 SP6 to SLES 15 SP7 on page 25 (new) How to upgrade from SLES 15 SP6 to SLES 15 SP7 - Online Upgrade (new)	SLES 15 SP7 Support for OpenScape Business S

Changes in V3R4 FR1

Impacted chapters	Change description
Prerequisites on page 11	Update of the server hardware minimum and recommended requirements

Changes in V3R4

Impacted chapters	Change description
How to Install and Configure SLES 15 SP6/SP7 without a Software RAID on page 20 (update) How to upgrade from SLES 12 SP5 to SLES 15 SP6/SP7 on page 24 (new) Initial Startup with a Software RAID on page 26 Initial Startup without a Software RAID on page 19 Prerequisites on page 11 Initial Setup for OpenScape Business S on page 36	SLES 15 SP6 Support for OpenScape Business S, UC Booster Server

Changes in V3R2 FR1

Impacted chapters	Change description
Preparing for the Installation of OpenScape Business S on page 10 Installing the Communication Software on page 41 How to Install the Communication Software on Google Cloud Platform on page 44	OpenScape Business S in Google Cloud
How to Configure the Sending of E-mails on page 69	Support for OAuth 2.0 authentication

Impacted chapters	Change description
Updates on page 33	Added note about SLES online update and syslog packages

Changes in V2R7

Impacted chapters	Change description
How to upgrade from SLES 11 SP4 to SLES 12 SP3	Added migration chapter

1.1 History of improvements/fixes

Changes mentioned in the following list are cumulative.

Changes in V3R4

Service case ID	Date	Impacted chapters	Change description
PRB000081335	27 Mar 2025	Added a new chapter for online update of the SLES 15.	Configuring the SLES 15 YaST2 Online Update on page 35
PRB000081795	27 Feb 2025	Added a note and information regarding selecting the correct network interfaces.	How to Activate an Additional LAN Port as a WAN Interface on page 49 System Settings on page 47
PRB000277199	9 Jan 2026	Updated information about upgrading to SLES 15 SP7	How to Install and Configure SLES 15 SP6/SP7 without a Software RAID on page 20 How to upgrade from SLES 15 SP6 to SLES 15 SP7 on page 25

2 Introduction and Important Notes

This introduction provides you with an overview of the documentation structure. The introduction should assist you in finding information on selected topics faster.

2.1 About this Documentation

This document provides information on the initial startup of the Linux server, which is required for the operation of OpenScape Business S, and the subsequent initial setup of OpenScape Business S.

This document is intended for administrators and service technicians.

2.1.1 Documentation and Target Groups

The documentation for OpenScape Business is intended for various target groups.

Sales and Project Planning

The following documentation is intended for sales and project planning.

- Feature Description

  This documentation describes all the features. This document is an extract from the Administrator Documentation.

Installation and Service

The following documentation is intended for service technicians.

- OpenScape Business X1, Installation Guide

  This document describes the installation of the hardware and the initial installation of OpenScape Business X1.
- OpenScape Business X3/X5/X8, Installation Guide

  This document describes the installation of the hardware and the initial installation of OpenScape Business X3/X5/X8.
- OpenScape Business S, Installation Guide

  This documentation describes the initial installation of the OpenScape Business S softswitch.
- OpenScape Business X1, Service Documentation

  This documentation describes the hardware of OpenScape Business X1.
- OpenScape Business X3/X5/X8, Service Documentation

  This documentation describes the hardware of OpenScape Business X3/X5/X8.

Administration

The following documentation is intended for administrators.

- Administrator Documentation

  This documentation describes the configuration of features that are set up using the OpenScape Business Assistant (WBM). The Administrator documentation is available in the system as online help.
- Configuration for Customer Administrators, Administrator Documentation

  This documentation describes the configuration of features that can be set up using the OpenScape Business Assistant (WBM) with the **Basic** administrator profile.
- Manager E, Administrator Documentation

  This documentation describes the configuration of features that are set up using Manager E.

UC Clients / Telephone User Interfaces (TUI)

The following documentation is intended for UC users.

- myPortal for Desktop, User Guide

  This documentation describes the installation, configuration and operation of the UC client myPortal for Desktop.
- myPortal for Outlook, User Guide

  This documentation describes the installation, configuration and operation of the UC client myPortal for Outlook.
- myPortal @work, User Guide

  This documentation describes the installation, configuration and operation of the UC client myPortal @work.
- Fax Printer, User Guide

  This documentation describes the installation, configuration and operation of Fax Printer.
- myPortal to go User Guide

  This documentation describes the configuration and operation of the mobile UC client myPortal to go for smartphones and tablet PCs.
- myAgent, User Guide

  This documentation describes the installation, configuration and operation of the Contact Center client myAgent.
- myReports, User Guide

  This documentation describes the installation, configuration and operation of the Contact Center client myReports.
- myAttendant, User Guide

  This documentation describes the installation, configuration and operation of the attendant console myAttendant.
- OpenScape Business Attendant, User Guide

  This documentation describes the installation, configuration and operation of the attendant console OpenScape Business Attendant.
- UC Smart Telephone User Interface (TUI), Quick Reference Guide

  This documentation describes the voicemail phone menu of the UC solution UC Smart.

- UC Suite Telephone User Interface (TUI), Quick Reference Guide

  This documentation describes the voicemail phone menu of the UC solution UC Suite.

2.1.2 Types of Topics

The types of topics include concepts and tasks:

Type of topic	Description
Concept	Explains the "What" and provides an overview of context and background information for specific features, etc.
Task (operating instructions)	Describes task-oriented application cases (i.e., the "How") step-by-step and assumes familiarity with the associated concepts. Tasks can be identified by the title **How to ...**.

2.1.3 Display Conventions

This documentation uses a variety of methods to present different types of information.

Type of information	Presentation	Example
User Interface Elements	Bold	Click **OK**.
Menu sequence	>	**File** > **Exit**
Special emphasis	Bold	**Do not delete** Name.
Cross-reference text	Italics	You will find more information in the topic*Network*.
Output	Monospace font, e.g., Courier	`Command not found.`
Input	Monospace font, e.g., Courier	`Enter` LOCAL as the file name.
Key combination	Monospace font, e.g., Courier	`<Ctrl>+<Alt>+<Esc>`

3 Preparing for the Installation of OpenScape Business S

Before OpenScape Business S can be installed and put into operation for the first time, some preparatory activities must be performed.

For OpenScape Business S, the OpenScape Business communication software is installed on a Linux server or on Google Cloud Platform.

The prerequisites for the Linux server and the installation of the Linux operating system can be found in chapter on Installing the Linux Server on page 11.

The prerequisites for OpenScape Business S and the installation of the OpenScape Business communication software can be found in the chapter Initial Setup for OpenScape Business S on page 36.

For installing the OpenScape Business S communication software on Google Cloud Platform skip Installing the Linux Server on page 11 and go directly to How to Install the Communication Software on Google Cloud Platform on page 44.

4 Installing the Linux Server

For OpenScape Business S and OpenScape Business UC Booster Server, the OpenScape Business communication software is installed on a Linux operating system. The communication software can be operated directly on a Linux server or in a virtual environment with VMware vSphere or Microsoft Hyper-V.

NOTICE: In the following, whenever a description applies to both OpenScape Business S and the OpenScape Business Booster UC Server, the generic term OpenScape Business is used for the sake of simplicity.

Either the regular SLES 15 SP6/SP7 64 bit version optimized by the manufacturer of the server PC must be installed as the Linux operating system.

These installation instructions describe the initial startup of the Linux server. This depends on whether or not the Linux server is using a software RAID. The installation of the OpenScape Business communication software and the subsequent configuration of OpenScape Business are described in the *OpenScape Business Administrator Documentation*.

The initial startup of the Linux server described here is based on the English user interface. The installation and configuration can, of course, also be performed in a different interface language.

4.1 Prerequisites

The prerequisites and general constraints for the operation of OpenScape Business on the Linux server (the server PC) are described below.

Minimum Hardware Requirements

The server PC must satisfy the following minimum requirements:

- 64-bit capable
- Equipped for 24/7 operation
- Certified by the PC manufacturer for SLES 15 SP6/SP7 64 bit
- The communication software for OpenScape Business must be the only application running (excluding virus scanners)
- LAN connection with minimum speed of 100 Mbps
- keyboard, mouse, USB 2.0, DVD drive
- Screen resolution: 1024x768 or higher
- Recommended CPU families:

  - Intel Core i processors: 6th generation and higher and corresponding Xeon CPUs

  - AMD Ryzen processors

The server's category (*Basic, Standard, Advanced*) is defined by the *max number of users* each supports.

	Basic Server	Standard Server	Advanced Server
Max number of users	up to 50	up to 500	up to 1500

	Basic Server	Standard Server	Advanced Server
Processor cores / base clock speed per core	2/2,5 GHz or 4/2 GHz	2/3 GHz or 4/2,5 GHz	4/3,5 GHz or 6/3 GHz
RAM	4 GB	6 GB	8 GB
HDD / SSD	60 GB	200 GB	500 GB

Please note that if the Multimedia Contact Center is used, the Advanced Server must be used always.

Also, if the fax option is used, the Standard Server configuration is the minimum requirement.

The installation can be performed even if the minimum requirements are not satisfied; however, this could result in problems during operation.

Software

To install the Linux operating system on the server PC, the SLES 15 SP6/SP7 64 bit Linux version is required.

When procuring the OpenScape Business communication software, you can purchase a .ISO file with this version of Linux. This .ISO file may only be used in conjunction with the communication software.

Some PC manufacturers offer their own optimized Linux installation disks for their server PC models. These can be used if they support the Linux version SLES 15 SP6 64 bit.

Keep the Linux .ISO file handy during the installation of the OpenScape Business communication software, since some software packages (RPM) required for the communication software may need to installed later from this .ISO file.

SLES 15 SP6/SP7 64 bit Certification

The server PC must be certified for SLES 15 SP6/SP7 64 bit.

Novell offers PC manufacturers a certification program called "YES" for the certification of their server PCs. The results can be found on the Internet at:

`https://www.suse.com/yessearch/Search.jsp`

If no certification is available, the PC manufacturer must be asked whether the server PC is compatible with SLES 15 SP6/SP7 64 bit. If any additional hardware (e.g., a network or graphics card) that is incompatible with SLES 15 SP6/SP7 64 bit is installed, a suitable driver must be obtained from the card vendor, regardless of the certification. If no driver is available, the corresponding card must be replaced by a model that is compatible with SLES 15 SP6/SP7 64 bit.

Registering with Novell

Although the installation and operation of SLES 15 SP6/SP7 64 bit is possible without registering with Novell, registration at Novell is required in order to obtain security patches and software updates. To do this, you will need to create a customer account with Novell with the help of the activation code (see also Updates *on page 33*). It is recommended that the customer account be set up before the Linux installation.

A Novell Activation Code (registration code) can be procured via the order item "OpenScape Business SLES Upgrade Key".

Infrastructure

The internal network must satisfy the following conditions:

- LAN with at least 100 Mbps and IPv4
- Uniform time base (e.g., via an NTP server)
- Fixed IP address for the server PC

Internet Access

The server PC must have Internet access for:

- Registering with Novell
- Security patches and general Linux software updates

OpenScape Business requires an Internet connection for:

- OpenScape Business software updates
- OpenScape Business features such as Internet telephony, for example
- Remote Service (SSDP)/RSP.servicelink

Network Configuration

During the Linux installation, you will be prompted for the network configuration details. Consequently, it is advisable to create an IP address scheme containing all network components and their IP addresses before the network configuration.

The following is an example of an IP address scheme with the IP address range `192.168.5.x`:The parameters shown in bold are the minimum mandatory specifications required during the Linux installation.

Parameters	Sample values
External DHCP server or Linux DHCP server	DHCP server of the Internet router (external)
DHCP address range	192.168.5.50 through 192.168.5.254
Subnet mask of the network or network segment	**255.255.255.0**
Fixed IP address of the Linux server This IP address must be outside the DHCP range.	**192.168.5.10**
Internet Router	192.168.5.1
Server with fixed IP address (optional), e.g., e-mail server	192.168.5.20
Clients with fixed IP address (optional) This IP address must be outside the DHCP range.	192.168.5.1 through 192.168.5.49
Default Gateway, i.e., the Internet router in the example	**192.168.5.1**

Parameters	Sample values
DNS Server (i.e., the Internet router in the example)	**192.168.5.1**
Domain name when using a DNS server (e.g., the Internet domain name	**customer.com**
Host name of OpenScape Business The name can be freely selected, but should be coordinated with the network administrator.	**comm_server**

If the actual network data is not available at time of installation, the network should be configured with the data of this sample network.

After the successful installation of Linux, the network data can be edited at any time with YaST and adapted to the network.

NOTICE: Skipping the network configuration is not recommended, since the subsequent installation of OpenScape Business cannot be successfully completed without a fully configured network.

4.2 Installation in a Virtual Environment

The communication software can run in a virtual environment.

To set up a virtual environment, the virtualization software (host operating system) must be first installed and configured on the server PC. Linux is then installed as a guest operating system. Finally, the communication software is installed within the Linux operating system.

For licensing in a virtual environment, an Advanced Locking ID is generated and used for the softswitch instead of the MAC address of the server PC.

The following virtualization software has been released:

- Details about VMware vSphere released versions including the latest patches are in the OpenScape Business Release Notes.

  For details on the hardware requirements of the physical server PC, refer to the "VMware Compatibility Guide and the "VMware Management Resource Guide" at www.vmware.com.

To determine the hardware requirements at the physical server PC, VMware offers an online search function for certified and tested hardware under "Compatibility Guides" on their Internet homepage at `http://www.vmware.com/guides`

Disk Provision guidelines can be found at `https://pubs.vmware.com/vsphere-50/index.jsp?topic=%2Fcom.vmware.vsphere.vm_admin.doc_50%2FGUID-81629CAB-72FA-42F0-9F86-F8FD0DE39E57.html`

- Windows Server (2008 R2, 2012, 2012 R2) Hyper-V, including the latest patches.

  For details in the hardware requirements of the physical server PC, refer to technet.microsoft.com.

You will find all necessary information about Hyper-V in the section Library -> Windows Server 2012 R2 (or your current windows server system) -> Server Roles and Technologies -> Hyper V on the Microsoft technet page.

The description of the installation and configuration of the virtualization software is not part of this documentation. The installation of Linux and the communication software in a virtual environment is exactly the same as for a direct installation on the server PC.

The following minimum requirements must be configured for Linux and the communication software in the virtual environment:

Parameters	VM Settings
Guest Operating System	SLES 15 SP6/SP7 64 bit
VM HD Capacity	Up to 50 users: 60 GB or more Up to 100 users: 100 GB or more Up to 500 users: 200 GB or more OpenScape Business Contact Center: 200 GB or more As of 500 users: 500 GB or more
Virtual Disk Mode	Default
Virtual Disk Format Type	Thin Provisioning (dynamic HD Capacity) or Thick Provisioning (fixed HD Capacity)
vCPUs	2 4 for OpenScape Business Contact Center or more than 500 users
vCPUs Shares (High/Normal)	High
vCPU Reservation	2 GHz
vCPU Limit	Unlimited
VM Memory	2 GB (recommended 4 GB) 6 GB for: - Fax as PDF - OpenScape Business Contact Center 8 GB for: - More than 500 users
VM Memory Shares (High/ Normal)	Normal
VM Memory Reservation	4 GB
VM Memory Limit	Unlimited

Parameters	VM Settings
Number of vNICs	1
VMware Manual MAC Used	NO
Virtual Network Adapter Support	YES, vmxnet3 driver
VMware Tools Installation	YES

The VM (Virtual Machine) may utilize the CPU up to 70%; values above that can result in erratic behavior.

The following VMware vSphere features are supported:

- Thin Provisioning
- High Availability (HA)
- VMotion
- Data Recovery (VDR)
- DRS (Automatic VMotion)
- Storage VMotion

The following VMware vSphere features are not supported:

- Fault tolerance

The following Microsoft Hyper-V features are supported:

- Thin Provisioning
- High Availability (HA)
- Live Migration
- Data Recovery

The screen saver for the virtual environment must be disabled.

4.2.1 VM Co-Residency and Quality of Service policy

This VM Co-Residency and Quality of Service Policy provides the rules for the parties responsible for deploying the Mitel VMs and managing the virtual environment when deploying Mitel VMs on consolidated network and hardware resources:

- It is up to the parties responsible for deploying the Mitel VMs and managing the virtual environment to ensure the performance criteria is met. Uncertainty can be reduced by pre-deployment testing, baselining, and following the rules of Mitel VM Configuration and Resource Guide (VM R&C) including this policy.
- VMs with Mitel real time and mission critical applications shall be protected from other applications in the routing and switching network to ensure voice/video network traffic get the needed bandwidth and protection from delay and jitter.
- VMs with Mitel real time and mission critical applications shall be protected from other applications when the virtualization host shares compute, storage, and network hardware among multiple application virtual machines (e.g. you cannot schedule Mitel real time.
- Adherence to Mitel Virtualization and Resource configuration rules (e.g. physical/virtual hardware sizing, co-residency policy, etc.) is required in order

to ensure Mitel VMs get the needed CPU, memory, storage capacity and storage/network performance.
- Mitel VMs shall not be hosted on the same HW with third-party VMs that have incomplete resource requirements defined.
- Host hardware shall be continuously monitored (e.g. by vCenter) and operated below 80% CPU usage with a %RDY value of 5% max.
- The total amount of RAM, Storage, and NW (including Storage Network) throughput shall not be exceed the capacity of the Host hardware (no over subscription).
- Even if the host processor is hyper-threading-capable and HT is enabled, a physical core shall only be counted once.
- vCPU Shares shall be configured to guarantee mission critical Mitel VMs (including real time VMs) are never starved for CPU time.
- Customers are responsible to fulfill the requirements, even if the VM is moved around in the environment, e.g. by manually re-configuring the CPU shares of a VM if it gets moved to another VM host or resource pool.
- Disaster Recovery plans need to take into account the additional resources required when failing over to fail over site (datacenter 2).

4.2.2 Time Synchronization of the Guest Operating System Linux

The time synchronization (uniform time base for date and time) between the host operating system VMware vSphere or Microsoft Hyper-V and the guest operating system Linux must be disabled. The uniform time base should be obtained by the guest operating system via an NTP server.

4.2.2.1 How to Configure Time Synchronization for the Guest Operating System Linux in VMWare

Step by Step

1) Right-click in the VMware client **vSphere Client** on the guest operating system Linux and select the menu item **Edit Settings**.
2) Under the **Virtual Machine Properties** on the **Options** tab, disable the option **Synchronize guest time with host** under the **VMware Tools** entry in the **Advanced** area.
3) Edit the NTP settings for the guest operating system Linux in the `./etc/ntp.conf` file as follows in accordance with the parameters shown in bold:

```
**********************************************

...

tinker panic 0

# server 127.127.1.0

# local clock (LCL)
```

```
# fudge 127.127.1.0 stratum 10

# LCL is unsynchronized

...

server 0.de.pool.ntp.org iburst

restrict 0.de.pool.ntp.org

restrict 127.0.0.1

restrict default kod nomodify notrap

...

**********************************************
```

NOTICE: The NTP server **de.pool.ntp.org** is an example and may need to be replaced by an NTP server address that can be reached by the guest operating system Linux.

4.3 Linux Security Aspects and RAID Array

The security of the Linux server can be enhanced by observing all Linux security aspects and by using a RAID array.

Firewall

When connected to the Internet, a firewall is needed to prevent unauthorized access from outside. After installing Linux, the Linux firewall is enabled. The installer of the communication software adjusts the firewall settings so that the communication software can be operated properly. The ports for the communication software are opened, and all other ports are closed. All communication software services, except for CSTA (CSTA interface) and SSH (Secure Shell), are released.

If an external firewall is used in the network, the Linux firewall must be disabled, and the addresses and ports required for the communication software must be opened (see "Ports Used" Used Ports on page 81 in the installation instructions for OpenScape Business S or OpenScape Business UC Booster Server).

NOTICE: Firewall settings for WAN Adapter in OpenScape Business S must be handled manually by the administrator of the Linux PC.

Virus Scanners

A virus scanner is not included in the Linux installation package. It is recommended to install a virus scanner. You can get more information from the Release Notes of the communication software if required.

In order to prevent potential performance problems resulting from the use of a virus scanner, the regular disk scans should be scheduled for times when the communication software is not being used or is only used at a minimum.

Intrusion Detection System (AppsAmor)

The installation routine of the application server does not make any changes to the Linux Intrusion Detection System (AppsArmor). The default settings of the Linux installation are used. No further settings are required for the operation of the communication software.

During the installation of the softswitch, the integrated intrusion detection system (AppsArmor) is updated and activated. No further settings are required for the operation of the communication software.

Redundancy

Recommendations for Improving Reliability (Redundancy):

- Two hard disks in a RAID 1 array.
- Second power supply for the Linux server
- Uninterruptible power supply

  When using IP phones, the LAN switches and IP phones should also be connected to an uninterruptible power supply.

RAID1 Array

In a RAID1 array, the contents of the first hard drive are mirrored on the second hard drive. If one hard drive fails, the system continues to run on the second hard drive.

A RAID array may be set up as a software RAID or hardware RAID (BIOS RAID or hardware RAID controller).

For specific details on performing an installation with a software RAID, see Initial Startup with a Software RAID on page 26.

A hardware RAID frequently requires a separate driver that is not included in the Linux operating system. This driver is usually provided by the PC manufacturer and must be installed according to manufacturer's instructions. If the driver is not compatible with the Linux version or if no Linux driver is offered, the hardware RAID cannot be used. The description of hardware-based RAID systems is not part of this documentation. In such cases, please contact the manufacturer for the appropriate Linux drivers and configuration details.

4.4 Initial Startup without a Software RAID

The initial startup of the Linux server without a software RAID includes the Linux installation and configuration, while taking into account that no software RAID is being used.

The required settings for the communication software are made during the installation and configuration.

Linux Partitions

The hard drive must be partitioned during the initial start-up as follows:

Partition	Type	Size	File system	Mount	Note
Partition 1	Primary Partition	2 GB	Swap	swap	corresponds to the size of the working memory
Partition 2	Primary Partition	20 GB	Ext4	/	for the Linux operating system
Partition 3	Primary Partition	Rest[1]	Ext4	/home	For the communication software

NOTICE: The installation routine of the communication software checks these partition sizes and may reject the installation.

NOTICE: Some server PCs require an additional boot partition. If Linux suggests a boot partition, it should be accepted in the proposed size.

4.4.1 How to Install and Configure SLES 15 SP6/SP7 without a Software RAID

NOTICE:

If the installation procedure will be executed in a Virtual Machine(VM), please refer to chapter Installing the Communication Software on page 41.

Prerequisites

The BIOS setup of the Linux server is set so that the server will boot from the .ISO file on USB stick.

To register with Novell, Internet access and the activation code are required.

Step by Step

1) Insert the SLES 15 .ISO file on USB stick in a USB port and boot up the system from the .ISO file.
   The Startup window of the Linux installation appears.
2) Select **Installation** and press Enter.

[1] Up to 50 users: min. 40 GB - Up to 100 users: min. 80 GB - More than 500 users: min. 180 GB - With OpenScape Business Contact Center: min. 180 GB - More than 500 users: min. 480 GB

3) In the **Language, Keyboard and Product Selection** window, select the country settings for the Linux operating system:
   a) Select **English (US)** as the user interface language from the **Language** drop-down list.
   b) Select the keyboard layout for the desired country from the **Keyboard Layout** drop-down list.
   c) Select **SUSE Linux Enterprise Server 15 SP6 or SP7** as product to install.
4) Read through the license agreement and accept the license terms by enabling the check box **I Agree to the License Terms** and then click **Next**.
5) The **Network Configuration** appears. If not, select **Network Configuration** in the **Registration** window.

   If you want to configure the network later click **Next**.
6) On the **Network Settings** window, configure the network card.
   a) Select the desired network card in the **Overview** window. The MAC address of the network card selected here is assigned later in the licensing process to the individual licenses. Click **Edit**.
   b) Enable the radio button **Statically assigned IP Address**.
   c) Under **IP Address**, enter the assigned IP address of the Linux server (for example, `192.168.5.10`).

      The IP address must conform to the IP address scheme of your internal network and must not have been assigned to any other network client, since this would otherwise result in an IP address conflict.
   d) Under **Subnet Mask**, enter the assigned subnet mask of the Linux server (for example, `255.255.255.0`).

      The subnet mask must match the IP address scheme of your internal network.
   e) Under **Hostname**, enter the assigned hostname of the Linux server (for example, `OSBiz-Booster`).

WARNING: The hostname must conform to the hostname scheme of your internal network and must not be assigned to any network clients, since this would result in an hostname conflict. The default hostname "localhost" cannot be used with OSBiz S / Booster Server and must be changed. The hostname configured in the network settings, must also be configured in network card setup.

   f) Click **Next**.
7) Specify the DNS server and the default gateway.
   a) In the **Network Settings** window, click on the **Hostname/DNS** tab.
   b) Enter the hostname of the DNS server under **Static Hostname**.

      The hostname must conform to the hostname scheme of your internal network and must not be assigned to other network clients, since this would result in an hostname conflict. The default hostname "localhost" cannot be used with OSBIZ S / Booster Server and must be changed.

      In case the field remains empty or it is a localhost, "sles15_OSBIZS" is added automatically as the default static hostname, during the OSBIZ S

installation process. This value can be changed later on during OSBIZ S startup via yast under the **Network Settings** > **Hostname/DNS** tab.

c) Enter the domain name of the DNS server under **Domain Name**.

The domain name must be unique, since this would otherwise result in an domain name conflict.

d) Enter the IP address of the DNS server under **Name Server 1**.

If no DNS server is available in the internal network, enter the IP address of the internet router (for example, `192.168.5.1`).

e) In the **Network Settings** window, click on the **Routing** tab.

f) Select **Add** and under **Default Gateway** enter the IP address of the Internet router (for example, `192.168.5.1`) and select the ethernet device from the drop-down list.

8) Click **Next**.

9) In the **Registration** window, select **Register System ia scc.suse.com**, enter your email address and registration code and click **Next**.

10) In the **Extension and Module selection** window select the following extensions and modules: Basesystem Module, Containers Module, Desktop Applications Module, Development Tools Module, Legacy Module, Server Applications Module

11) Click **Next**.

12) In the **System Role** window, select **SLES with GNOME** and click **Next**.

13) In the **Suggested Partitioning** window it is proposed to first run the Guided Wizard to create boot and swap partitions automatically. To do so, select **Guided Setup**.

14) In the **Select Hard Disk(s**) window select **Remove even if not needed** for both selections and click **Next**.

15) In the **FileSystem type** select **Ext4** as file system for both Root and Home partitions. Enable options **Propose Separate Swap Partitions** and **Enlarge to RAM size for Suspend** and click **Next**.

16) A new layout is proposed in **Suggested Partitioning** window. Click **Expert Partitioner > Start with current proposal**.

Delete only root (/) and home (/home) partitions. Preserve only swap and boot partitions. Select the partition to be deleted, click on **Delete** and confirm the delete operation by clicking **Yes**.

17) Create the partition for the Linux operating system.

a) Click on device `/dev/sda` and select **Add Partition**.

b) Under **Custom Size**, enter the partition size 20GB and click **Next**.

The minimum size of the Linux operating system partition is 15GB and the recommended is 20GB.

c) In **Add Partition Role** window, select the **Operating System** role and click **Next**.

d) Select **Ext4** under **Format device**, select **/** in **Mount device** and click **Next**.

18) Create the partition for the communication software.

a) Click on device `/dev/sda` and select **Add Partition**.

b) Select **Maximum Size** if you prefer to use the remaining space of the hard disk or under Custom Size to enter the partition size and click **Next**.

The minimum size of the communication software partition is 40GB.

c) In **Add Partition on /dev/sda** window, select the **Data and ISV Applications** role and click **Next**.

d) Select **Ext4** under **Format device**, select **/home** in **Mount device** and click **Next** and **Accept**.

19) In the **Clock and Time Zone** window, select the correct region and time zone.

To adjust date and time or to configure an NTP server (for a uniform time base), proceed by clicking the **Other Settings** button. Click **Next** when finished.

20) In the **Local Users** window, add a user and password and click **Next**.

21) In the **Password for the System Administrator "root"** window, enter the password for the system administrator with the "root" profile in the **Password for the root User** and **Confirm Password** fields and then click **Next**.

The password should comply with conventional security policies. It must have at least 8 character, at least one lowercase letter, at least one uppercase letter, at least one number and at least one special character.

22) In the **Installation Settings** window click **Software**.

a) Enable **32-Bit Runtime Environment**.

b) Enable **DHCP and DNS Server**.

c) Click on **Details** and then in the **Search** field type `tcpdump` and select the package **tcpdump**.

d) Click on **Details** and in the search field type `docker`. Select the packages: **docker**, **docker-bash-completion**, **docker-rootless-extras**

e) Click **Accept**.

NOTICE: The above packages are mandatory for a successful installation of the SLES 15 SP6/SP7, except the docker packages (step 22d) which are mandatory for SLES 15 SP7 only. The **DHCP and DNS Server** package is required to install, even when they are not utilized as servers on OpenScape Business S.

---

23) To open the SSH port (the SSH port is closed by default for security reasons), in the **Installation Settings** window, under the **Security** section, click on **Open** at the **SSH port will be blocked** field.

24) Click **Install** again to confirm the installation.

The **Installation Settings** window is an overview of the components that are going to be installed. Before completing the installation, you can make any necessary changes from this window.

After the installation is completed, the computer is rebooted into the installed system.

4.4.2 How to upgrade from SLES 12 SP5 to SLES 15 SP6/SP7

Prerequisites

OpenScape Business latest V3R4 system. If OpenScape Business is not upgraded to the V3R4 latest, please proceed to a Software Update.

Installed OpenScape Business system on a SLES 12 SP5.

If an older version is used, an upgrade to SLES 12 SP5 is needed first. This chapter describes the upgrade of a full operational OpenScape Business system installed on SLES 12 SP 5 to SLES 15 SP6/SP7.

NOTICE: It is strongly recommended, following recommendations in the SUSE SLES 15 Upgrade Guide, to make a clean / fresh installation instead of using the Upgrade mechanism.

With fresh installation, you will still be able to restore your existing OpenScape Business Backup from the previous version in the new installed systems based on SLES 15 SP6/SP7.

It is observed that the Upgrade mechanism may cause problems to some settings of Linux, which may be critical for OpenScape Business functionality.

If a Virtual Machine is used (e.g. ESXi), it is recommended to create a new VM, instead of using the VM used as SLES 12 SP5. Otherwise, additional problems may exist when Host OS (e.g. ESCi) complains about the installed Linux version of guest (VM is initially created for SLES 12 and now it will run SLES 15).

In a clean / fresh install option in VM, the ALI (Locking ID) of system will be changed and a re-host of old license is mandatory.

Step by Step

1) Perform a software update of OpenScape Business to V3R4 version.
2) Back up all OpenScape Business Server or UC Booster Server data. To do so, follow the instructions on How to Perform a Data Backup.
3) Uninstall OpenScape Business Server or UC Booster Server. To do so, follow the instructions on How to Uninstall the Communication Software.
4) Insert the SLES 15 SP6/SP7 installation USB and boot.
5) Perform a fresh installation of SLES 15 SP6/SP7.
6) After system upgrades to SLES 15 SP6/SP7, install OpenScape Business Server version that supports SLES 15 SP6/SP7.

NOTICE: Use the same partitioning as in SLES 12 SP5. Also, the file system needs to be the same for SLES 12 and SLES 15, otherwise the backup cannot be imported.

---

7) Restore all OpenScape Business Server data.

4.4.3 How to upgrade from SLES 15 SP6 to SLES 15 SP7

Upgrade from SLES15 SP6 to SLES15 SP7 can be done either offline or online through yast. Both ways are described below.

Prerequisites

Installed OpenScape Business system on a SLES 15 SP6. Upgrade to SLES 15 is madatory since SLES 12 is not supported for version OpenScape Business V3R4 FR3.

NOTICE: The upgrade to SP7 is smooth, which means that a backup of OpenScape Business S is no longer needed. Nevertheless perform a full system backup for safety reasons.

Offline upgrade

Step by Step

1) Perform a software update of OpenScape Business to latest V3R4 version.

2) Insert USB stick with the *.iso of SLES 15 SP7.

3) Reboot SLES machine and select machine **Startup through USB stick.**

4) Select **Upgrade**.

5) On **Language and Keyboard Selection**, choose the appropriate language and click **Next**.

6) On **Select for Update**, choose the **SLES 15 SP6** partition for update and click **Next**.

7) On the **SUSE Linux Enterprise Server 15 SP7 License Agreement**, agree with the terms and click **Next**.

8) On **Previously Used Repositories**, remove all repositories (default action) and click **Next**.

9) On **Extension and Module Selection**, select the following six modules and click **Next**:

a) Basesystem Module
b) Containers Module
c) Desktop Applications Module
d) Development Tools Module
e) Legacy Module
f) Server Applications Module

10) On **Add-On Product Installation**, verify that the six modules listed in the previous step are present and click **Next**.

11) On **Installation Settings**, review the upgrade options from SP6 to SP7.

In the **Packages** section, a red message appears stating “Cannot solve all conflicts”. Click **Manual intervention is required**.

12) When notified about the **rsyslog** utility, select the de-installation of **rsyslog** and click **OK**, then **Try Again**.

OpenScape Business uses **syslog-ng** for logging.

13) Review all patterns that will be installed.

If Docker packages were not installed on SLES 15 SP6, install them as described below. These packages are mandatory for OpenScape Business on SLES 15 SP7.

a) Click **Search** and enter **docker** in the search field, then click **Search**.
b) Select the following packages:

- docker
- docker-bash-completion
- docker-rootless-extras

c) Click **Accept**.

14) After all conflicts are resolved, click **Update** to start the upgrade procedure.

15) On the **Confirm Update** window, click **Start Update**.

It is important to install the docker packages. If for any reason the step for docker packages has been missed , a notification in visible at the landing page of WBM. Then user can install them via yast following these steps:

- Search for the Package Sources application and open it.
- In Page Sources pop up window select all package sources and close the window.
- Search for YaST Software Management and open it. Type 'docker' in the search field and select for installation these three packages: docker, docker-bash-completion, docker-rootless-extras.
- Click Accept.

Online upgrade

For detailed information on how to upgrade from SP6 to SP7 online, follow the instructions in the official SUSE documentation: https://documentation.suse.com/sles/15-SP7/html/SLES-all/cha-upgrade-online.html

Follow the steps as they are described in chapter 5.4 Upgrading with the online migration tool (YaST). Have in mind that SUSE licenses are needed to proceed with the online procedure.

NOTICE: Offline procedure is highly recommended. It is more clear and straight forward. Online procedure requires a higher lever of Linux expertise.

4.5 Initial Startup with a Software RAID

The initial startup of the Linux server with a software RAID includes the Linux installation and configuration, while taking into account that a software RAID is being used.

Proceed as follows:

1) Disable the BIOS RAID (optional)

If a RAID array is to be set up via a software RAID, any integrated RAID BIOS that may be present on the motherboard of the server PC must be first disabled in the BIOS.

2) Install and configure SLES 15 SP6/SP7 with a software RAID

The required settings for the communication software are made during the installation and configuration.

Linux Partitions

The hard drive must be partitioned during the initial start-up as follows:

Partition	Type	Size	File system	Mount	Note
Partition 1	Primary Partition	2 GB	Swap	swap	corresponds to the size of the working memory
Partition 2	Primary Partition	20 GB	Ext4	/	for the Linux operating system
Partition 3	Primary Partition	Rest[2]	Ext4	/home	For the communication software

The mount points are assigned after the partitioning when setting up the RAID system.

NOTICE: The installation routine of the communication software checks these partition sizes and may reject the installation.

NOTICE: Some server PCs require an additional boot partition. If Linux suggests a boot partition during the installation, it should be accepted in the proposed size.

4.5.1 How to Deactivate the BIOS RAID

Prerequisites

An integrated RAID controller (BIOS RAID) is available on the motherboard of the PC.

Step by Step

1) Restart the PC. During the startup, you will see whether the BIOS RAID has been enabled. If the BIOS RAID is not enabled, skip to step 3.

2) Disable the active BIOS RAID:

a) Press the appropriate key combination at the right time during the startup to enter BIOS RAID setup. The combination will be shown to you during the startup (e.g., CTRL M for LSI MegaRAID BIOS).

b) Clear the BIOS RAID configuration. Example for LSI MegaRAID BIOS: Management Menu > Configure > Configuration Menu > Clear Configuration.

c) Exit the setup of the BIOS RAID and restart the PC.

[2] Up to 50 users: min. 40 GB - Up to 100 users: min. 80 GB - More than 500 users: min. 180 GB - With OpenScape Business Contact Center: min. 180 GB - More than 500 users: min. 480 GB

3) Disable the SATA RAID configuration in the BIOS setup of the PC:
   a) Press the appropriate key (e.g., F2 or Del) at the right time during the startup to enter BIOS setup of the PC.
   b) Disable the SATA RAID. Example for a Phoenix BIOS: Advanced > Advanced System Configuration > SATA RAID Disabled.
   c) Save your changes and exit the BIOS setup of your PC (with the F10 key, for example).
4) Restart the PC.

Next steps

Install and configure SLES 15 with a software RAID.

4.5.2 How to Install and Configure SLES 15 SP6/SP7 with a Software RAID

Prerequisites

Any possibly existing hardware RAID is disabled.

The BIOS setup of the Linux server is set so that the server will boot from the .ISO file.

To register with Novell, Internet access and the activation code are required.

Step by Step

1) Insert the SLES 15 .ISO file on USB stick in a USB port and boot up the system from the .ISO file. The Startup window of the Linux installation appears.
2) Select the menu item **Installation** and confirm this by pressing the Enter key.
3) In the **Language, Keyboard and License Agreement** window, select the country settings for the Linux operating system:
   a) Select **English (US)** as the user interface language in the **Language** drop-down list.
   b) Select the keyboard layout for the desired country from the **Keyboard Layout** drop-down list.
4) Read through the license agreement and accept the license terms by enabling the check box **I Agree to the License Terms**. Then click **Next**.
5) In the **Registration** window, select **Register System via scc.suse.com**, enter you email address and registration code and click **Next**.

   INFO: If you want to skip registration select **Skip Registration**, then click on **OK** in the **Warning** window that appears and finally click on **Next**. For your by skipping the registration you will not be able to have access to the update repositories. However you can register after the installation or visit customer service.

6) In the **Add On Product** window, click on **Network Configuration**.

   NOTICE: If you want to configure the network later click on **Next**.

7) On the **Network Settings** window, configure the network card.

a) Select the desired network card in the **Overview** window. The MAC address of the network card selected here is assigned later in the licensing process to the individual licenses. Click on **Edit**.

b) Enable the radio button **Statically assigned IP Address**.

c) Under **IP Address**, enter the assigned IP address of the Linux server (for example, `192.168.5.10`).

The IP address must conform to the IP address scheme of your internal network and must not have been assigned to any network client, since this would otherwise result in an IP address conflict.

d) Under **Hostname**, enter the assigned hostname of the Linux server (for example, `OSBiz-Booster`).

The hostname must conform to the hostname scheme of your internal network and must not have been assigned to any other network client, since this would otherwise result in an hostname conflict.

e) Under **Subnet Mask**, enter the assigned subnet mask of the Linux server (for example, `255.255.255.0`).

The subnet mask must match the IP address scheme of your internal network.

f) Then click **Next**.

8) Specify the DNS server and the default gateway.

a) In the **Network Settings** window, click on the **Host name/DNS** tab.

b) Enter the hostname of the DNS server under **Hostname**.

The hostname must conform to the hostname scheme of your internal network and must not have been assigned to any other network client, since this would otherwise result in an hostname conflict.

c) Enter the domain name of the DNS server under **Domain Name**.

The domain name must be unique, since this would otherwise result in an domain name conflict.

d) Enter the IP address of the DNS server under **Name Server 1**.

If no DNS server is available in the internal network, enter the IP address of the Internet router (for example, `192.168.5.1`).

e) In the **Network Settings** window, click on the **Routing** tab.

f) Under **Default Gateway**, enter the IP address of the Internet router (for example, `192.168.5.1`).

9) Click on **Next**.

10) In the **Add On Product** window, click on **Next**.

11) In the **System Role** window, select **Default System** and click on **Next**.

12) In the **Suggested Partitioning** window, select **Expert Partitioner...**

13) Partition the two hard disks:

a) Navigate in the **System View** menu tree to **Hard Disks** > **sda** (first hard disk of the software RAID).

b) Delete all preassigned partitions (sda1, sda2, etc.) by marking the partition, clicking on **Delete**, and then confirming the Delete operation with **Yes**.

c) Partition the first hard disk by using the **Add Partition** button.

Use the following data for the partitioning:

Partition 1	Primary Partition	2 GB	Role: Swap Format Swap Mount Point = swap, fstab Option = Device name
Partition 2	Primary Partition	0.5 GB	Role: Operating System Format Ext4 Mount Point = /boot **NOTICE:** This partition must be created only in the first drive.
Partition 3	Primary Partition	20 GB	Role: Operating System Format Ext4 /
Partition 4	Primary Partition	Rest	Role: Data and ISV Applications Format Ext4 /home

d) Navigate in the **System View** menu tree to **Hard Disks** > **sdb** (second hard disk of the software RAID).

e) Complete steps 13b. and 13c. for the second hard disk as well.

NOTICE: No boot partition needs to be created in the second hard drive.

14) Specify the software RAID settings:

a) Select the menu item **RAID** and click on **Add RAID**.
b) Select **RAID 1 (Mirroring)**.
c) Select the two partitions sda3 and sdb2 in the **Available Devices** area on the left and transfer them with **Add** to the **Selected Devices** area on the right.
d) Click on **Next**.
e) Confirm the default value for the Chunk Size with **Next**.
f) In the next window select **Operating System** and click **Next**.
g) In the next window, select **Ext4** as format and the mount point "/" for the first RAID device (/dev/md0) and click **Finish**.
h) Then click on **Add Raid** again.
i) Select **RAID 1 (Mirroring)**.
j) Select the two partitions sda4 and sdb3 in the **Available Devices** area on the left and transfer them with **Add** to the **Selected Devices** area on the right.
k) Click on **Next**.
l) Confirm the default value for the Chunk Size with **Next**.
m) In the next window, select **Data and ISV Applications** and click **Next**.
n) In the next window, select **Ext4** as format and the mount point "/home" for the second RAID device (/dev/md1) and click **Finish**.

15) Click on **Accept** and **Next**.

The partitioning data is saved; the actual partitioning of the hard disk occurs later.

16) In the **Clock and Time Zone** window, select the correct region and time zone.

To adjust date and time or to configure an NTP server (for a uniform time base), proceed by clicking the **Other Settings** button. Click **Next** when finished.

17) In the **Local Users** window, add a user and password and click **Next**.

18) In the **Password for the System Administrator "root"** window, enter the password for the system administrator with the "root" profile in the **Password for the root User** and **Confirm Password** fields and then click on **Next**.

The password should comply with conventional security policies. It must have at least 8 character, at least one lowercase letter, at least one uppercase letter, at least one number and at least one special character.

19) In the **Installation Settings** window, click **Install**, and confirm the installation by clicking **Install** again.

The **Installation Settings** window is an overview of the components that are going to be installed. Before completing the installation, you can make any necessary changes here.

After the installation routine has finished, the computer is rebooted into the installed system.

In order to select an appropriate screen resolution:

- Click on **Applications** in the task bar.
- Then in the menu tree, click on **Settings** > **Displays**.
- In the **Displays** window, click on the **Unknown Display**

- In the **Unknown Display** pop up window that appears select the appropriate resolution from the **Resolution** drop-down list and then click on **Apply**.
- Finally, in the confirmation pop up window that appears click on **Keep Changes**.

4.6 Configuring a Uniform Time Base

The communication system and IP stations (IP phones, client PCs) should have a uniform time base (date and time). This time base is provided by an SNTP server.

The following variants are possible as a time base:

- **SNTP server on the internal network (recommended)**

  If possible, an existing SNTP server on the internal network should be used. If this is the case, the IP address, URL or DNS name of the SNTP server is required.
- **SNTP Server on the Internet**

  If Internet access is available and set up, an SNTP server from the Internet can also be used. In this case, the URL or DNS name of the SNTP server is required.
- **OpenScape Business X3/X5/X8 as an SNTP server**

  Alternatively, the OpenScape Business X3/X5/X8 communication system can be used as an SNTP server. This requires the OpenScape Business X3/X5/X8 to be connected to the Central Office via ISDN lines and the system time to be obtained from the CO. In this case, OpenScape Business X3/X5/X8 must be first set up for use as an SNTP server (see the Administrator Documentation), and the IP address of the OpenScape Business X3/X5/X8 must then be entered in Linux as an SNTP server.

The IP phones receive the date & time automatically from the OpenScape Business S softswitch or, in the case of the OpenScape Business UC Booster Server, from the OpenScape Business X3/X5/X8 communication system.
The date and time on the client PCs on which the OpenScape Business communications clients are installed must be synchronized with the OpenScape Business S softswitch or the OpenScape Business X3/X5/X8 communication system (see the operating system instructions of the client PCs for details).

4.6.1 How to Configure an SNTP Server

Step by Step

1) Click on **Applications** in the task bar.
2) In the menu tree, click on **Tools** > **YaST**.
3) Enter the password for the root user and click **Continue**. The YaST2 Control Center is opened.
4) Click **System** in the menu tree.
5) In the **System** area, click on **Date and Time**.
6) Click **Change**.
7) Activate the **Synchronize with NTP Server** option.

8) Specify an NTP server:

- **SNTP server on the internal network** (recommended)

  Enter the IP address, URL or DNS name of the SNTP server directly into the list box.
- **SNTP Server on the Internet**

  Select the desired SNTP server from the **NTP Server Address** list or enter the URL or DNS name of the SNTP server directly into the list box.
- **OpenScape Business X3/X5/X8 as SNTP server (only for OpenScape Business UC Booster Server)**

  Enter the IP address of the OpenScape Business X3/X5/X8 communication system directly in the list box.

9) Select the **Save NTP configuration** check box.

10) Click **Configure**.

11) Activate the **Now and On Boot** option.

12) Click **OK** followed by **Accept**.

13) Close the window with **OK**.

14) Close the **YaST2Control Center**.

4.7 Updates

To receive updates, it is necessary to register directly with Novell.

The installation and operation of the commercial SLES 15 SP6/SP7 64 bit version is possible without registration. However, it is still important to register with Novell in order to obtain security patches and software updates.

A Novell Activation Code (registration code) can be procured via the order item "OpenScape Business SLES Upgrade Key". When ordering, you will receive a LAC (License Activation Key). Using this LAC, you can download the activation code at the CLS (Central License Server), with which you can then create an account with Novell. It is recommended that the customer account be set up before the Linux installation.

The following update variants are possible: Registering with Novell is a prerequisite.

- **Updates during the Linux installation (recommended)**

  During the Linux installation, updates and patches can be downloaded online from the Novell Download Server.

  Exception: Service Packs may not be installed.
- **Updates after installing Linux and before installing the communication software**

  After the Linux installation, updates and patches can be downloaded manually from the Novell Download Server using YaST (Software - Online Updates).

  Exception: Service Packs may not be installed.
- **Updates after installing the communication software**

  After the installation of the communication software, updates and patches can be downloaded automatically from the Novell Download Server. When

performing these updates, any updates and patches that require a reboot of the Linux server (interactive updates) must be skipped. After every 2 or 3 update processes, it is recommended that a manual be started so that the skipped, interactive updates are also installed.

The corresponding settings are made using YaST (Software - Online Updates).

Deviations from the previously mentioned variants are possible and are described in the Release Notice of the communication software.

NOTICE: During a SLES online update Linux's Yast administration tool prompts to remove either rsyslog or syslog-ng. You must only remove the rsyslog package as the syslog-ng package is used in the OpenScape Business S tracing feature.

4.7.1 How to Enable Automatic Online Updates

Step by Step

1) Click on **Applications** in the task bar.
2) In the menu tree, click on **System Tools** > **YaST**.
3) Enter the password for the root user and click **Continue**. The **Administrator Settings** window is opened.
4) Click on **Online Update Configuration**.
5) Enable the **Automatic Online Update** check box and then select **daily**, **weekly** or **monthly** as the interval.
6) Select the **Skip Interactive Patches** check box.
7) Click **OK**.
8) Close the **Administrator Settings**.

4.7.2 How to Enable Online Updates Manually

Step by Step

1) Click on **Applications** in the task bar.
2) In the menu tree, click on **System Tools** > **YaST**.
3) Enter the password for the root user and click **Continue**. The **Administrator Settings** window is opened.
4) Click on **Online Update** and you will see a list of the available patches (**Needed Patches**) that are required under the **Summary** area. If you already have all the latest patches installed, this list will be empty; otherwise select all the check boxes that appear.
5) Click on **Accept** to start the manual online update. The window will close automatically after the update.
6) Close the **Administrator Settings**.

4.7.3 Configuring the SLES 15 YaST2 Online Update

During the Online Update procedure, two rules must be followed to maintain the stability of the communication system.

Repositories configuration

Run the following commands via PuTTY and verify they executed successfully. These commands add specific SLES modules to the repositories list.

```
suseconnect -p sle-module-desktop-applications/15.6/x86_64
suseconnect -p sle-module-development-tools/15.6/x86_64
suseconnect -p sle-module-legacy/15.6/x86_64
```

Online Update Packages

The Online Update mechanism collects packages and patches via SUSE repositories. When there are conflicts with packages, YaST2 Online Update shows warnings.

In a clean install of OpenScape Business, some packages are locked to ensure the system's stability.

Do not update or remove these locked packages.

If a warning prompts you to remove a locked package, select **Do not install patch** in the conflict resolution window.

NOTICE: For further information on SLES Online updates, please refer to the corresponding SUSE documentation: *SUSE Linux Enterprise Server Administration Guide, chapter 7 "YaST online update"*.

4.8 Server Software Backup and Restore

It is essential to back up the Linux operating system so it can be restored in an emergency.

After the initial startup and prior to each manual update, it is strongly recommended to use an appropriate backup tool to create a full backup of the server PC, including all relevant partitions. In the event of a fatal error following an update, the server PC can then be fully restored to its previous state.

In a virtual environment, the entire virtual machine is to be copied.

If the entire server PC is backed up, the data of the communication software will be included in this backup. If only the operating system is backed up, the data of the communication software must be also backed up on a regular, recurring schedule.

5 Initial Setup for OpenScape Business S

The initial setup of OpenScape Business S (also referred to as the Softswitch in short) is described here. This includes the integrating the softswitch and related components into the existing customer LAN as well as setting up Internet access for Internet telephony and configuring the connected stations.

For OpenScape Business S, the OpenScape Business communication software is installed on the Linux operating system SLES 15 SP6/SP7 64 bit. The communication software can be operated directly on a Linux server or in a virtual environment with VMware vSphere or Microsoft Hyper-V. The installation of the Linux operating system is described in the installation guide *OpenScape Business, Installing the Linux Server*.

The initial setup of OpenScape Business S is carried out using the OpenScape Business Assistant administration program (web-based management, also called WBM in short), after the communication software has been installed on the Linux Server.

This section describes the installation of the communication software and the configuration of the most common components. Not all of these components may be used by you. During the initial setup, you may need to choose between multiple options in some places or even skip some configurations entirely, depending on which components you use.

The detailed administration of any features that are not covered by the initial setup is described in subsequent chapters.

The initial setup requires the creation of an IP address scheme and a dial plan.

Summary of the most important installation steps:

- System settings
- System Phone Numbers and Networking
- Internet Telephony
- Station configuration
- Licensing
- Data backup

5.1 Prerequisites for the Initial Setup

Meeting the prerequisites for the initial setup ensures the proper operation of OpenScape Business S.

General

Depending on the used hardware (phones, ...) and the existing infrastructure, the following general conditions apply:

- The LAN infrastructure (Internet routers, switches, etc.) is present and usable.
- The IP phones are connected to the customer LAN.
- The Linux server required for OpenScape Business S was installed as per the instructions in the *OpenScape Business Linux Server Installation Guide*, was integrated into the customer LAN, and is ready for use.

- All licenses required for OpenScape Business S are present (e.g., UC clients, Directory Services, etc.).
- An IP address scheme exists and is known.
- A dial plan (also called a numbering plan) is present and known.

Software

The following software is required for the installation of OpenScape Business S:

- .ISO image with the OpenScape Business communication software

  Contains the OpenScape Business communication software. This .ISO image is included in the delivery package.
- ISO with Linux operating system SLES 15 SP6/SP7 64 bit

  The Linux ISO may be needed during the installation of the OpenScape Business communication software, since some software packages (RPM) required for the communication software may need to installed later from this .ISO image.

Administration

For the initial setup of OpenScape Business S with the OpenScape Business Assistant (WBM), the Linux server or the Admin PC can be used. The WBM is browser-based and is thus independent of the operating system.

- Web browsers:

  The following HTML 5-enabled web browsers are supported:

  – Microsoft Internet Explorer Version 11 and later (Admin PC).
  – Microsoft Edge
  – Mozilla Firefox Version 37.x and 38.x
  – Mozilla Firefox ESR Version 24.x and 31.x
  – Google Chrome

  If an older version of the web browser is installed, you will need to install an up-to-date version before you can start the initial setup of the system.
- Java:

  Oracle Java 8 or higher or alternatively OpenJDK 8 must be installed. If an older version is installed, you will need to update it to the latest version before you can start setting up the system for the first time.

- Screen resolution: 1024x768 or higher

Firewall

When connected to the Internet, a firewall is needed for the Linux server to prevent unauthorized access from outside. After installing Linux, the Linux firewall is enabled. The installer of the communication software adjusts the firewall settings so that the communication software can be operated properly. The ports for the communication software are opened, and all other ports are closed.

If an external firewall is used in the network, the Linux firewall must be disabled, and the addresses and ports required for the communication software must be opened (see Used Ports).

Internet Access

The Server PC must have broadband Internet access for:

- Security patches and general Linux software updates

OpenScape Business requires an Internet connection for:

- OpenScape Business software updates
- OpenScape Business features such as Internet telephony, for example
- OpenScape Business Mobility Clients such as myPortal to go, for example
- Remote Service

E-mail Server (Optional)

OpenScape Business requires access to an e-mail server in order to send e-mails. For this purpose, the access data to the E-mail server must be entered in OpenScape Business, and the relevant accounts (IP address, URL, login data of the E-mail server) must be set up in the E-mail server.

If the e-mail functionality is not used within OpenScape Business, this data need not be entered.

Internet Telephony, VoIP (Optional)

If Internet telephony is used within OpenScape Business, then OpenScape Business will require broadband access to the Internet and to an Internet Telephony Service Provider (ITSP, SIP Provider) for SIP telephony over the Internet. To do this, the appropriate accounts must be obtained from the ITSP, and the access data for the ITSP (IP address, URL, login data of the SIP Provider) must be set up in OpenScape Business.

Second LAN Port

If OpenScape Business S (or the Linux server) has a second LAN port, you can use this as a WAN interface for Internet access and Internet telephony via an ITSP. The first LAN port is used as usual as a LAN interface for the internal phones and PCs. The configuration of Internet access occurs in the external Internet router of the customer LAN. The setup of the second LAN port occurs directly during the initial setup of Linux or can be performed later using YaST. In the WBM, the second LAN port only needs to be activated as a WAN interface.

Fax as PDF

If faxes are to be saved in PDF format, the server PC requires at least 6 GB RAM. If OpenScape Business S is being operated in a virtual environment, the virtual machine must also be assigned 6 GB RAM.

5.2 Components

The various components of the installation example are described and outlined below.

The installation example includes the following components:

- OpenScape Business S

  The Linux server with the OpenScape Business S communication software is integrated in the existing customer LAN via its LAN interface.

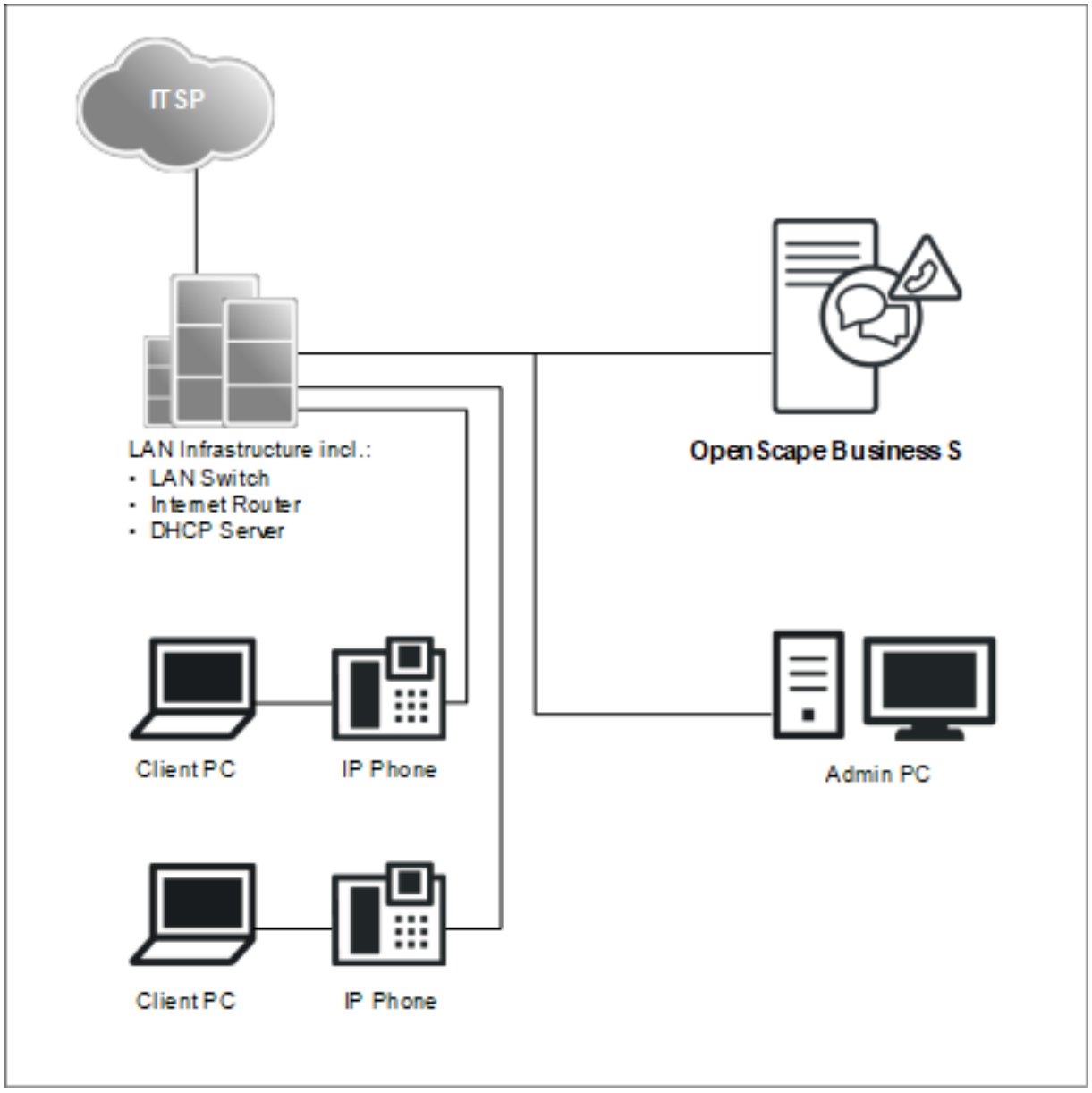
- Admin PC

  The admin PC is also integrated in the existing customer LAN via its LAN interface.
- IP stations (IP clients)

  The IP stations (IP system phones, client PCs, WLAN Access Points, etc.) are integrated in the LAN via one or more switches.

The IP clients obtain their IP addresses dynamically from an internal DHCP server (DHCP server of the Linux server) or from an external DHCP server (DHCP server of the Internet router, for example).

Internet access is configured in the Internet router.



5.3 IP Address Scheme

An IP address scheme is a definition of how the IP addresses are used in the customer LAN. It includes the IP addresses of PCs, servers, Internet routers, IP phones, etc.

To provide a better overview of the assignment of IP addresses, an IP address scheme should be created.

Example of an IP address scheme with the IP address range `192.168.5.x`:

IP address range	Clients
192.168.5.1 through **192.168.5.49**	Clients with a fixed IP address
192.168.5.1	Internet router (gateway)
192.168.5.10	Server PC (OpenScape Business S)
192.168.5.20	E-mail server
192.168.5.100 to **192.168.5.254**	Client PCs & IP phones, also the IP address range of the DHCP server; IP addresses are assigned automatically to the clients

5.4 Dial Plan

A dial plan is a list of all phone numbers available in the communication system. It comprises internal phone numbers, DID numbers, and group station numbers.

Default Dial Plan

The internal call numbers are preassigned default values. These values can be adapted to suit individual requirements as needed (e.g., to create individual dial plans).

Extract from the default dial plan:

Type of call numbers	Default call numbers
Internal station numbers	100-349, 500-709
User direct inward dialing numbers	100-349, 500-709
Group station numbers	350-439
Voicemail call number	71
Announcement Player call number	72
Seizure codes (external codes): Central Office ITSP	855-858
Call number for conferences	7400-7404
Call number for parking	7405
Call number for AutoAttendant	7410-7429

Type of call numbers	Default call numbers
Call number for MeetMe conference	7430

Individual Dial Plan

An individual dial plan can be imported in the WBM via an XML file during the basic configuration.

The XML file contains several tabs. Besides the names and phone numbers of subscribers, the "Customer" tab also includes additional subscriber data such as the subscriber types and e-mail addresses of the subscribers.

A sample XML file with the appropriate explanations can be found in the WBM under **Service Center** > **Documents** > **Templates** > **CSV Templates**. You can also use the XML file stored there as a template for your data. It can be edited with Microsoft Excel, for example.

5.5 Installing the Communication Software

The OpenScape Business S communication software is installed on the Linux server.

Make sure that the IP addresses and network masks to be configured are appropriate for the customer LAN.

DHCP Server

A DHCP server automatically assigns a unique IP address to each IP station (IP phones, PCs, etc.) and provides the IP stations with network-specific data such as the IP address of the default gateway, for example.

Either an external DHCP server (e.g., the DHCP server of the Internet router or of the communication system) or the DHCP server of the Linux server can be used as a DHCP server. If the DHCP server of the Linux server is used, the external DHCP server must be disabled. The configuration of the Linux DHCP server can be performed during the installation of the OpenScape Business communication software.

Virtual Environment

The communication software can run in a virtual environment. There are two ways to perform the installation:

- Separate installation of Linux and the communication software

  To do this, the virtualization software (host operating system) must be first installed and configured on the server PC. Linux is installed in the virtual environment as a guest operating system. Within the Linux operating system, the communication software is installed last with the help of the OpenScape Business .ISO file (see *OpenScape Business Linux Server, Installation Guide* for more details).
- Combined installation of Linux and the communication software (VMWare only)

  To do this, the virtualization software (host operating system) must be first installed and configured on the server PC. An OVA image (Open Virtualization Appliance), which includes Linux and the communication

software, is installed in the virtual environment. The OVA image is provided through the software supply server (SWS).

For more than 50 users, the home partition must be resized after the installation to 100 GB (for 50 to 100 users) or 200 GB (for up to 500 users or for OpenScape Business Contact Center) or 500 GB (for more than 500 users).

For Linux updates, you will also need the OpenScape Business SLES upgrade key in order to be able to register with Linux.

Use of snapshots on virtual machines (VM):

Snapshots can be a valuable maintenance mechanism, for example, to perform a fast rollback to a predefined operating state of the VM after a mass distribution script has failed.

- Snapshots cannot be created during normal operation. The current operating state of the virtual machine is frozen while taking a snapshot. Consequently, connected terminals and applications such as IP phones or the UC clients may lose the connection to the server.
- Snapshots can cause internal server processes to lose their synchronization, which means that the stable operation of the communication system can then no longer be guaranteed. A server reboot following the snapshot should therefore also be planned within the maintenance timeframe.
- Previous snapshots should not remain on the production environment during normal operation.
- Snapshots can be taken during a planned maintenance window or within the framework of the installation.
- Snapshots are used internally by backup tools such as VDP or VDR. It must be ensured that these backup operations are schedules outside of business hours and that the snapshots generated by these tools are deleted at the end of the operation.

More information regarding snapshots can be found in the VMware knowledge base (KB). A good starting point is the KB article 1025279 – Best Practices for virtual machine snapshots in the VMware environment (`http://kb.vmware.com/kb/1025279`).

All information about snapshots in Microsoft Hyper-V can be found in the technet library at technet.microsoft.com within the Hyper-V chapter.

Google Cloud Platform

The communication software can run in Google Cloud Platform.

To do this, a virtual machine image which contains Linux and the communication software must be uploaded on the Google Cloud Platform. Then this image is used in order to create a virtual machine on Google Cloud Platform which contains Linux and the communication software.

5.5.1 How to Install the Communication Software on a Linux Server or in a Virtual Environment

Prerequisites

- The SLES 15 SP6/SP7 operating system has been correctly installed and started on the Linux server.

- .ISO file with OpenScape Business communication software.
- .ISO file with the Linux operating system SLES 15 SP6/SP7 64-bit for any subsequent installation of software packages (RPM) that may be required.
- The root access data (user name and password) for logging into the Linux server is available.

IMPORTANT: The OpenScape Business communication software overwrites any existing configuration files (e.g., for DHCP, FTP, Postfix, etc.) during the installation.

Step by Step

1) Log into the Linux server with root privileges.

2) Insert the OpenScape Business .ISO file.

3) Confirm the message with **Run**. The "Welcome" window appears.

4) Select the desired setup language (e.g., **English**) and click **Start**. The rest of the installation is described here for the English language.

5) Select the desired product from the list and click on **Select**. A check is performed to determine whether the hardware meets all the requirements for the installation. A warning is displayed for minor shortfalls in meeting the requirements. After confirmation by clicking on **Continue**, the installation can then be continued. For severe shortfalls, the installation is canceled automatically.

6) A check is performed to determine whether additional RPM packages need to be installed. If yes, confirm this with **Confirm**. If this occurs, you will need to switch back to SLES 15 .ISO file later.

7) A window with the terms of the license (i.e., the End User License Agreement or EULA) appears. Read the terms of the license and accept the license agreement with **Yes**.

8) If a DHCP server is already present in the customer LAN (e.g., the DHCP server of the Internet router), stop the configuration of the Linux DHCP server here with **No** and proceed to step 12 to continue.

NOTICE: In order to ensure that the software of system telephones can be updated automatically even when using an external DHCP server, you have two options:

a) The IP address of the Linux server must be entered as the DLS address at each system telephone.

b) The network-specific data must be entered at the external DHCP server. The parameters for this can be found under `/var/log/OPTI.txt`.

---

9) If you want to use the Linux DHCP server, click on **Yes** to enable and configure the Linux DHCP server.

10) Enter the following values (preset with default values):
    - **Default Route**: IP address of the default gateway; as a rule, the IP address for the Internet router, e.g., `192.168.5.1`.
    - **Domain** (optional): the domain specified during the Linux installation, e.g., `<customer>.com`
    - **DNS-Server** (optional): IP address of the DNS server specified during the Linux installation. If no DNS server is available in the internal network, you can enter the IP address of the Internet router (e.g., `192.168.5.1`) here.
    - **SNTP Server**: IP address of the internal or external NTP server.
    - **DLS/DLI Server**: IP address of DLS server, i.e., the IP address of the Linux server (e.g.: `192.168.5.10`).
    - **Subnet**: appropriate subnet for the IP address range, e.g.: `192.168.5.0`.
    - **Netmask**: Subnet mask of the Linux server that was specified during the Linux installation, e.g.: `255.255.255.0`.
    - **IP range begin** and **IP range end**: IP address range from which the DHCP server may assign IP addresses, e.g.: `192.168.5.100` to `192.168.5.254`.
11) Click on **Continue**.
12) After the installation, the Linux operating system needs to be restarted. Select the check box **PC Reboot** and confirm with **Continue**.
13) If additional RPM packages need to be installed, you will be prompted to insert the SLES 15 .ISO file. Insert the .ISO file and confirm with **Continue**. Following the successful installation of the RPM packages, reinsert the OpenScape Business .ISO file and confirm this with **Continue**, followed by **Run**.
14) The OpenScape Business communication software is installed. The operating system then automatically performs a restart.
15) After the restart, log in with the user account that was set up earlier during the Linux installation.

NOTICE: It takes a few minutes until all components of the OpenScape Business communication software are active.

5.5.2 How to Install the Communication Software on Google Cloud Platform

The communication software can run in a Google Cloud Platform.

Prerequisites

- Virtual machine image with the Linux operating system and the OpenScape Business communication software.

To set up the communication software in a Google Cloud Platform, you need to import the virtual machine image that includes Linux and the communication software to your custom images list on Google Cloud Platform. Finally, you need to create a virtual machine on Google Cloud Platform with the virtual machine image mentioned before.

NOTICE: The virtual machine image including Linux and the communication software will be supplied by Mitel after purchasing the OpenScape Business S communication system.

Step by Step

1) Log in to Google Cloud Platform `https://console.cloud.google.com/`
2) Click on **Cloud Storage** in the navigation menu.
3) Click on **Create Bucket** under the **Buckets** area.
   The **Create a Bucket** area appears.
4) Enter a name for the bucket under the **Name your bucket** field.
5) Click on **Create**.
   The **Bucket** area appears.
6) Navigate to the newly created bucket and click on **Upload Files** to select the virtual machine image that Linux and the communication software.
7) Click on **Computer Engine**>**Images** in the navigation menu.
8) Click on **Create Image** under the **Images** area.
   The **Create an Image** area appears.
9) Enter a name for the image under the **Name** field.
10) Select **Cloud Storage file** from the **Source** drop-down list, then click on **BROWSE** to select the recently uploaded virtual machine image.
11) Select the location under the **Location** area and then click on **Create**.
    The virtual machine image that includes Linux and the communication software is uploaded to Google Cloud Platform.
12) Click on **Computer Engine**>**VM instances** in the navigation menu.
13) Click on **Create Instance** under the **VM instances** area.
    The **Create an instance** area appears.
14) Enter a name for the virtual machine under the **Name** field.
15) Scroll down and in the **Boot disk** area click on **Change**.
    The **Boot disk** area appears.
16) Click on the **Custom Images** tab.
17) Click on **Select a project**.
    a) Select the project that contains the virtual machine image with the Linux and the communication software.
    b) Click on **Open**.
18) Select the virtual machine image that you want to import from the **Image** drop-down list.
    For advanced configuration options, click on **Show advanced configuration**.
19) Click on **Select** to confirm your boot disk options.
20) Select the **Allow HTTPS traffic** under the **Firewall** area, in order to permit HTTPS traffic to the virtual machine.
    The Cloud Console adds a network tag to your VM and creates the corresponding ingress firewall rule that allows all incoming traffic on tcp:80 (HTTP) or tcp:443 (HTTPS). The network tag associates the firewall rule with the VM. For more information, see VPC firewall rules overview | Google Cloud in the Virtual Private Cloud documentation.

21) Click on **Create** to create and start the virtual machine

The virtual machine with the communication software image is now running on the Google Cloud Platform.

22) It is highly recommended to set up a VPN connection between Google Cloud Platform and your router/firewall. This requires that your router/firewall supports the IPsec IKEv2 VPN encryption protocol. To set up the VPN connection, do the following:

a) Click on **Hybrid Connectivity** in the navigation menu.

b) Click on **VPN** under the **Hybrid Connectivity** area.

The **VPN** area appears.

c) Click on **CREATE VPN TUNNEL** under the **CLOUD VPN TUNNEL** tab.

d) Select your VPN gateway from the **VPN gateway** drop-down list and click on **CONTINUE**.

e) Complete the following fields:

- **Name**: Enter the name of the VPN tunnel.
- **Description**: Enter a description for your VPN tunnel.
- **Remote peer IP address**: Enter your router's public IP address.
- **IKE version**: Select the **IKEv2** option from the **IKE version** drop-down list.
- **IKE pre-shared key**: Generate a pre-shared key by clicking on the **Generate and copy** under the **IKE pre-shared key** field. Make sure you store the pre-shared key in a secure location, as the key can't be retrieved after this form is closed.

f) Select the **Route-based** radio button under the **Routing options** area.

g) Enter the network ranges that your router uses, under the **Remote network IP ranges** field.

h) Click on **CREATE** to create the VPN tunnel.

The VPN connection from your router/firewall to the Google Cloud Platform is now configured.

The communication software is now operational on the Google Cloud Platform and can be accessed via VPN connection from your router/firewall.

5.6 Starting Up

The basic settings are made using the **Initial Installation** wizard of the WBM.

5.6.1 How to Start the Initial Installation Wizard

Prerequisites

The WBM has been started.

Step by Step

1) In the navigation bar, click on **Setup**.

2) Click on **Edit** to start the **Initial Installation** wizard.

NOTICE: If the size of the browser window cannot display the workspace in its entirety at low screen resolutions, a

horizontal or vertical scroll bar appears at the sides and can be used to scroll to the required section.

Next steps

Perform initial installation as described in the following step-by-step instructions. Fields that are not described here are preset for the default scenario and should only be changed if they are not appropriate for your network data. For detailed information, refer to the descriptions provided in the Administrator documentation for the individual wizards.

5.6.2 System Settings

The **System Settings** window is used to configure the system settings of the communication system.

Proceed as follows:

1) Set the display logo and the product name.

Specify a display text to be displayed on the display of the system phones. Additionally, you can also select the product name.

2) Select the country code and the language to be used for event logs.

For country initialization to work correctly, you must select the country in which the communication system is operated. In addition, you can select the language in which the event logs (system event logs, errors logs, etc.) are to be stored.

3) Make sure to select the actual network interface, instead of the local-host, for the IP address of the system.

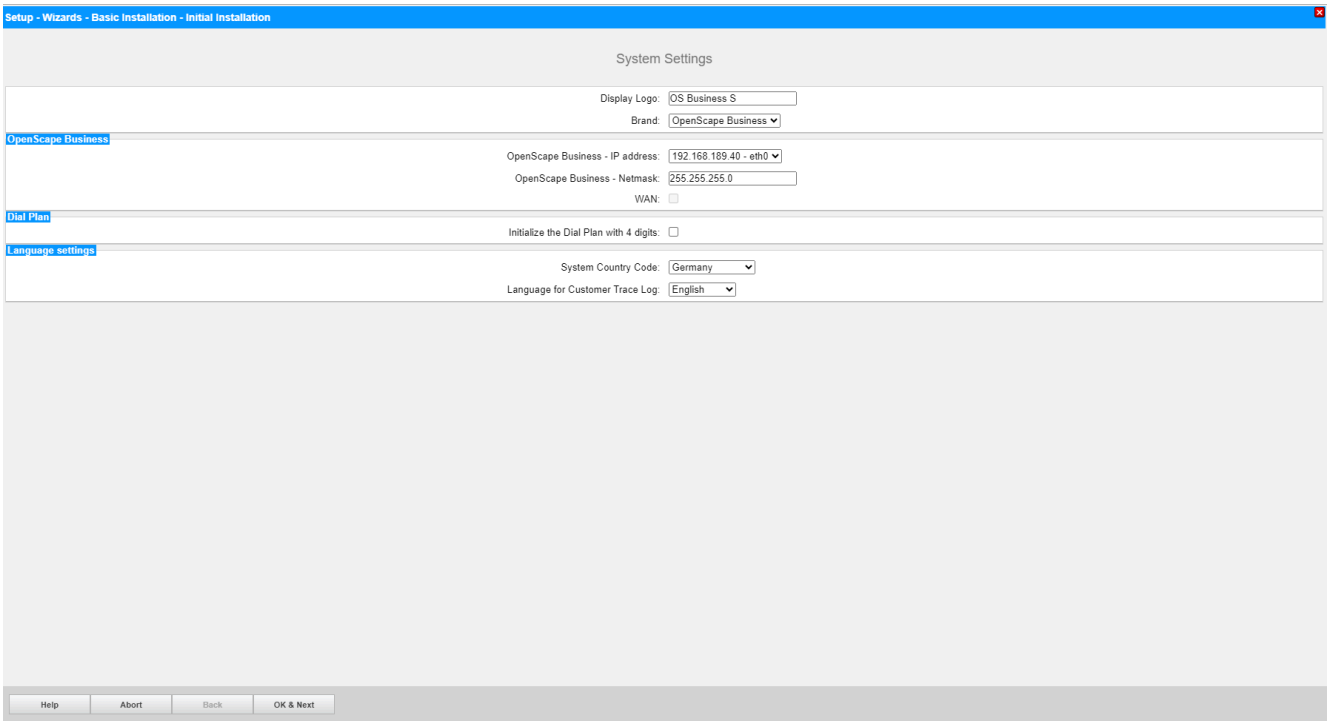
Strictly if required, activate another LAN port as a WAN interface.

If OpenScape Business S (or the Linux server) has a second LAN port, you can use this as a WAN interface for Internet access and Internet telephony via an ITSP. The first LAN port is used as usual as a LAN interface for the internal phones and PCs.

5.6.2.1 How to Set the Display Logo and Product Name

Prerequisites

You are in the **System Settings** window.



Step by Step

1) In the **Display Logo** field, enter a text of your choice (e.g., OS Business S). The text can contain up to 16 characters. Avoid the use of diacritical characters such as umlauts and special characters.
2) Select the desired product name in the **Brand** drop-down list.

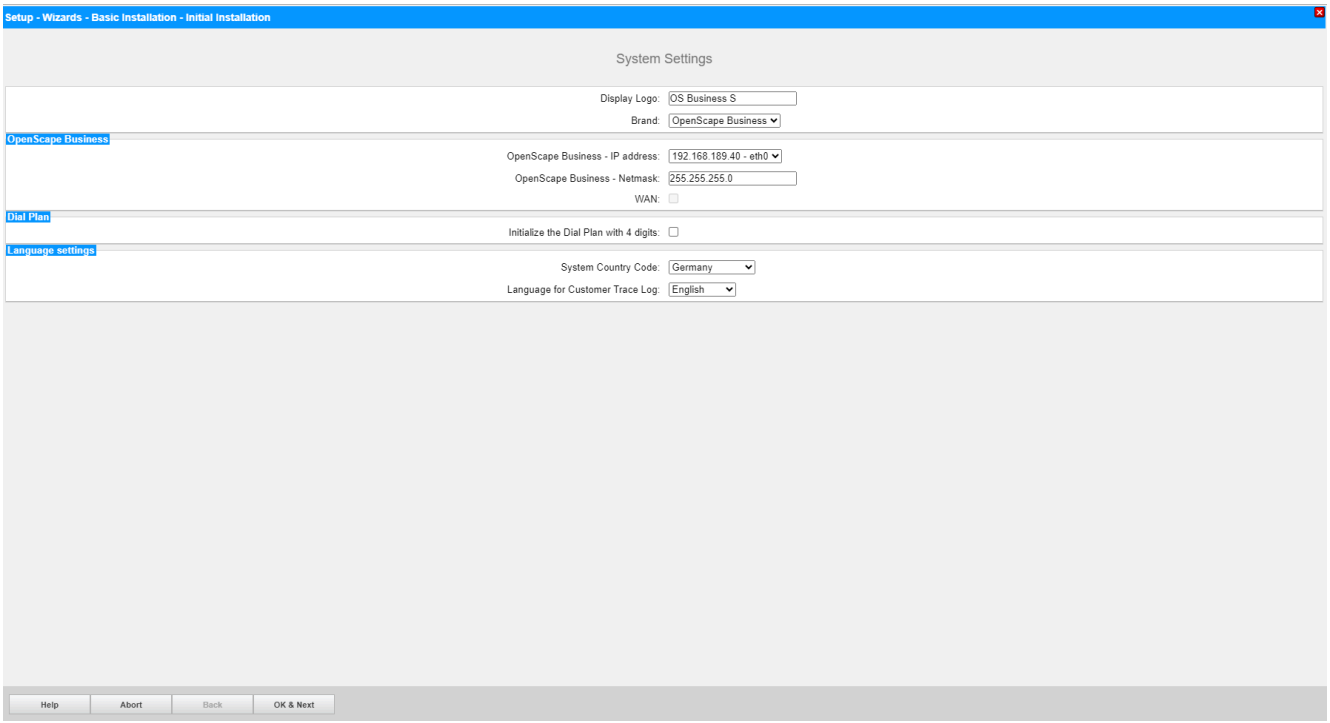
Next steps

Select the country code and language to be used for the trace logs.

5.6.2.2 How to Select the Country Code and the Language for Customer Trace Logs

Prerequisites

You are in the **System Settings** window.



Step by Step

1) In the **System Country Code** drop-down list, select the country where the communication system is operated.
2) In the **Language for Customer Trace Log** field, enter the language in which the event logs (system event logs, error logs, etc.) are to be output.

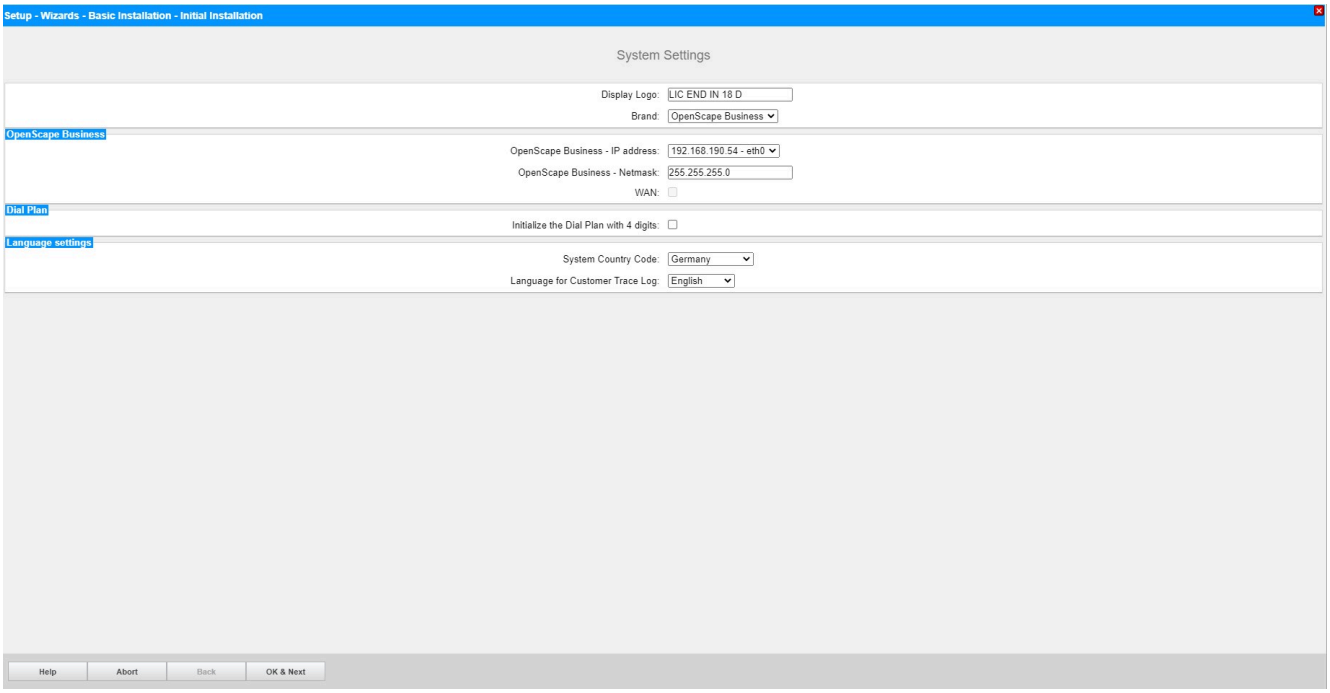
Next steps

Start the basic configuration.

5.6.2.3 How to Activate an Additional LAN Port as a WAN Interface

Prerequisites

You are in the **System Settings** window.



Step by Step

1) Select the **WAN** check box.
2) Select the desired LAN port (e.g., `eth1` or `eth2`) from the **OpenScape Business - IP Address (WAN)** drop-down list. If only two LAN ports are available, the second LAN port `eth1` is activated automatically.

IMPORTANT: Make sure to select the actual network interface, instead of the localhost.

NOTICE: The assignment of IP addresses and subnet masks to the LAN ports is done during the initial installation of Linux or subsequently via YaST.

Next steps

Specify UC solution.

5.6.3 UC Solution

In the **Change application selection** window, select the UC solution to be used.

You have the following options:

- **Package with UC Smart**

  The UC solution UC Smart is integrated in OpenScape Business S.
- **Package with UC Suite**

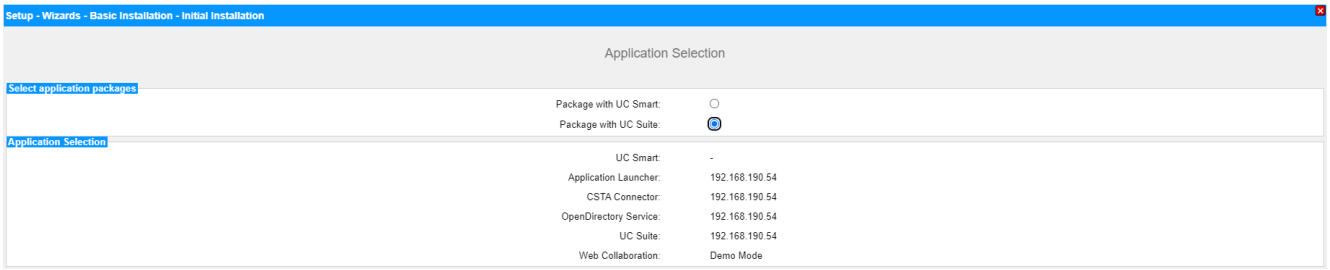
  The UC solution UC Suite is integrated in OpenScape Business S.

5.6.3.1 How to Define the UC Solution

Prerequisites

You have purchased licenses for either of the UC solutions, UC Smart or UC Suite.

You are in the **Change application selection** window.



Step by Step

1) If you use the UC solution UC Smart, click **Package with UC Smart**.
2) If you are using the UC solution UC Suite, click on **Package with UC Suite**.
3) Click on **OK & Next**.
4) The **Initial installation** wizard is closed. Click on **Finish**.

Next steps

Start the basic configuration.

5.7 Basic Configuration

The **Basic Installation** wizard is used for basic configuration. Basic configuration includes the most important settings for operating the communication system.

The Basic Installation Wizard includes a progress indicator showing the current step, as well as the steps that follow.

5.7.1 How to Start the Basic Installation Wizard

Prerequisites

The **Initial installation** has been completed.

Step by Step

1) In the navigation bar, click on **Setup**.
2) Click on **Edit** to start the **Basic Installation** wizard.

Next steps

Perform basic installation as described in the following step-by-step instructions. Fields that are not described here are preset for the default scenario and should only be changed if they are not appropriate for your network data. For

detailed information, refer to the descriptions provided in the Administrator documentation for the individual wizards.

5.7.2 System Phone Numbers and Networking

Enter the system phone numbers (PABX number, country and area code, international prefix) in the **Overview** window and specify whether OpenScape Business is to be networked with other OpenScape Business systems.

Proceed as follows:

1) Enter system phone numbers

- Enter system phone numbers for point-to-point connection

  Here you enter the system phone number for your point-to-point connection and the country code and area code.

  The entry of the country code is mandatory for Internet telephony and conference server functionality.

  The international prefix is preset, depending on the previously dialed country code.
- Enter system phone numbers for point-to-multipoint connection

  Here you enter the country code and area code for your point-to-multipoint connection.

  The entry of the country code is mandatory for Internet telephony and Meet-Me conferences.

  The international prefix is preset, depending on the previously dialed country code.

2) Activate or deactivate networking

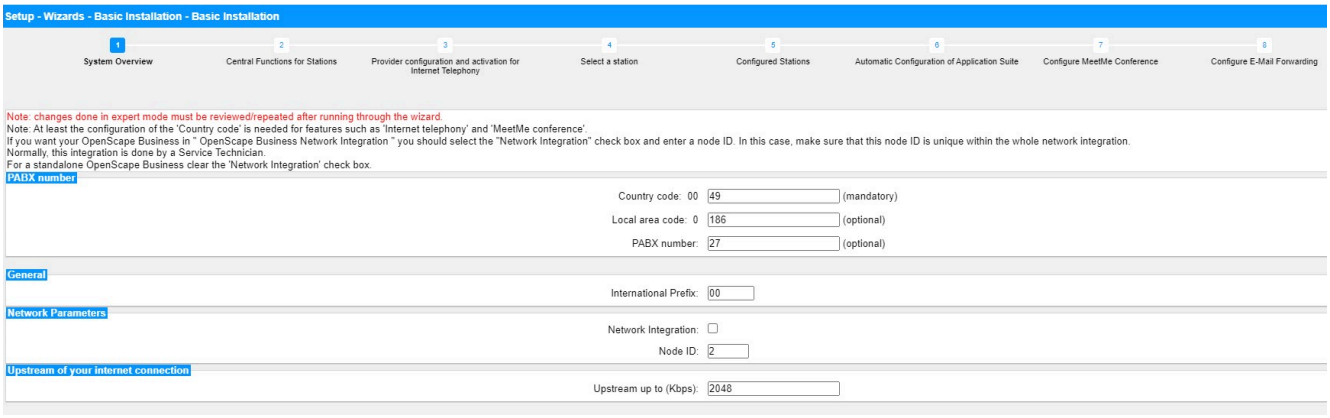
If OpenScape Business is to be networked with other OpenScape Business systems, networking must be enabled, and OpenScape Business must be assigned a node ID. Every OpenScape Business must have a unique node ID in the network.

5.7.2.1 How to Enter the System Phone Numbers for a Point-to-Point connection

Prerequisites

You have a point-to-point connection.

You are in the **System Overview** window.



Step by Step

1) In the **Country Code** field, enter the country code prefix, e.g., `49` for Germany or `1` for the U.S.
2) Enter the local area code, e.g., `89` for Munich, in the **Local area code** field.
3) Enter the system phone number of your trunk connection, e.g., `7007` (your connection number), in the **PABX number** field.
4) Change the **International Prefix** field only if required. The applicable values for Germany and the United States are `00` and `011`, respectively.

   For international calls, the phone number is preceded by the international prefix and the country code, e.g., "00-1-..." for calls from Germany to the USA and "011-49-..." for calls from the USA to Germany.

Next steps

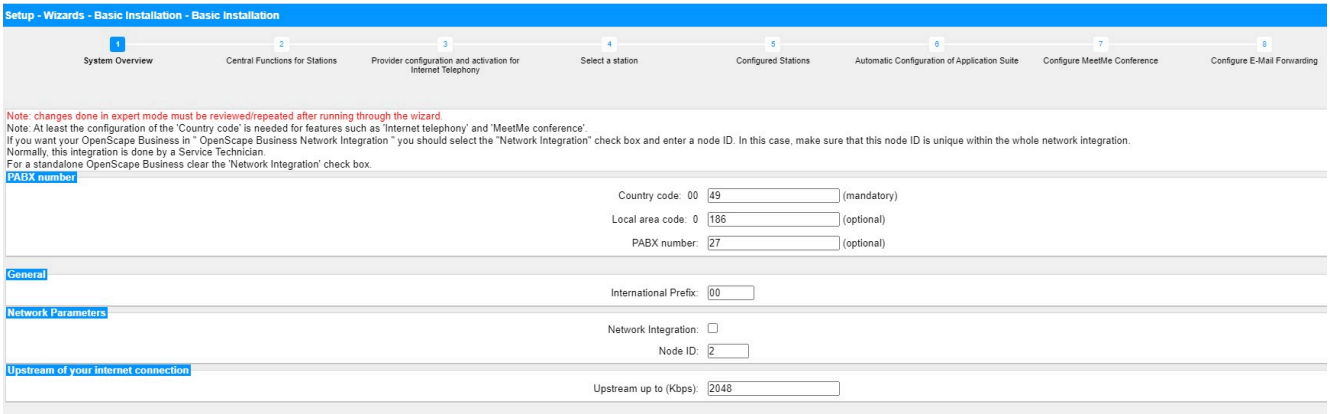
Activate or deactivate networking

5.7.2.2 How to Enter the System Phone Numbers for a Point-to-Multipoint Connection

Prerequisites

You have a point-to-multipoint connection.

You are in the **System Overview** window.



Step by Step

1) In the **Country Code** field, enter the country code prefix, e.g., `49` for Germany or `1` for the U.S.
2) Enter the local area code, e.g., `89` for Munich, in the **Local area code** field.
3) Leave the **PABX number** field empty.
4) Change the **International Prefix** field only if required. The applicable values for Germany and the United States are `00` and `011`, respectively.

   For international calls, the phone number is preceded by the international prefix and the country code, e.g., "00-1-..." for calls from Germany to the USA and "011-49-..." for calls from the USA to Germany.

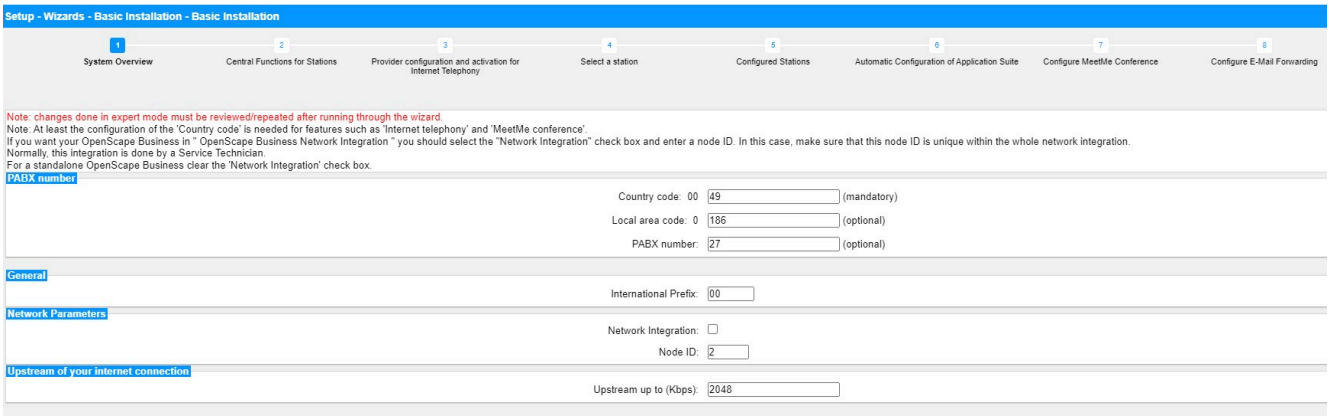
Next steps

Activate or deactivate networking

5.7.2.3 How to Activate or Deactivate Networking

Prerequisites

You are in the **System Overview** window.



Step by Step

1) If the communication system is to be networked with other communication systems:
   a) Select the **Network Integration** check box.
   b) In the **Node ID** field for the communication system, enter a node ID that is unique in the internetwork (digits from `1` through `100` are possible).
2) If the communication system is not to be networked with other communication systems, leave the **Network Integration** check box disabled.

Next steps

Configure the upstream of your Internet connection.

5.7.2.4 How to Configure the Upstream of your Internet connection

Prerequisites

You are in the **Summary** window.

Step by Step

1) In the **Upstream up to (Kbps)** field, enter the speed of your Internet connection.
2) Click on **OK & Next**.

Next steps

Configure the station data.

5.7.3 Station Data

If necessary, you can configure your own individual dial plan instead of the predefined default dial plan in the **Central Functions for Stations** window and import additional station data. In an internetwork, the default dial plan must be adapted to the dial plan of the internetwork.

The default dial plan contains predefined numbers for different types of stations (IP phones, analog phones, ...) and for special functions (Internet telephony, voicemail box, AutoAttendant, ...).

The station data includes the internal call numbers, DID numbers and names of the stations. This data and other station data can be imported into the communication system during the basic configuration via an XML file in UTF-8 format.

NOTICE: An XML template with the appropriate explanations can be found in the WBM under **Service Center** > **Documents** > **CSV Templates**. You can enter your data in this template by using Microsoft Excel, for example.

You have the following options:

- **Configure station data without an internetwork**

  Proceed as follows:

  1) Display the station data

  You can have all preconfigured station numbers and station data displayed.

  2) Delete all station numbers (optional)

  If you use an individual dial plan, you must delete all preconfigured station numbers.

  3) Adapt preconfigured station numbers for the individual dial plan (optional)

  If you are using an individual dial plan, you can adapt the preconfigured phone numbers to your own dial plan.

  NOTICE: If the user passes through the **Change preconfigured functional call numbers,** any existing custom configuration done in UC Suite must be reviewed or repeated (e.g., pilot queues)

  ---

  4) Import station data from an XML file (optional)

  You can easily import your individual station numbers, including any additional station data, during the basic configuration via an XML file.

- **Configure station data with an internetwork**

  Proceed as follows:

  1) Delete all station numbers

  If the UC Suite is used in an internetwork, a closed numbering plan is required, i.e., all station numbers in the internetwork must be unique. For this reason, any preconfigured station numbers must be deleted and only stations numbers adapted for the internetwork must be used.

  2) Import station data from an XML file

  The station numbers adapted for the internetwork and any additional station data can be easily imported during the basic configuration via an XML file. This file can contain all stations in the internetwork. During import, only the station numbers and the station data assigned to the previously specified node ID of the communication system will be transferred.

5.7.3.1 How to Display the Station Data

Prerequisites

You are in the **Central Functions for Stations** window.

Step by Step

1) Select the **Display stations configuration** radio button.

2) Click on **Execute function**. A list of stations with the preconfigured phone numbers (default dial plan) is displayed.

3) Click on **OK**. You are taken back to the **Central Functions for Stations** window.

4) If you do not want to change any station data, click **OK & Next**.

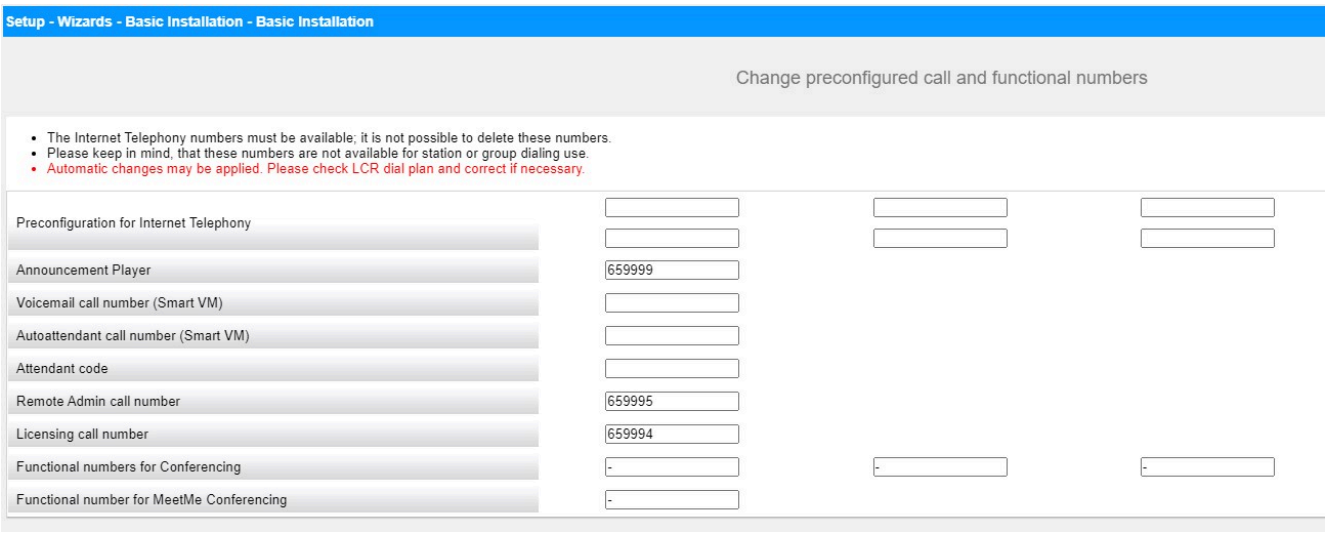
5.7.3.2 How to Delete all Call Numbers

Prerequisites

You are in the **Central Functions for Stations** window.

Step by Step

1) Enable the radio button **Delete all station call numbers**.
2) Enable the check box **Delete All Call Addresses**.
3) Click on **Execute function**. All preset call numbers are deleted. The **Change preconfigured call and functional numbers** window then appears.



4) Adjust the codes and special call numbers to suit your preferences, and then click **OK**. You are taken back to the **Central Functions for Stations** window.
5) If you do not want to change any further station data, click **OK & Next**.

5.7.3.3 How to Adapt Preconfigured Station Numbers for the Individual Dial Plan

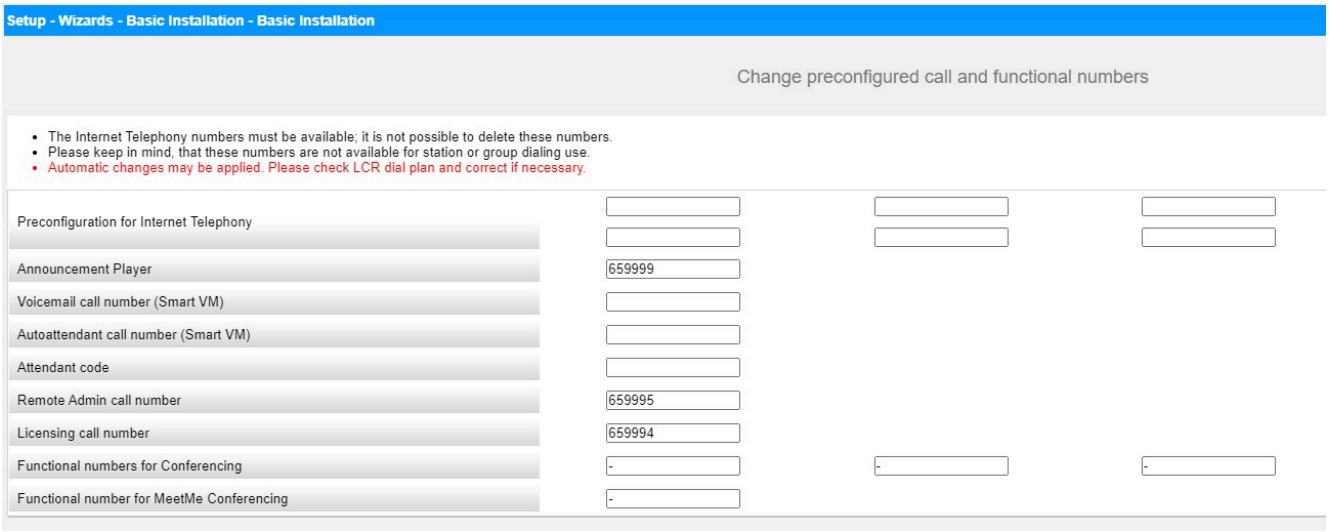
Prerequisites

You are in the **Central Functions for Stations** window.

Step by Step

1) Enable the radio button **Change pre-configured call and functional numbers**.

2) Click on **Execute function**. The **Change preconfigured call and functional numbers** window appears.



3) Adjust the preconfigured call numbers to suit your preferences, and then click **OK**. You are taken back to the **Central Functions for Stations** window.
4) If you do not want to change any further station data, click **OK & Next**.

5.7.3.4 How to Import the Station Data from an XML File

Prerequisites

You are in the **Central Functions for Stations** window.

An XML file with the entered data is available in UTF-8 format. An XML template can be found under **Service Center** > **Documents** > **CSV Templates**.

Step by Step

1) Enable the radio button **Import XML file with station data**.
2) Click **Execute function**.
3) Use **Browse** to select the created XML file and click **Open**.
4) Click **OK** when finished. The station data is imported.
5) Click **OK & Next**.

5.7.4 Internet Telephony

The **Provider configuration and activation for Internet telephony** window is used to configure Internet telephony. You can configure predefined or new Internet Telephony Service Providers (ITSPs). You can configure one or several accounts for each ITSP. Up to 8 ITSPs may be active simultaneously.

You have the following options:

- **Configure a predefined ITSP**

  You can use predefined ITSP templates. To do this, the own access data and phone numbers are entered in the template, and this is then activated.

- **Configure a new ITSP**

  You can also add and activate a new ITSP.

  Configuring a new ITSP is seldom required and can be very time-consuming. This option is therefore not described in the initial installation. Detailed information can be found in the chapter *Administrator Documentation, Configuring an ITSP*.
- **Disable Internet telephony**

  You can disable Internet telephony.

NOTICE: Configuration examples can be found on the Internet at the **Experts Wiki** under *OpenScape Business - SIP / ITSP Connectivity - PDF "OSBiz V2 Configuration for ITSP"*.

Assigning the ITSP Phone Numbers

- In the case of an **Internet Telephony Station Connection**, the ITSP provides individual numbers such as 70005555, 70005556, etc. These individual call numbers are then assigned manually as the internal call numbers of the subscribers.
- In the case of an **Internet telephony point-to-point connection**, the ITSP provides a call number range, e.g., (+49) 89 7007-100 to (+49) 89 7007-147. The call numbers from the range are then assigned manually as the internal call numbers of the subscribers.

These two connection types can be combined as appropriate.

Alternatively, the ITSP phone numbers can be entered as the DID call numbers of the subscriber for both connection types during the station configuration.

Internal call number	Name	DID
100	Andreas Richter	897007100
101	Susanne Mueller	897007101
102	Buddy Miller	897007102
104	Juan Martinez	70005555
105	Emilio Carrara	70005556

The ITSP call numbers thus result from the configured PABX number (e.g., country code 49) and the entered DID numbers in long format. This has advantages for the digit analysis and call management, even in an internetwork. The ITSP connection is thus DID-enabled for another node, for example.

A further CO trunk connection via ISDN is only possible to a limited extent in this case (useful for emergency calls, for example).

5.7.4.1 How to Configure a Predefined ITSP

Prerequisites

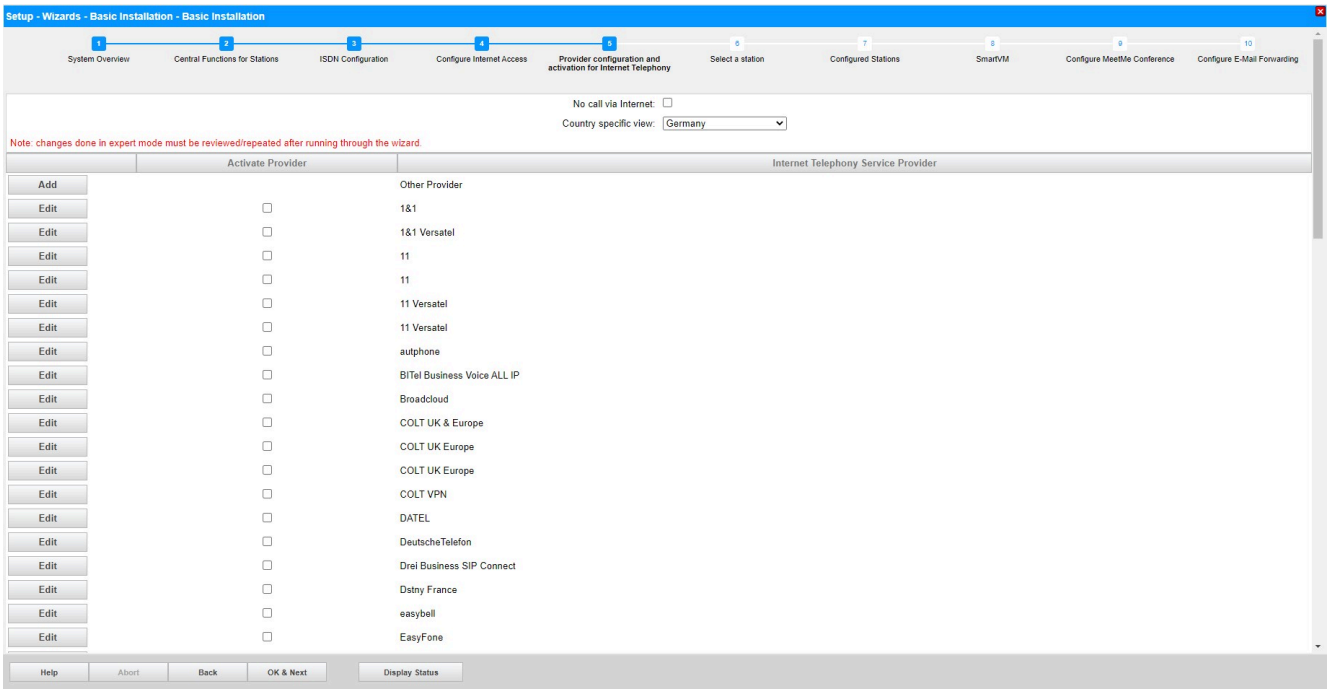
You are in the **Provider configuration and activation for Internet Telephony** window.

The Internet connection is operational.

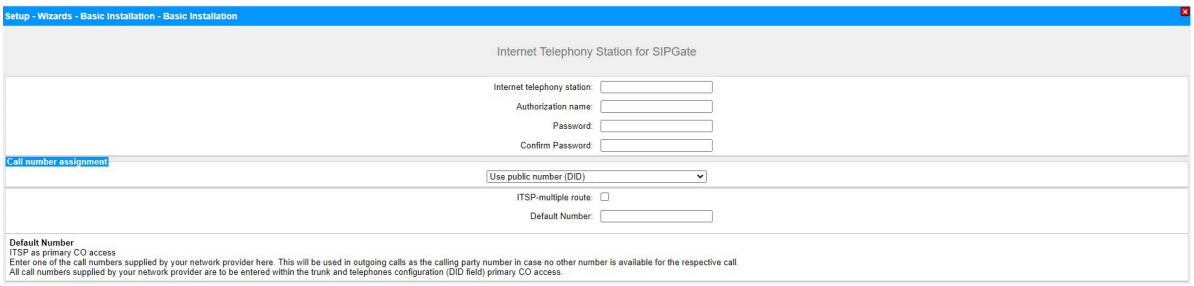
Your ITSP's Internet telephony access data is available (for example, user account, password and Internet telephony numbers).

Step by Step

1) Clear the **No call via Internet** check box. A country-specific list of the possible ITSPs is displayed. The list contains the predefined ITSPs for the selected country and any already created ITSPs.



2) If you want to change the preset country, select the desired country from the **Country specific view** drop-down list to display the ITSPs that are available for this country.
3) If required, click **Display Status** to check which ITSPs have already been activated and which Internet telephony subscribers have already been configured under each ITSP. You can activate a maximum of 8 ITSPs. Click **OK** when finished.
4) To configure Internet telephony stations, click **Edit** in the line associated with the relevant ITSP.
5) Activate the check box **Enable Provider**.
6) Click **OK & Next**.
7) Click **Add** to configure your ITSP accounts with the corresponding Internet telephony numbers. The fields that will then be displayed are provider-specific.



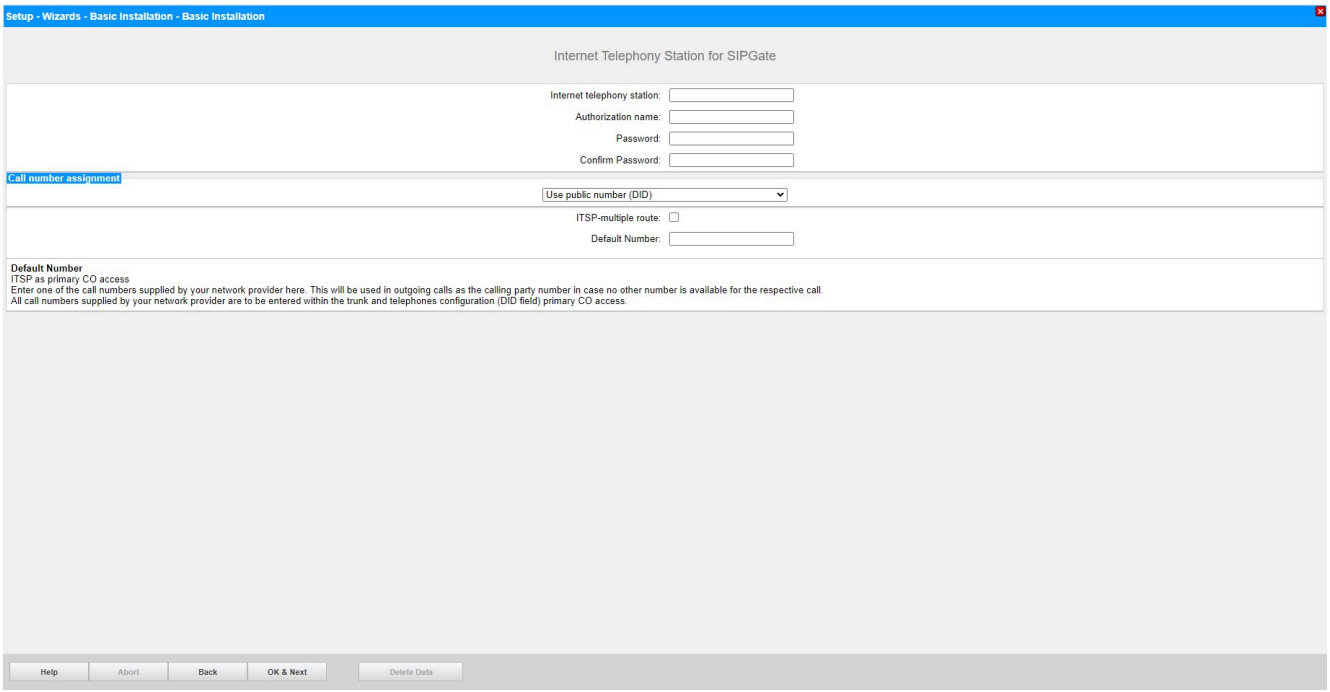
8) Enter the credentials for your account in the **Internet Telephony Station** field. You received this data from your ITSP. Depending on the ITSP, different designations are used for this, for example: SIP User, SIP ID, etc.

9) Enter the authorization name in the **Authorization name** field. You received this data from your ITSP. If you have not received any authorization name, enter the same data you entered under **Internet Telephony Station**.

10) Enter the password you received from the ITSP in the **New Password** and **Confirm Password** fields. Depending on the ITSP, different designations are used for this, for example: Password, SIP Password, etc.

11) Assignment of Internet telephony phone numbers - Option 1:

Use public number (DID): the Internet telephony phone numbers of your Internet telephony station connection or Internet telephony point-to-point connection are not entered here during the ITSP configuration, but when the configuring the stations, i.e. the telephones and subscribers (in the **DID** fields).



a) Select the option field **Use public number (DID)** in the **Call number assignment** area.

b) Under **Default Number**, enter the phone number to be used for outgoing calls to subscribers who do not have their own phone number.

c) If your ITSP supports the "Mobile Extension (MEX)" feature, enter the MEX number provided by the ITSP (8 positions, digits only) under **MEX Number**.

12) Assignment of Internet telephony phone numbers - Option 2:

Use internal number (CalIno) / Single entries: You have an Internet telephony station connection and have received individual call numbers as Internet telephony phone numbers (e.g. 70005555, 70005556,...). Then assign these single numbers to the internal call numbers of the subscribers.

a) Select the option field **Use internal number (CalIno) / Single entries** in the **Call number assignment** area.

b) In the **Internet Telephony Phone Numbers** area, enter one of the Internet telephony phone numbers provided by the ITSP in the field next to the **Add** button and then click **Add**.

c) To assign further Internet telephony numbers to the account, repeat step b).

13) Assignment of Internet telephony phone numbers - Option 3:

Use internal number (CalIno) / Range entry: You have an Internet telephony point-to-point connection and have received a call number range as Internet telephony phone numbers (e.g., +49) 89 7007-100 to (+49) 89 7007-147. You then assign the call numbers from the call number range as the internal call numbers of the subscribers.

a) Select the option field **Use internal number (CalIno) / Range entry** in the **Call number assignment** area.

b) Enter the system phone number under **System phone number (prefix)**.

c) Enter the desired DID number range for the Internet telephony station in the 'from' **and** 'to **' fields after** Direct inward dialing band. The range entered by default is 100 - 147.

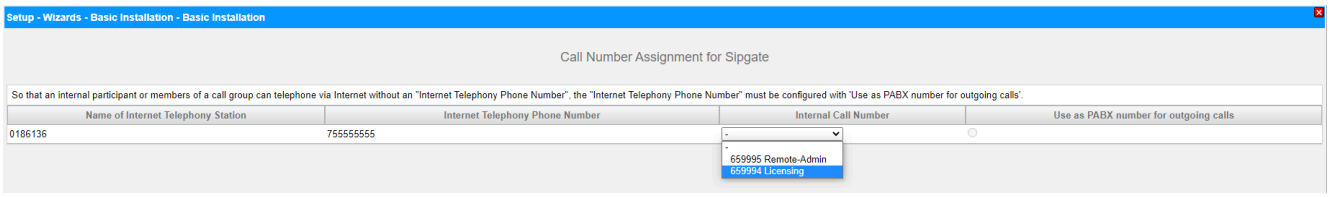
14) Click on **OK & Next**.

15) If you want to configure additional accounts and their associated Internet telephony numbers, repeat steps 7 through 14.

16) Click **OK & Next**. You will see an overview of which Internet telephony phone numbers are assigned to accounts.

17) Assign one internal station number each to every Internet telephony phone number.

This step is not required if you have selected option 1 for the assignment of the Internet telephony phone numbers. In this case, the assignment is made when the configuring the stations (i.e., the telephones and subscribers) in the **DID** field.



a) To do this, select an internal call number in the appropriate line from the **Internal Call Number** drop-down list.

b) If subscribers without Internet telephony phone numbers or members of a call group are to be allowed to make external calls via the Internet, the radio button **Use as PABX number for outgoing calls** must be activated. The radio button can be activated for only one single Internet telephony phone number.

18) Click **OK & Next**. Here you see again the list of predefined and newly added ITSPs. The enabled ITSPs are identified with a check mark in the **Enable Provider** column. If you are having connection problems with already activated ITSP, you can register it again with **Restart ITSP**.

19) Click **OK & Next**.

20) Enter the upload speed of your Internet connection in the **Upstream up to (Kbps)** field. Please do not confuse this with the download speed!

NOTICE: The number of simultaneous Internet calls permitted is displayed in the **Number of Simultaneous Internet calls** field. If the voice quality deteriorates due to the network load, you will need to reduce the number.

---

21) Click **OK & Next**.

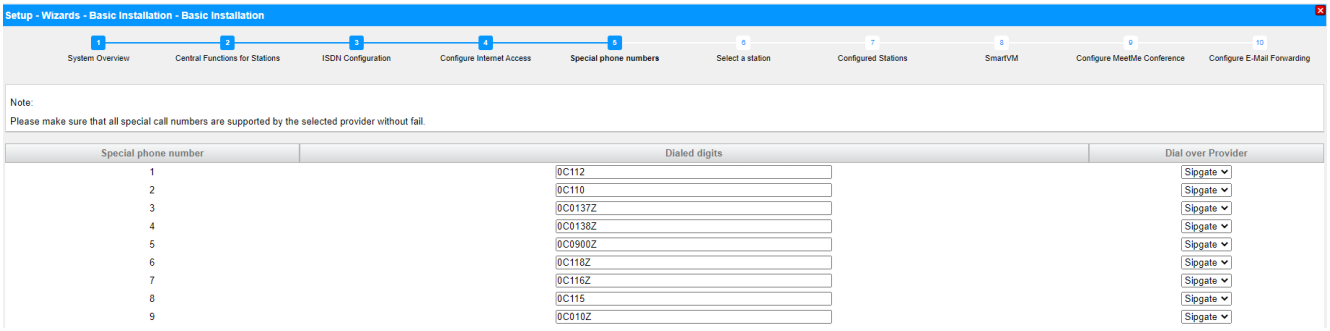
22) If you did not activate the full-time circuit when setting up your Internet access, you can now do this here. Without a permanent connection (full-time circuit), you cannot receive calls over the Internet. If the full-time circuit has already been set up, the fields described under a) to c) will not appear.

a) Enable the radio button **On** under **Full-Time Circuit**.

b) In the **Forced Disconnect at (hour:min)** field, enter the time at which the Internet connection is to be deactivated (e.g., 04:59).

c) Click **OK & Next**.

23) Enter the special numbers you want in the **Dialed digits** column.



The following station number entries are valid:

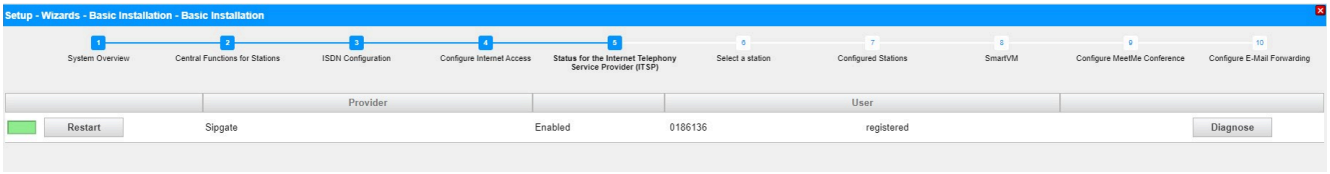
- 0 to 9: allowed digits
- -: Field separator
- X: Any digit from 0 to 9
- N: Any digit from 2 to 9
- Z: One or more digits to follow up to the end of dialing
- C: Simulated dial tone (can be entered up to three times)

24) Use the **Dial over Provider** column to specify whether the special number should be dialed via ISDN or an ITSP. Only the active ITSP is displayed.

NOTICE: Ensure that emergency numbers can always be dialed. If you want to dial emergency numbers via an Internet Telephony Service Provider, you must make sure that the ITSP supports this feature.

---

25) Click **OK & Next**. The status of your ITSP will be displayed.



The configured ITSPs at which you are already registered are marked in green.

The configured ITSPs at which you are not yet registered are marked in orange.

26) Click **Next** followed by **Finish**.

5.7.4.2 How to Deactivate Internet Telephony

Prerequisites

You are in the **Provider configuration and activation for Internet Telephony** window.

Step by Step

1) Leave the **No call via Internet** check box selected.
2) Click **OK & Next** twice.

5.7.5 Stations

In the **Select a station - ...** window, you can configure the stations connected to the communication system.

Proceed as follows:

1) Configure the IP and SIP stations

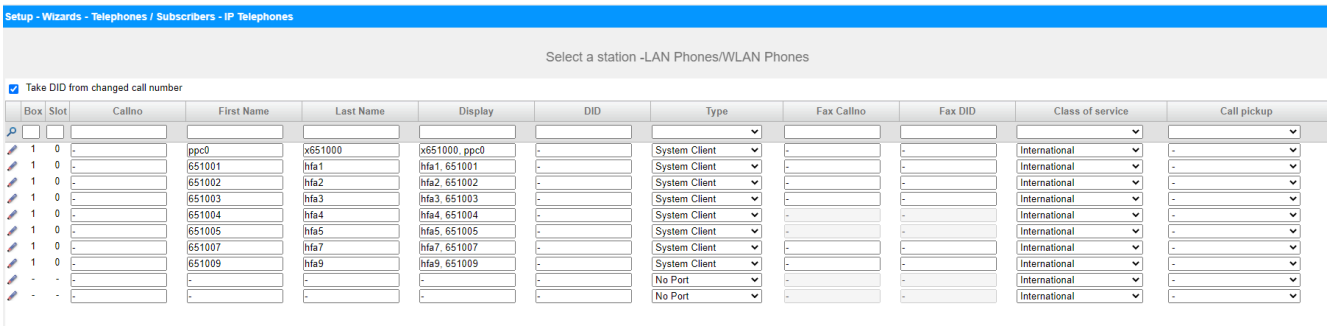
   IP and SIP stations include LAN phones or WLAN phones, for example.

5.7.5.1 How to Configure IP and SIP Stations

Prerequisites

You are in the **Select a station - LAN Phones** window.

A functional wireless LAN network is needed to operate WLAN phones.



Box	Slot	CallNo	First Name	Last Name	Display	DID	Type	Fax CallNo	Fax DID	Class of service	Call pickup
1	0	-	ppc0	x651000	x651000, ppc0	-	System Client	-	-	International	-
1	0	-	651001	hfa1	hfa1, 651001	-	System Client	-	-	International	-
1	0	-	651002	hfa2	hfa2, 651002	-	System Client	-	-	International	-
1	0	-	651003	hfa3	hfa3, 651003	-	System Client	-	-	International	-
1	0	-	651004	hfa4	hfa4, 651004	-	System Client	-	-	International	-
1	0	-	651005	hfa5	hfa5, 651005	-	System Client	-	-	International	-
1	0	-	651007	hfa7	hfa7, 651007	-	System Client	-	-	International	-
1	0	-	651009	hfa9	hfa9, 651009	-	System Client	-	-	International	-
-	-	-	-	-	-	-	No Port	-	-	International	-
-	-	-	-	-	-	-	No Port	-	-	International	-

Step by Step

1) If you want a different direct inward dialing number for the station than the call number, enter a DID number for the station under **DID** in the row of the desired station:

- Only for a point-to-point connection:

  Click in the desired field and type in the DID number using the keyboard. The DID number may also be identical to the internal station number.
- Only for a point-to-multipoint connection:

  Select an MSN in the desired field via the drop-down list. The station can be internally reached via the internal station number 101, for example, and externally via the MSN 654321.
- For point-to-point and point-to-multipoint connections:

  Select the entry **xxx - modifiable** (xxx is the internal station number) via the drop-down list in the desired field and type in the DID number using the keyboard or select an MSN from the drop-down list.

2) Enter the internal station number for the subscriber under **Call No** in the appropriate row of the desired subscriber. You can use the preset phone number or assign some other free number.

3) In the row of the desired station, under **Name**, enter a name in the format `Last Name, First Name`.

NOTICE: The name can consist of up to 16 characters, but should not include any diacritical characters such as umlauts or special characters. The name specified here will be entered as the Last Name at the UC clients, but can be edited there.

---

4) Select the type of IP station (e.g., "System Client" or "SIP Client") from the **Type** drop-down list in the row of the desired station.

5) If you want to set up a fax box for the subscriber (which can be used with the UC clients **myPortal for Desktop** or **myPortal for Outlook**, for example), proceed as follows:

a) In the row of the desired station, in the **Fax No.** field, enter the desired internal fax number at which the user can receive internal fax messages.

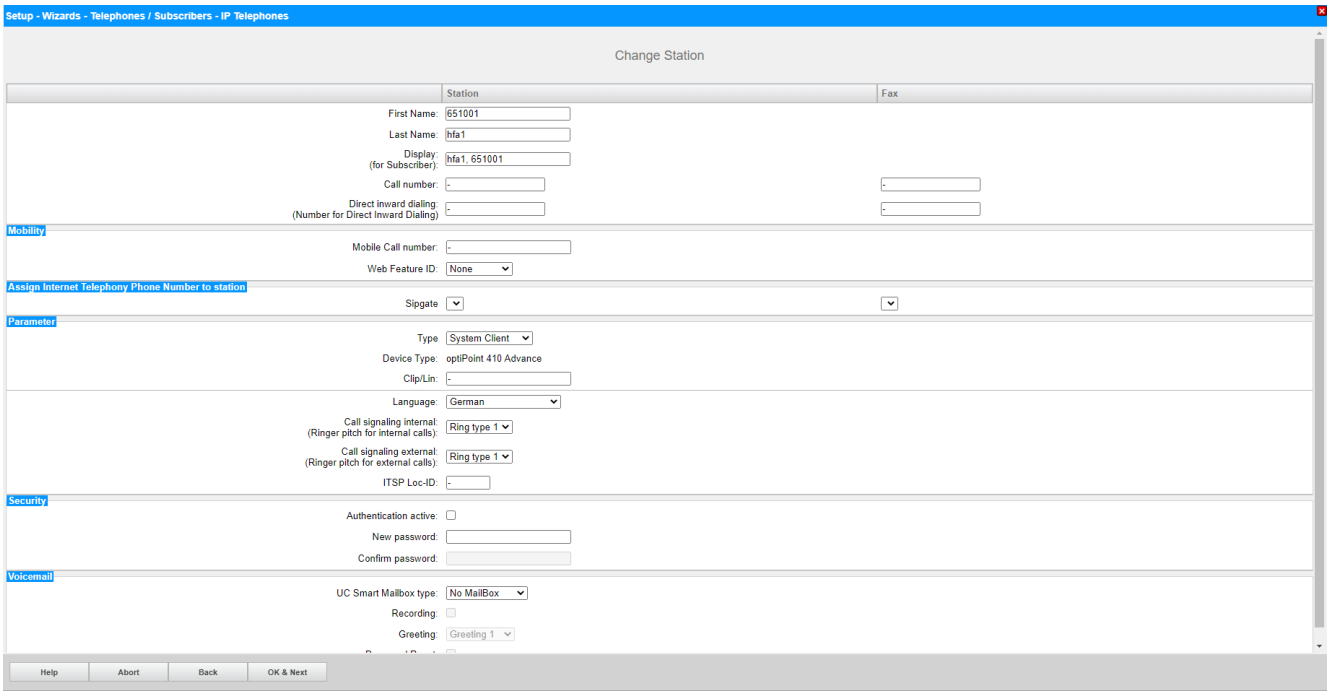
b) If you want to configure a DID number for the fax box, enter the desired external fax number under which the subscriber can receive external fax messages in the **Fax Direct Inward Dialing** field in the row of the desired subscriber.

6) Choose the desired Class of Service group in the row of the desired subscriber from the **Class of Service** drop-down list.

7) To add the subscriber to a call pickup group, select a call pickup group from the **Call pickup group** drop-down list in the row of the desired subscriber.

8) Make the settings described under this step only if needed or for a SIP phone:

a) Click in the row of the desired station on the pencil icon **Edit**.



b) For SIP phones: If the SIP phone is to be operated in conjunction with a dual-mode mobile phone, enter the dialout prefix followed by the telephone number of the mobile phone (e.g., **0016012345678**) in the **Mobility** area under `Mobile phone number`. In addition, select this SIP client from the **Web Feature ID** drop-down list. (see *Administrator Documentation, Dual-Mode Telephony*).

c) In the **Clip/Lin** field, enter a phone number (DID number or MSN) to be displayed at the called party's extension instead of the own phone number in the case of an external call.

NOTICE: This feature must be released by the network provider.

NOTICE: At least one DID number should be configured. If not, the system does not take into account caller's CLIP number and the internal call number is formatted and sent as the Calling Party Number for the external call.

---

d) Select the language for the menu controls on the phone from the **Language** drop-down list.

e) From the **Call signaling internal** drop-down list, select and assign one of a total of eight possible acoustic call signals for internal calls. The station then will then send the modified ringing tone to other internal

stations, thus enabling its calls to be distinguished from other internal stations (default: Ring type 1).

f) From the **Call signaling external** drop-down list, select and assign one of a total of three possible acoustic call signals for external calls (default: Ring type 1).

g) Only for SIP phones: Enable the **Authentication active** check box.

h) Only for SIP phones: Enter the authentication password in the **Password** and **Confirm password** fields.

i) Only for SIP phones: Enter the user ID for the authentication in the **SIP User ID / Username** field.

j) Only for SIP phones: Enter the associated zone for the authentication in the **Realm** field.

k) Click on **OK & Next**.

l) Change the station flags as needed. For a description of the station flags, see *Administrator Documentation,* ***Station*** > ***Station*** > ***Station Parameters***.

m) Click on **OK & Next**.

9) If you want to configure another IP station, click on **Store data** and repeat steps 1 through 8.

10) Click on **OK & Next**. A list of all configured stations appears. This list is effectively a dial plan.

11) If required, click **Print** to print out the data of the configured stations.

12) Then click **OK & Next**.

5.7.6 Configuring UC Suite

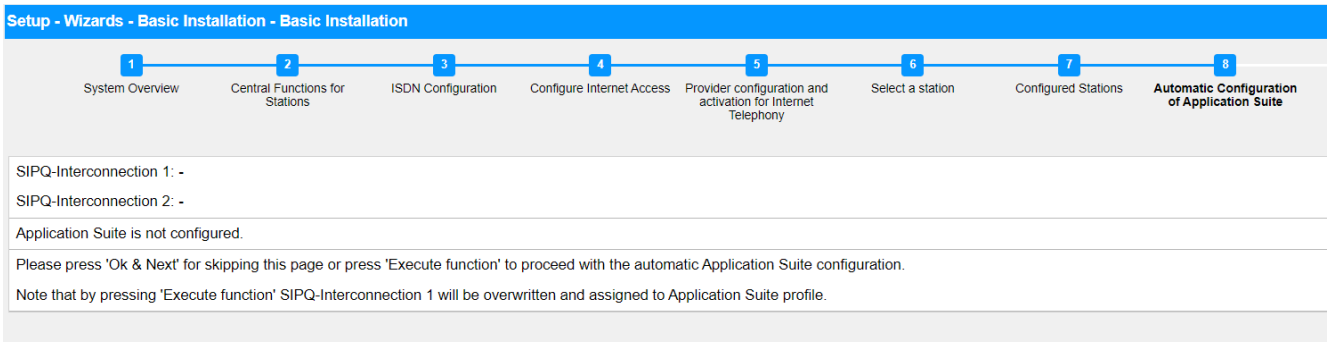
You can perform the automatic configuration of the UC solution UC Suite in the **Automatic Configuration of the Application Suite** window.

NOTICE: This window appears only if **Package with UC Suite** was selected during the application selection in the **Initial Installation** wizard.

5.7.6.1 How to Configure the UC Suite

Prerequisites

You are in the **Automatic Configuration of Application Suite** window.



Step by Step

Click on **Execute function**. The UC Suite is configured automatically. Once the progress bar shows 100%, click on **OK & Next**.

5.7.7 Configuring UC Smart Mailboxes

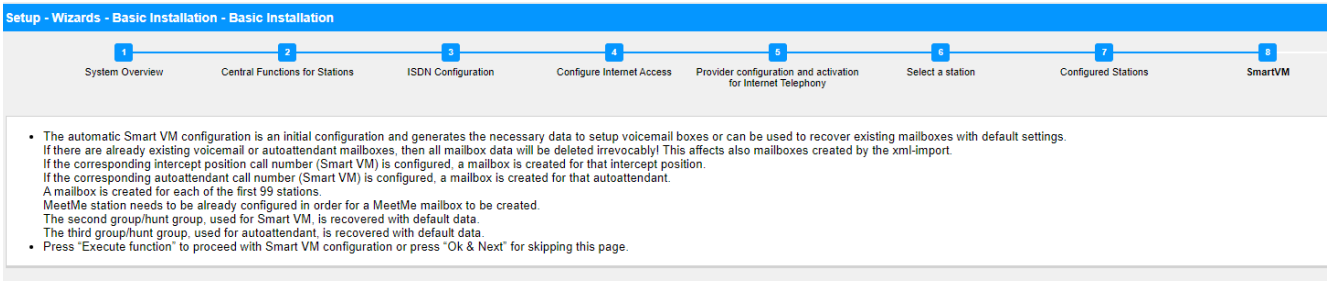
If you are using the UC solution UC Smart, you can perform the automatic configuration of the UC Smart voicemail boxes (Smart VM, Smart VoiceMail) in the **Automatic Configuration of Smart VM** window.

NOTICE: This window appears only if **Package with UC Smart** was selected during the application selection in the **Initial Installation** wizard.

5.7.7.1 How to Configure UC Smart Voicemail Boxes

Prerequisites

You are in the **Automatic Configuration of Smart VM** window.



Step by Step

1) If the UC Smart voicemail boxes are not to be used, click on **OK & Next**. The configuration of the voicemail boxes will be skipped.
2) If the UC Smart voicemail boxes are to be used, click on **Execute function**. Voicemail boxes are then automatically configured for the first 100 subscribers. Once the progress bar shows 100%, click on **OK & Next**.

NOTICE: Existing UC Smart or UC Smart AutoAttendant voicemail boxes are irrevocably deleted in the process.

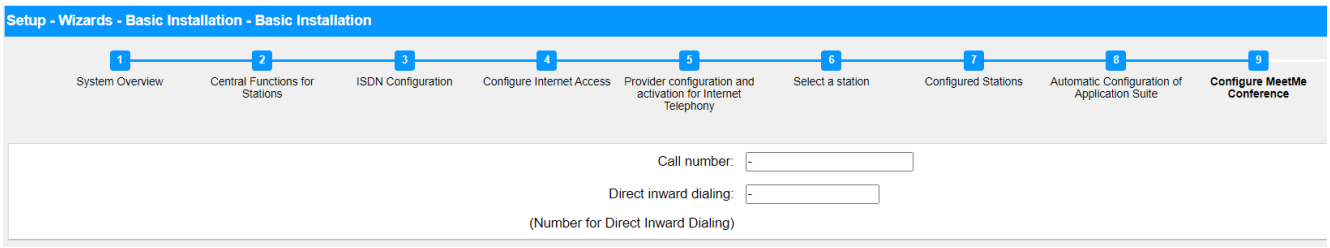
5.7.8 Conference Server Settings

The **MeetMe Conference** settings window can be used to define the call numbers and the dial-in numbers for conferences.

5.7.8.1 How to Edit the Conference Server Settings

Prerequisites

You are in the **Configure MeetMe Conference** window.



Step by Step

1) Enter a phone number for the conference in the **Phone Number** field.
2) Enter the dial-in number for the conference (conference DID) with which subscribers can dial into an existing conference in the **Direct inward dialing** field.
3) Click on **OK & Next**.

5.7.9 E-mail Delivery (Optional)

You can configure the delivery of e-mails in the **Configure E-Mail Forwarding** window. These e-mails notify users of voicemail and fax messages and administrators of system messages.

You have the following options:

- Configuring the Sending of E-mails

  You can specify an external E-mail server via which the e-mails are to be sent by OpenScape Business. Voicemails, fax messages and internal system messages can then be sent via this E-mail server to one or several different configurable e-mail addresses.

  NOTICE: Entering the e-mail server is important if an e-mail with a link to the installation file(s) is to be automatically sent to the users of the UC Suite.

5.7.9.1 How to Configure the Sending of E-mails

Prerequisites

If the external E-mail server has been configured to use basic authentication, make sure an e-mail account with a password exists with an e-mail provider, and you know the access data for this account.

If the external E-mail server has been configured to use modern authentication (Microsoft OAuth 2.0 token-based authorization), as in the case of Exchange Online, make sure that:

- An application with the required permissions has been registered in Microsoft Azure Active Directory (Azure AD) for your OpenScape Business system to send emails.
- You know the Application (client) ID and the Directory (tenant) ID of the registered application.

  Ask your Azure AD administrator to provide these values, if required.
- The email address that will appear as the sender of the emails belongs to the same Azure AD or tenant as the registered application.

You are in the **Configure E-Mail Forwarding** window of the **Basic Installation** wizard.

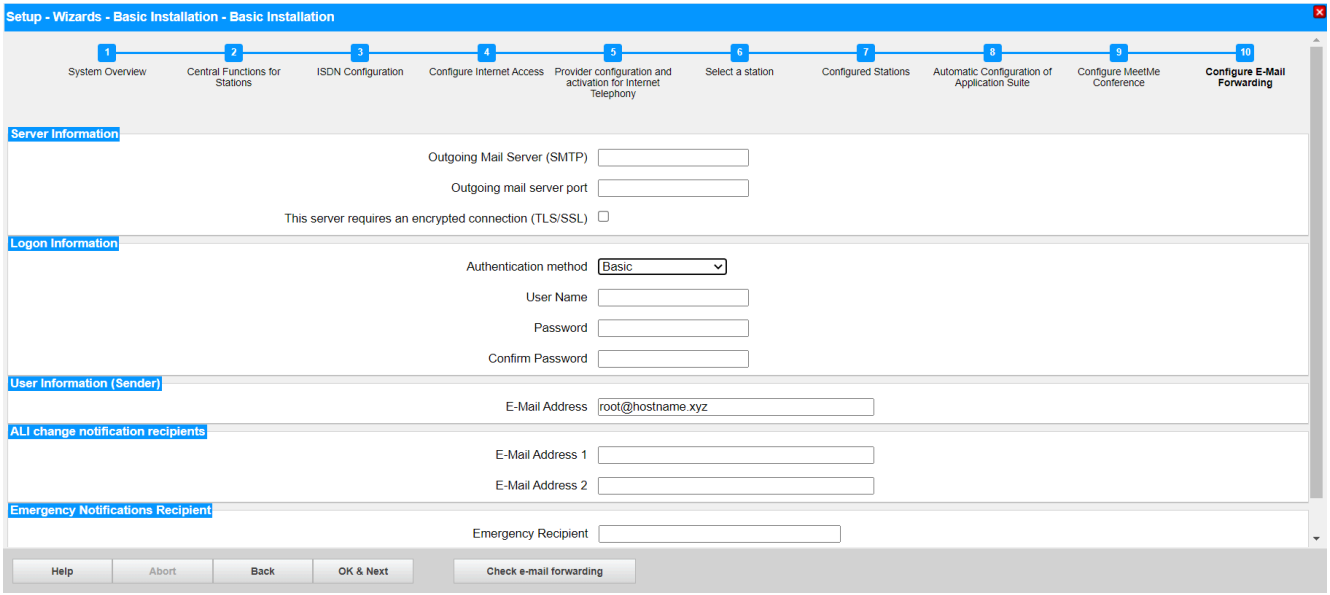


Figure 1: E-mail forwarding options when basic authentication method is selected

Step by Step

1) Enter the **Outgoing mail server (SMTP)** for the e-mail server to be used for sending e-mails, e.g., `smtp.web.de`. Ask your e-mail provider for the outgoing mail server if required.

> **NOTICE:** Make sure that the name of the outgoing mail server can be resolved. If not, you must start the e-mail sending function via **Service Center** > **E-mail Forwarding** and then enter the IP address of the outgoing mail server instead of its name.

2) Enter the **Outgoing mail server port** for the server port to be used for sending e-mails. Ask your e-mail provider for the outgoing mail server if required.

3) If a secure connection is required, enable the **This server requires an encrypted connection (TLS/SSL)** check box. If required, check with your e-mail provider whether this option needs to be enabled.

4) If the external E-mail server has been configured to use basic authentication, proceed as follows:
   a) From the **Authentication method** drop-down list, select **Basic**.
   b) Enter the **User Name** of the e-mail account, e.g.,: `john.doe`.
   c) Enter the **Password** for the e-mail account and repeat it in the **Confirm Password** field.
5) If the external E-mail server has been configured to use modern authentication, proceed as follows:
   a) From the **Authentication method** drop-down list, select **Microsoft OAuth 2.0**.
   b) Enter the Application (client) ID obtained from the Microsoft Azure portal in the **Application ID** field.
   c) Enter the Directory (tenant) ID obtained from the Microsoft Azure portal in the **Tenant** field.
6) Enter the **E-mail Address** that will appear as the sender of the emails, for example: `john.doe@web.de`.
7) Enter the **E-mail Address 1** to get a notification email when ALI tolerance has been used. You may also enter a second email address in the **E-mail Address 2** field.
8) In the **Emergency Recipient** field, enter the e-mail address of an on-site security officer to which an e-mail is sent when an emergency number is dialed.

   The subject of the e-mail will be "New emergency call". The call number and the name of the caller, if configured, are included in the e-mail which are retrieved from the database of the system.
9) If you have selected **Microsoft OAuth 2.0** as authentication method, proceed as follows:
   a) Click on **OK & Next**.
   b) Wait for an authorization link and user code to appear.

      The authorization code expires after some minutes.
   c) Open the authorization link and enter the user code on the pop-up.
   d) Sign in with the email address you have entered in step 6 on page 71 (**E-mail Address**).

      The email address must be in the same Azure AD or tenant as the registered application.
   e) After successful authentication, the pop-up displays a message as below:

      `You have signed in to the <application-name> on your device. You may now close this window..`
   f) Close the pop-up and return to WBM. If the authentication was successful, you will see the message `The authentication was successful!.`

10) If you want to check the entered e-mail settings, proceed as follows:

a) Click on **Check e-mail forwarding**.

b) Under **Send to e-mail address**, enter the e-mail address of any e-mail box that you can access. The test e-mail will be sent to that e-mail address.

c) Under **Subject in the e-mail**, enter a descriptive text so that you can identify the e-mail in your e-mail inbox.

d) Click on **Send Test E-mail**. The e-mail settings are verified, and the e-mail is sent to the specified e-mail address.

e) Check whether the e-mail has arrived in your e-mail inbox.

f) If the e-mail was sent correctly, click **Back** and proceed to the next step.

g) If the e-mail delivery failed, click **Back** and correct your e-mail settings.

11) Click on **OK & Next** followed by **Finish**. The basic installation is finished. Before you perform the backup mentioned in the wizard, you should activate the licenses.

5.8 Closing Activities

After the initial installation and the basic installation with the WBM have been completed, some important settings must still be made for the operation of OpenScape Business.

Proceed as follows:

1) Activate and assign licenses

The licenses procured with OpenScape Business must be activated within a period of 30 days. The time period begins the next time you log on to the WBM. After this time period expires, the communication system will only operate in restricted mode. Once the licenses have been activated successfully, they must be assigned to the stations and lines. System-wide features are enabled automatically upon activation.

2) Provision the UC Smart client for installation (only for UC Smart)

3) Provision the UC Clients for installation

The UC clients are part of the UC Suite. The installation files for the UC Client are accessible via the WBM and can be made available to the IP stations automatically or manually.

In addition, the administrator has the option of performing a silent installation. The silent installation/uninstallation is a command-line based method to automatically install, uninstall or modify UC Suite PC clients on a PC without requiring any further user inputs. For more information, see *Administrator Documentation, Silent Installation/Uninstallation for UC Suite PC Clients*.

4) Perform a data backup

All previous changes to OpenScape Business must be backed up. The backup can be stored as a backup set in the internal network, for example.

5.8.1 How to Activate and Assign the Licenses

Prerequisites

You are logged on to the WBM with the **Advanced** profile.

You know the LAC (License Authorization Code) for releasing the license and have a user ID and password for accessing the license server.

You need Internet access to connect to the license server.

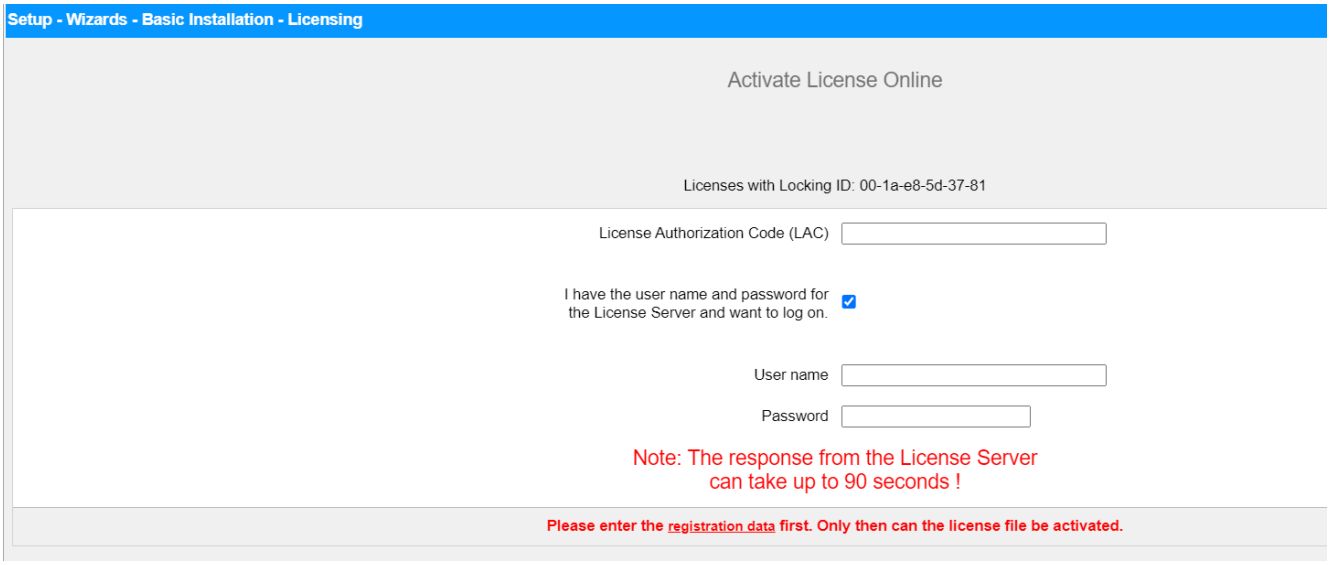
Step by Step

1) Activate license online:

a) In the navigation bar, click on **Setup**.

b) In the navigation tree, click **Wizards** > **Basic Installation**.

c) Click on **Edit** to start the **Licensing** wizard.



d) Enter the appropriate LAC in the **License Authorization Code (LAC)** field.

e) Select the check box **I have the user name and password for the License Server and want to log on**.

f) Enter the **User Name** and **Password** for logging into the License Server.

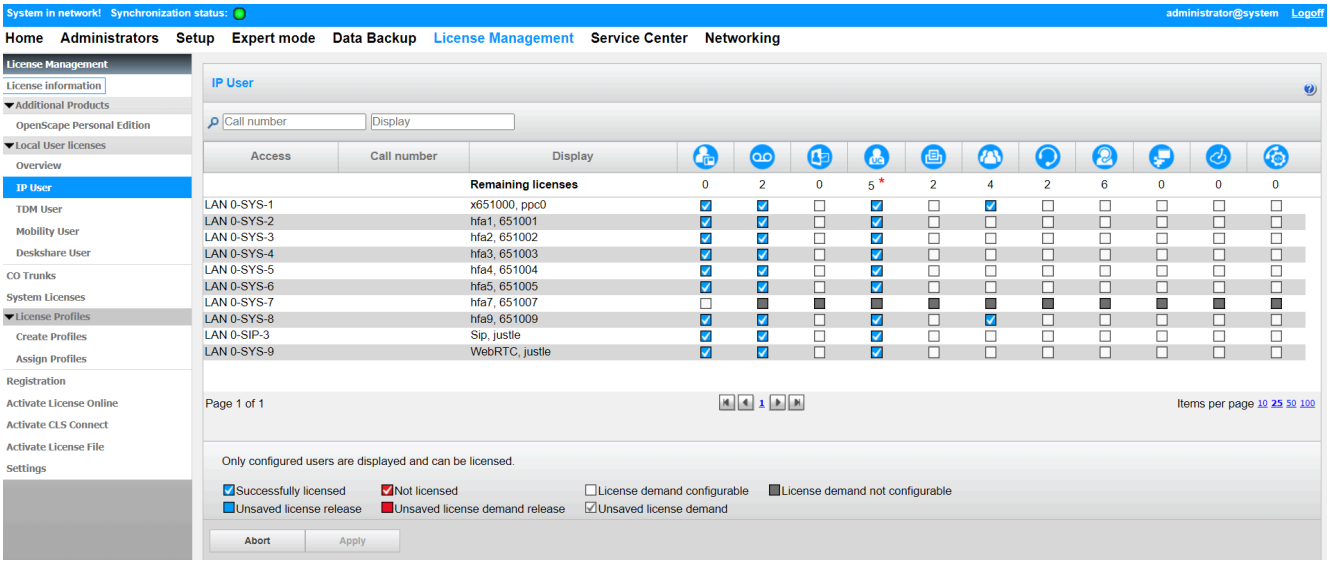
g) Click on **OK & Next**. The connection to the license server is established, and the licenses are released.

2) Assign licenses to stations:

a) Click on **License Management** in the navigation bar.

b) In the navigation tree, navigate to the desired type of subscriber under **Local User Licenses** > **...**. You will be shown a list of all subscribers of the selected subscriber type.

c) In the row of the desired subscriber, select the check box in the **User license** column (first column with check boxes).



d) Activate the user-oriented licenses in the row of the desired subscriber by selecting the appropriate check boxes.

NOTICE: User-oriented licenses can be assigned to a subscriber only if a station license (user license) was assigned to the subscriber earlier (step c).

---

e) Click on **OK & Next**. A check is performed to determine whether there are enough licenses for your assignment.

If sufficient licenses are available, the licensing of the subscriber is completed.

f) If licenses are missing, the errors are indicated by displaying a check box shaded in red. Correct these errors and repeat step e.

3) Assign licenses to trunks:

a) In the navigation tree, click **CO trunks**. The number of trunk licenses purchased will be displayed in the **CO trunks** area.

b) For SIP trunks: In the **License demand for number of simultaneous Internet calls in this node** area, enter the number of Internet calls that can be conducted simultaneously via an ITSP.

c) Click on **OK & Next**.

5.8.2 How to Provision the UC Smart Client for Installation

Prerequisites

You are logged on to the WBM with the **Advanced** profile.

The hardware and software for using UC @work are available.

NOTICE: Licenses are required to use the UC Smart client myPortal @work.

Step by Step

1) Click on **Service Center** in the navigation bar.
2) Click on **Software** in the navigation tree.
3) Click on the Download icon of **myPortal @work** and save the installation file on a shared network drive.
4) Send the two installation files to the users of myPortal @work.
5) Alternatively, you can also send the users of myPortal @work the link with which they can access the installation file:

   `https://<IP address of the communication system>/management/downloads/myPortalAtWorkSetup.exe`

5.8.3 How to Provision the UC Suite Clients for Installation

Prerequisites

You are logged on to the WBM with the **Advanced** profile.

The hardware and software for using the UC Suite are available.

NOTICE: Licenses are required to use the UC Suite clients.

Step by Step

1) To enable the installation files to be provided automatically to a station, make sure that the following steps have been performed:
   a) The e-mail addresses of the stations and the associated subscriber data must have either been already imported via an XML file or entered later under **Setup** > **UC Suite** > **User Directory**.
   b) An e-mail server must have been specified.

   NOTICE: You can also enter an E-mail server later under **Service Center** > **E-mail Forwarding**.

   All subscribers whose e-mail addresses are known receive an e-mail with a link to the installation directory of the UC clients and Getting Started Instructions. The installation folder also includes a Readme file with information on installing the software on client PCs.

2) If the required steps for automatic notification are not fulfilled, you can also make the installation files available manually. To do this, proceed as follows:
   a) Click on **Service Center** in the navigation bar.
   b) Click on **Software** in the navigation tree.
   c) Click on the desired UC client and save the zipped installation file on a shared network drive.
   d) Click in the navigation tree on **Documents** and select **User Guide** from the drop-down list.
   e) Click on the documentation of the desired UC client and save the documentation file on a shared network drive.
   f) Send the zipped installation file and the documentation file to the users of the UC clients by e-mail or inform the users about the storage location of these files.
   g) The zip file with the installation files also includes a Readme file. Notify the users that the installation of the UC clients must be performed in accordance with the installation notes in the Readme file.
3) Alternatively, you can also send the UC users links through which they can directly access the installation files of the UC clients.
   a) Click on **Service Center** in the navigation bar.
   b) Click on **Software** in the navigation tree.
   c) Click on the **Show Application Links** button. You will be presented with multiple links, depending on the used operating system and the desired UC client. For example:

   ```
   https://<IP address of the communication system>/
   management/downloads/install-common.zip
   ```

5.8.4 How to Perform a Data Backup

Prerequisites

You are logged on to the WBM with the **Advanced** profile.

NOTICE: For more information on backing up data, see *Administrator Documentation, Immediate Backup*.

Step by Step

1) Click on **Backup and Restore** in the navigation bar.
2) In the navigation tree, click **Backup - Immediate**.
3) Enter a comment for the backup set in the **Comment** field in the **Name** area so that the backup set can be easily identified if needed later for a restore. Avoid the use of diacritical characters such as umlauts and special characters in your input.
4) Activate the target drive on which the backup set is to be saved (e.g., a network drive) in the **Devices** area.
5) Click on **OK & Next**. The progress of the backup process is displayed in a separate window.
6) The backup was successful if the message **Backup completed successfully!** appears. Click on **Finish**.
7) This completes the initial startup with WBM. Exit the WBM by right-clicking the **Logout** link on the top right of the screen and then close the window.

5.9 Commissioning of IP Phones

The commissioning of IP phones can be facilitated by the existence of a DHCP server that supplies an IP phone with important (network-specific) data that is needed to log into the communication system.

Network-Specific Data

In order to log into the communication system, an IP phone requires some network-specific data. This data can be stored in the DHCP server or be entered directly at the IP phone. The advantage of a DHCP server is that all connected IP phones are automatically supplied with the relevant data.

The following data is required by the IP phone:

- IP address of the communication system
- IP address of DLS server

In addition, the IP phone needs its own call number. This must be entered manually when logging in at the phone.

Registration of SIP Phones

For security reasons, it is recommended that SIP phones register at the communication system. To do this, the registration information on the IP phone and the communication system must match.

The following data is required for the login:

- SIP user ID
- SIP password
- SIP realm (optional)

Use a non-trivial SIP password that complies with the following rules:

- At least 8 characters
- At least one uppercase letter (A - Z)
- At least one lowercase letter (a - z)
- At least one digit (0-9)
- At least one special character

Use a SIP user ID that does not include the phone number.

Using the Internal DHCP Server

If the internal DHCP server of the communication system is used, the network-specific data will already be stored there. In order to enable an IP phone to register at the communication system, only the specified call number must be entered at the IP phone. In the case of SIP phones, the SIP registration data at the SIP phone and at the communication system must match.

Using an External DHCP Server with Network-specific Data

If an external DHCP server is used, the network-specific data must be stored there. In order to enable an IP phone to register at the communication system, only the specified call number must be entered at the IP phone. In the case of SIP phones, the SIP registration data at the SIP phone and at the communication system must match.

Using an External DHCP Server without Network-specific Data

If an external DHCP server in which the network-specific data cannot be stored is used, this must be entered at the IP phone. To enable an IP phone to register at the communication system, the defined call number and IP address of the communication system must be entered at the phone, and the settings for the Deployment Service may need to be changed. In the case of SIP phones, the SIP registration data at the SIP phone and at the communication system must match.

5.9.1 How to Configure an IP Phone

Prerequisites

The IP phone is connected to the internal network and operational.

NOTICE: The sample configuration described here uses an OpenStage 40/60/80 IP system telephone. The same settings must also be made for any other IP phone. For more information, refer to the manual supplied with your IP phone.

Step by Step

1) To reach the administration mode of the IP system telephone, press the appropriate key for the Settings/Applications menu on the phone.

2) Scroll through the `Settings` options until `Admin` and confirm this with the OK key.

3) Enter administrator password (`123456` by default) and confirm your selection with the OK key.

4) If you are using the DHCP server of the communication system in the internal network, skip the next step.

5) If you are not using the DHCP server of the communication system in the internal network, you will need to enter the IP addresses of the Deployment Server (DLS) and the communication system so that the software of the IP system telephone can be updated automatically. This applies only to IP system telephones. Proceed as follows:

a) Scroll to `Network` and confirm your selection with the OK key.
b) Scroll to `Update service (DLS)` and confirm your selection with the OK key.
c) Scroll to `DLS address` and confirm your selection with the OK key.
d) Specify the IP address of the communication system (`192.168.1.2` by default) as the Deployment Server and confirm your entry with the OK key.
e) Scroll to `Save & Exit` and confirm your selection with the OK key.
f) Scroll to `IPv4 configuration` and confirm your selection with the OK key.
g) Scroll to `Route (default)` and confirm your selection with the OK key.
h) Specify the IP address of the communication system (`192.168.1.2` by default) and confirm your entry with the OK key.
i) Scroll to `Save & Exit` and confirm your selection with the OK key.
j) Navigate one menu level back with the Back key.

6) Specify the call number of the phone:
   a) Scroll to `System` and confirm your selection with the OK key.
   b) Scroll to `Identity` and confirm your selection with the OK key.
   c) Scroll to `Terminal number` and confirm your selection with the OK key.
   d) Enter the set phone number (e.g., `120`) and confirm your selection with the OK key.
   e) Scroll to `Save & Exit` and confirm your selection with the OK key.
7) Navigate one menu level back with the Back key.
8) If the system telephone needs to be restarted due to the changes made, the menu item `Restart` will appear in the `Admin` menu. Confirm the `Restart` with the OK key and then also confirm `Yes` with the OK key. The system telephone performs a reboot and logs in to the communication system.

5.9.2 How to Configure a SIP Phone

Prerequisites

The SIP phone is connected to the customer LAN and operational.

NOTICE: The configuration described here uses an OpenStage 40/60/80 SIP system telephone as an example. The same settings must also be made for another SIP phone. For more information, refer to the manual supplied with your SIP phone.

Step by Step

1) To reach the administration mode of the SIP system telephone, press the appropriate key for the Settings/Applications menu on the phone.
2) Scroll through the `Settings` options until `Administrator (Admin)` and confirm this with the OK key.
3) Enter administrator password (`123456` by default) and confirm your selection with the OK key.
4) If you are using the DHCP server of the communication system in the internal network, skip the next step.
5) If you are not using the DHCP server of the communication system in the internal network, you will need to enter the IP addresses of the Deployment Server (DLS) and the communication system so that the software of the SIP system telephone can be updated automatically. This applies only to SIP system telephones. Proceed as follows:
   a) Scroll to `Network` and confirm your selection with the OK key.
   b) Scroll to `Update service (DLS)` and confirm your selection with the OK key.
   c) Scroll to `DLS address` and confirm your selection with the OK key.
   d) Specify the IP address of the communication system (`192.168.1.2` by default) as the Deployment Server and confirm your entry with the OK key.
   e) Scroll to `Save & Exit` and confirm your selection with the OK key.
   f) Scroll to `IPv4 configuration` and confirm your selection with the OK key.

g) Scroll to `Route (default)` and confirm your selection with the OK key.
h) Specify the IP address of the communication system (`192.168.1.2` by default) and confirm your entry with the OK key.
i) Scroll to `Save & Exit` and confirm your selection with the OK key.
j) Navigate one menu level back with the Back key.

6) Specify the SNTP time settings:
a) Scroll to `Date and time` and confirm your selection with the OK key.
b) Scroll to `Time source` and confirm your selection with the OK key.
c) Scroll to `SNTP IP address` and confirm your selection with the OK key.
d) Specify the IP address of the communication system (`192.168.1.2` by default) and confirm your entry with the OK key.
e) Scroll to `Timezone offset` and confirm your selection with the OK key.
f) Enter the deviation between the local time and UTC (Universal Time Coordinated) in hours (Germany: `1`) and confirm this with the OK button.
g) Scroll to `Save & Exit` and confirm your selection with the OK key.
h) Navigate one menu level back with the Back key.

7) Specify the call number of the phone:
a) Scroll to `System` and confirm your selection with the OK key.
b) Scroll to `Identity` and confirm your selection with the OK key.
c) Scroll to `Terminal number` and confirm your selection with the OK key.
d) Enter the set phone number (e.g., `120`) and confirm your selection with the OK key.
e) Scroll to `Save & Exit` and confirm your selection with the OK key.

8) Specify the SIP authentication data:
a) Scroll to `Registration` and confirm your selection with the OK key.
b) Scroll to `SIP Session` and confirm your selection with the OK key.
c) Note the `Realm`, or enter a new realm (e.g., `OSBIZ-SIP`), if necessary.
d) Note the `User ID`, or enter a new user ID (e.g., `SIP-120`), if necessary.
e) Specify a `Password` for registering at the SIP server.
f) Scroll to `Save & Exit` and confirm your selection with the OK key.

9) Use the Back key to go back to the `Admin` menu.

10) If the system telephone needs to be restarted due to the changes made, the menu item `Restart` will appear in the `Admin` menu. Confirm the `Restart` with the OK key and then also confirm `Yes` with the OK key. The system telephone performs a reboot and logs in to the communication system.

5.10 Uninstalling the Communication Software (UC Booster Server only)

The software communication can be uninstalled via a text console.

5.10.1 How to Uninstall the Communication Software

Step by Step

1) Open a terminal (e.g., a GNOME terminal).
2) Enter the command `su` (for superuser = root) in the shell interface and confirm it by pressing the Enter key.
3) Enter the password for the "root" user in the shell interface and confirm it by pressing the Enter key.
4) Enter the command `oso_deinstall.sh` in the shell interface and confirm it by pressing the Enter key. Follow the instructions of the uninstallation program.

5.11 Used Ports

The OpenScape Business system components use different ports, which may need to be opened in the firewall as required. For the ports of the web-based clients (e.g., myPortal to go), port forwarding must be configured in the router.

An actual and complete list of all used ports of OpenScape Business is available in the "Interface Management Database" (IFMD) which can be accessed via the Partner Portal (https://www.mitel.com/login.

NOTICE: The ports identified with "O" in the list below are optional, i.e., are not permanently open in the firewall.

Description	TCP	UDP	Port number	OpenScape Business X	UC Booster Card	OpenScape Business S	UC Booster Server
System components							
Admin Portal (https)	X		443	X	X	X	X
CAR Update Registration	X		12061	X		X	
CAR Update Server	X		12063	X		X	
CLA	X		61740	O		O	O
CLA Auto Discovery		X	23232	X		X	X
Communication Client Installer	X		8101	X	X	X	X
Csta Message Dispatcher (CMD)	X		8900		X	X	X
CSTA Protocol Handler (CPH)	X		7004	X		X	
Csta Service Provider (CSP)	X		8800		X	X	X
DHCP		X	67	X			
DLI	X		18443	X		X	X
DLSC	X		8084	X		X	X

Description	TCP	UDP	Port number	OpenScape Business X	UC Booster Card	OpenScape Business S	UC Booster Server
DNS	X	X	53	X			
FTP	X		21	O		O	
FTP Passive	X		40000-40040	O		O	
HFA	X		4060	X		X	
HFA Secure	X		4061	X		X	
Instant Messaging (http)	X		8101	X	X	X	X
JSFT	X		8771		X	X	X
JSFT	X		8772		X	X	X
LAS Cloud Service	X		8602	X			
LDAP server	X		389		X	X	X
Manager E	X		7000	X			
MEB SIP	X		15060		X		X
NAT traversal (NAT-T)		X	4500	X			
NTP		X	123	X			
Openfire Admin (https)	X		9091		X	X	X
OpenScape Business Auto Update Service (http)	X		8101	X	X	X	X
OpenScape Business Multisite	X		8778		X	X	X
OpenScape Business myReports (http)	X		8101		X	X	X
OpenScape Business status server	X		8808	X		X	X
OpenScape Business user portal	X	X	8779		X	X	X
Postgres	X		5432	X	X	X	X
RTP (embedded)		X	29100-30530	X	X	X	X
RTP (server)		X	29100-30888	X	X	X	X
SIP (server)	X	X	5060	X		X	
SIP TLS SIPQ (server)	X		5061	X		X	
SIP TLS Subscriber (server)	X		5062	X		X	
SNMP (Get/Set)		X	161	X		X	
SNMP (traps)		X	162	X		X	
TFTP		X	69		O	O	O
VSL	X		8770-8780		X	X	X

Description	TCP	UDP	Port number	OpenScape Business X	UC Booster Card	OpenScape Business S	UC Booster Server
Webadmin for Clients	X		8803	X	X	X	X
Web-based clients							
Web-based clients (http)	X		8801	X	X	X	X
Web-based clients (https)	X		8802	X	X	X	X

NOTICE: For security reasons, we recommend that only https be used for the web-based clients and that port forwarding be set up from external TCP/443 to internal TCP/8802.

6 Security aspects

To harden the system Mitel recommends the procedures of the Center for Internet Security (CIS) Benchmarks (see https://benchmarks.cisecurity.org/). Additional information can be found in the OpenScape Business Security Checklist.

Please make sure that the virtualization software is up to date and the correct security patches are installed.

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