

estos ECSTA for OpenScape Business

5.0.17.794

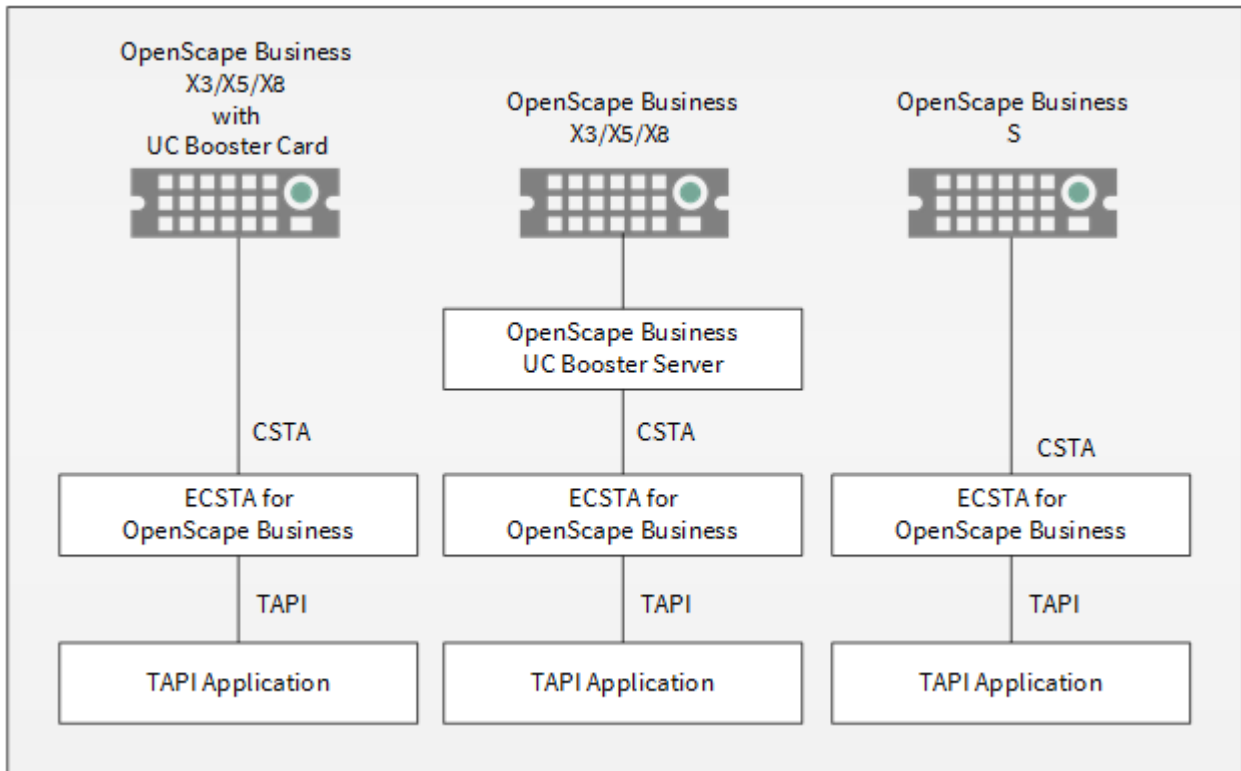
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1 Introduction

estos ECSTA for OpenScape Business makes several Telephony Service Providers for Microsoft® TAPI 2.1 (and 2.2 and 3.0, as well) available. These TAPI drivers create a central communication system between a server and the telephone system. All telephone system devices are available on this server as TAPI lines.

All estos ECSTA for OpenScape Business drivers use the efficient CSTA interface in order to communicate with the telephone system.

For the installation and management of the driver see Driver Management.



Supported Telephone Systems

PBX	Driver
OpenScape Business X3*	ECSTA for OpenScape Business
OpenScape Business X5*	ECSTA for OpenScape Business
OpenScape Business X8*	ECSTA for OpenScape Business
OpenScape Business S	ECSTA for OpenScape Business

*A CSTA middleware solution is required for the integration of these telephone systems. This middleware will be integrated either as hardware in the telephone system (OpenScape Business UC Booster Card) or as software on a SUSE Linux operating system (OpenScape Business UC Booster Server). You will find detailed information about both options and their installation on the UC Booster Platforms page under OpenScape Business.

Using the driver in the network

After installing the driver, you may use all configured line devices on the server as TAPI-lines. If you are using a server based CTI Software, you may install it now. To have the TAPI-devices available on all workstations, the TAPI-driver must be distributed in the network. There are the following options:

1. **estos UCServer**
The estos UCServer is a CTI/UCC server software which distributes the telephony information across the network using a graphical client or a multi-line TAPI driver. Workgroups, domains, Active Directory® and Terminal Server are supported.
2. **estos CallControlGateway**
The estos CallControlGateway for Lync/OCS is a gateway that connects the TAPI-lines with the Lync/OCS server. This enables the Lync/OCS client to use traditional telephone devices via Remote Call Control (RCC).
3. **Windows® Telephony Server**
The Windows® Telephony Server is a component of Windows® server operating systems since Windows® NT. You will need a domain. The service is limited to domain users.

2 Driver Management

Installation

The Windows® Installer (msi) package will install the driver. If the setup package contains several drivers, you can choose which drivers should be installed during the setup process.

Driver instance

The driver can be used to connect one or more phone systems. For this purpose, one or more driver instances will be registered with the Windows® TAPI system.

Register with the TAPI System

An instance of the selected driver has already been registered with the TAPI system during the installation process. Because of this, you specify the necessary data using a wizard, in order to connect the driver with the telephone system.

Configuration of the Driver Instance

The driver instances are configured either from the *Telephone and Modem Options* entry on the Control Panel or through the *Advanced Telephone Driver Options* program found on either the Control Panel or the Start Menu.

Add additional driver instances

If you want to connect the computer with an additional telephone system, you need to add an additional instance of the driver to the TAPI system. The *Advanced Telephone Driver Options* program found on either the Control Panel or the Start Menu will help with this.

Updates

To install an Update start the Windows® Installer Package (msi).

If a driver instance has been configured, it will be deleted during the update process and automatically added again, once the update process has been completed. If several driver instances have been configured, the computer will have to be restarted afterwards.

De-installation

The Windows® Software Administration program will uninstall the driver. During the uninstall process, all driver instances will be removed from the TAPI system and the software uninstalled.

3 Supported Telephone Systems

Driver	PBX	Telecom identification	From Booster Firmware Version:
ECSTA for OpenScape Business	Unify OpenScape Business X3*	Telekom Octopus F X3*	V1 R2.0.0.28
ECSTA for OpenScape Business	Unify OpenScape Business X5*	Telekom Octopus F X5*	V1 R2.0.0.28
ECSTA for OpenScape Business	Unify OpenScape Business X8*	Telekom Octopus F X8*	V1 R2.0.0.28
ECSTA for OpenScape Business	Unify OpenScape Business S		V1 R2.0.0.28 (embedded Software)

*A CSTA middleware solution is required for the integration of these telephone systems. This middleware will be integrated either as hardware in the PBX system (OpenScape Business UC Booster Card) or as software on a SUSE Linux operating system (OpenScape Business UC Booster Server). You will find detailed information about both options and their installation on the UC Booster Platforms page under OpenScape Business.

4 UC Booster Platforms

The OpenScape Business line of telephone systems does not provide its own CSTA interface. This interface will be provided by a middleware solution as hardware for integration into a telephone system and as software. The hardware middleware is marketed by Unify under the name *OpenScape Business UC Booster Card*; the software under the name *OpenScape Business UC Booster Server*. Both systems will be referred to as the UC Booster Platform in the following information, because the choice of system does not make a technical difference. The OpenScape Business S line is a software telephone system that has already integrated the necessary interface.

If you need to integrate a cluster of OpenScape Business pbx systems you will need only one booster platform at the master node. Please take care about the total amount of users. (Maximum of 150 with an OpenScape Business UC Booster Card).

4.1 Configuration and Connection of the UC Booster Platforms

In general, please refer to the documents provided by Unify for the respective products for advice. You will find the documents both in the OpenScape Business Telephone System under *Service Center / Download Center*, as well as at the Unify partner portal. The following instructions show the steps necessary for installation and configuration in a summary form.

OpenScape Business UC Booster Server

OpenScape Business UC Booster Card

Integrating UC Booster Platform with the OpenScape Business System

4.2 OpenScape Business UC Booster Server

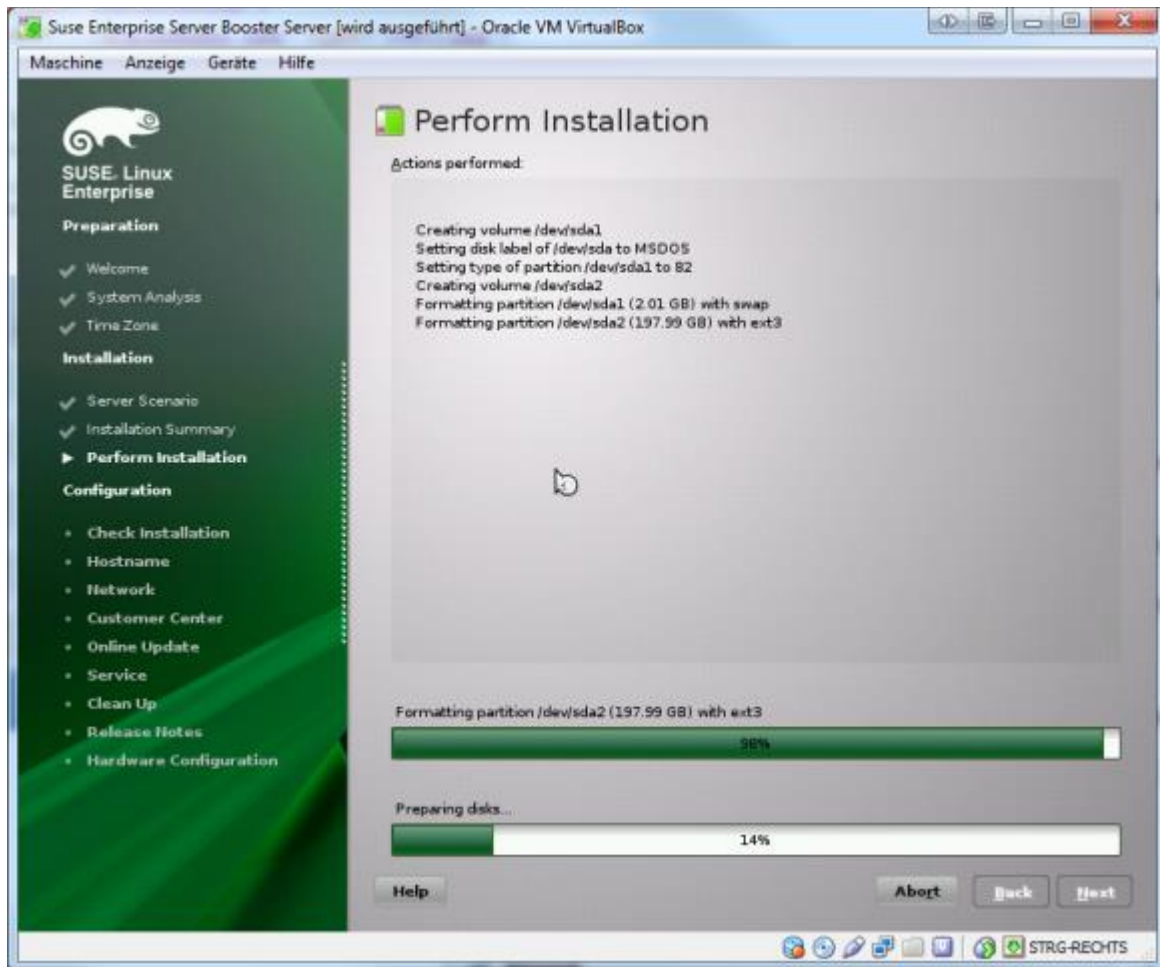
The UC Booster Server will be installed on a system based on a SUSE Enterprise Linux operating system. Unify places the following requirements on this platform:

- SUSE Enterprise Linux Server Version 11 SP2, 64-bit
- Physical or virtual server set up for 24-hour operation
- At least 2 cores running at 1.5 GHz (2.0 GHz recommended)
- At least 2 GB of RAM (4 GB recommended)
- At least 100 GB of disk space (200 GB recommended)
- 1024x768 screen resolution

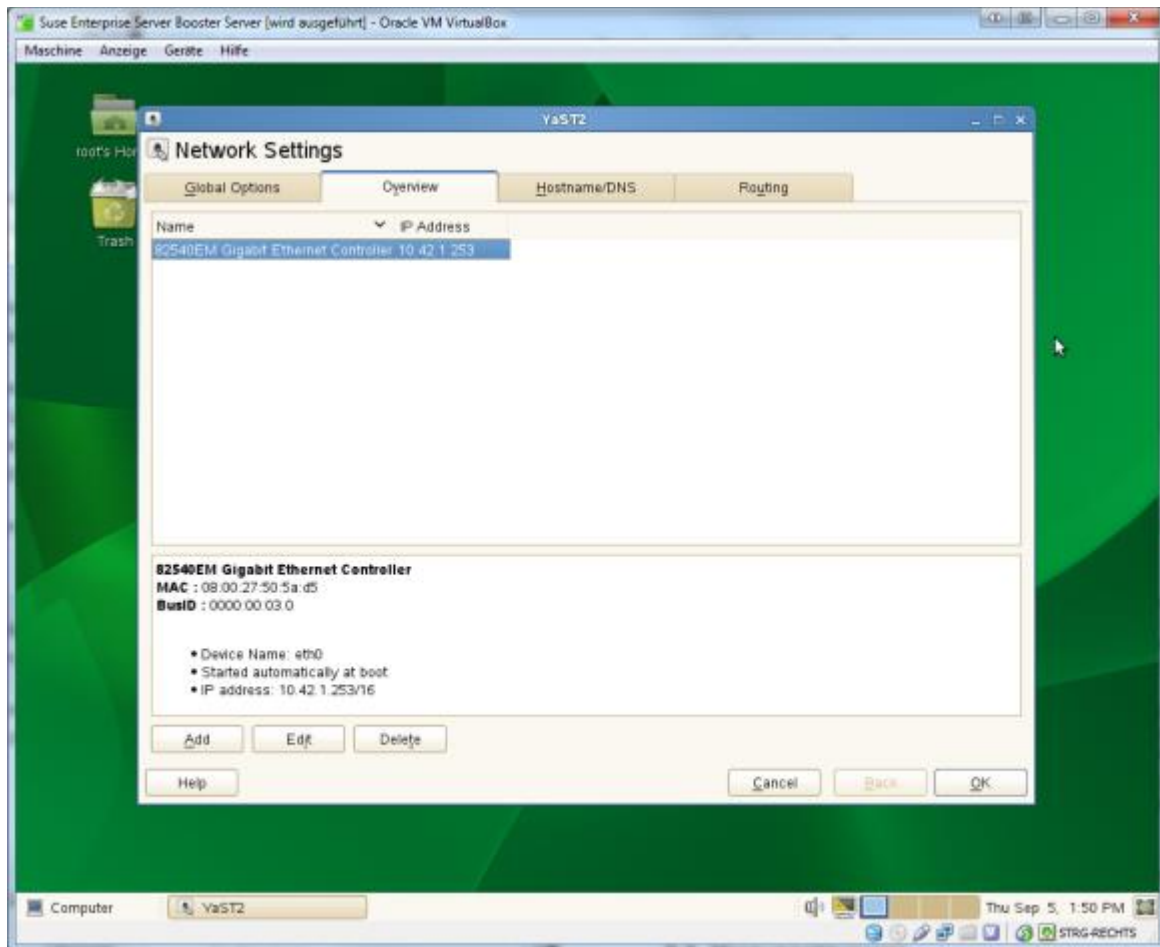
The installation package can be downloaded at Novell.

The following instructions show how to install on an Oracle Virtual Box as recommended by Unify and supported as a virtualized VMWare vSphere system using either Version 4 or 5.

Install SUSE Enterprise Linux



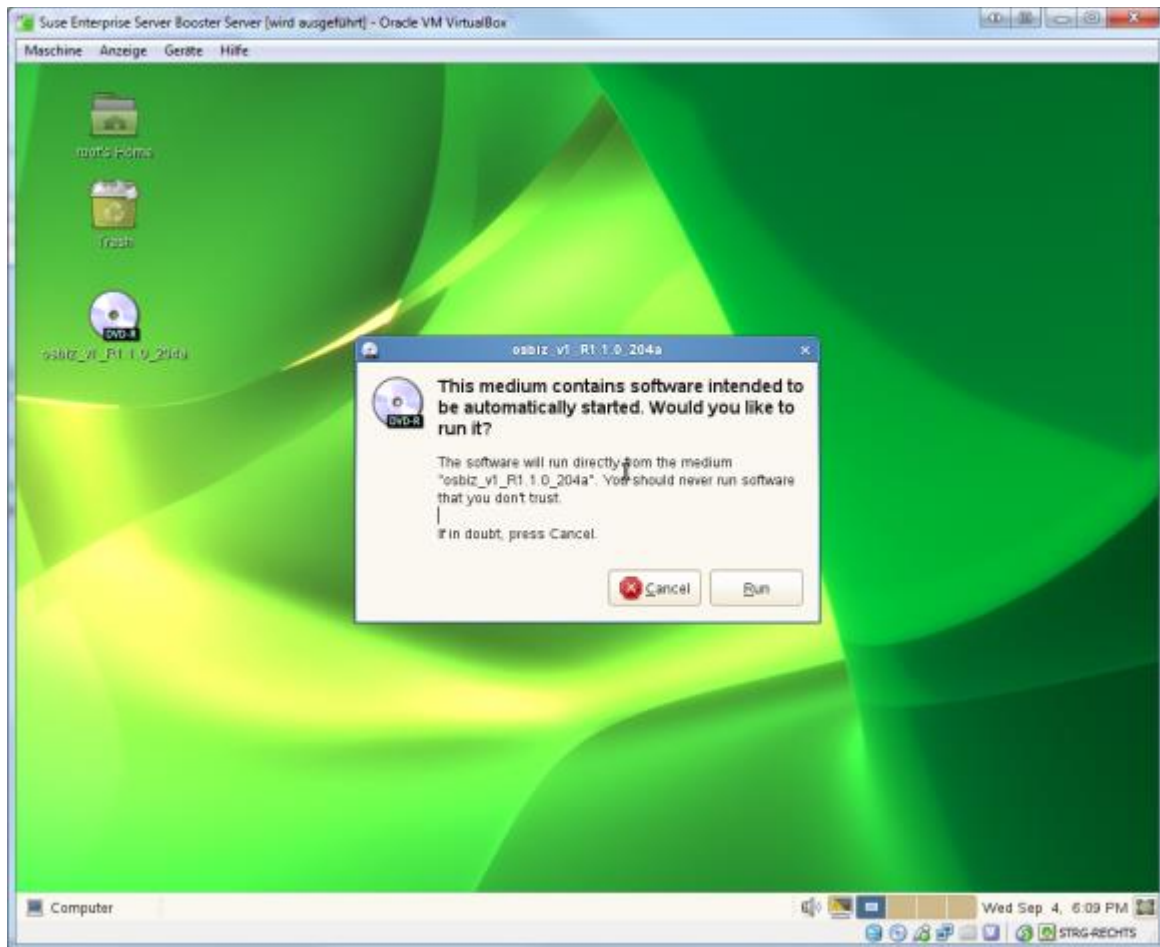
Assign a static IP address to the system using YAST Network Settings.
Do not forget to set a DNS server and the default gateway so that the software can be updated later.



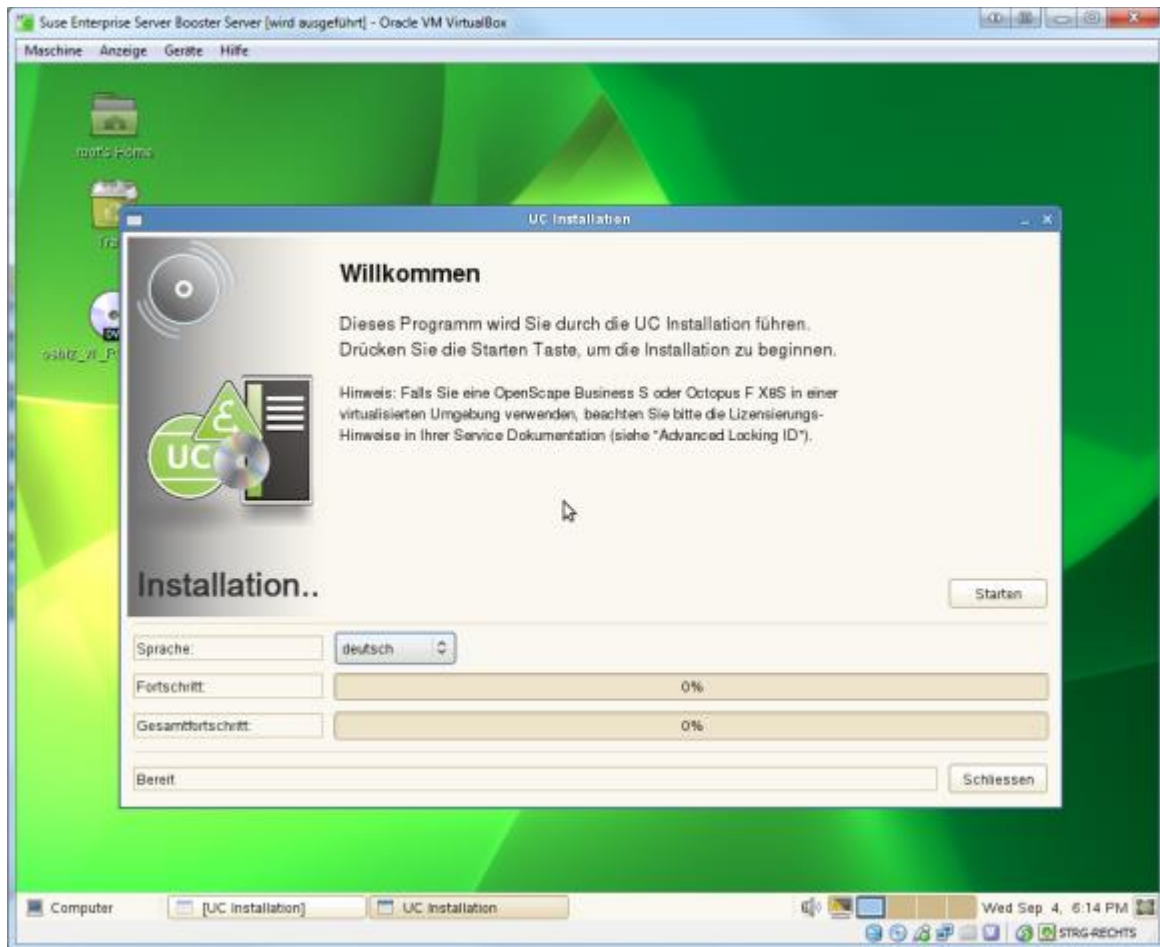
Insert the DVD (ISO image) with the OpenScape UC Booster Server.

You can confirm the installation using the dialog shown by pressing the Run button.

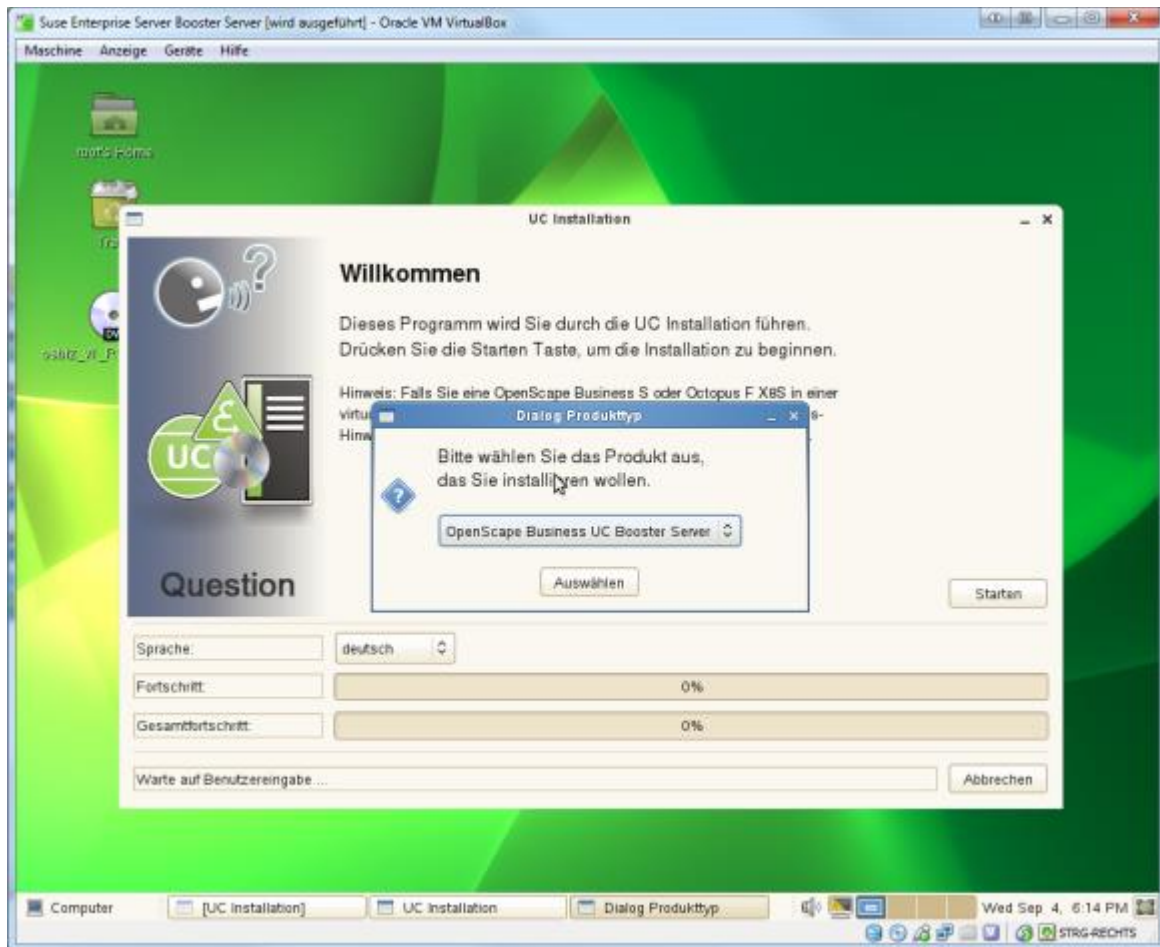
If the dialog does not appear, select the DVD-ROM icon and click on the *Open with Autorun...* item from the context menu.



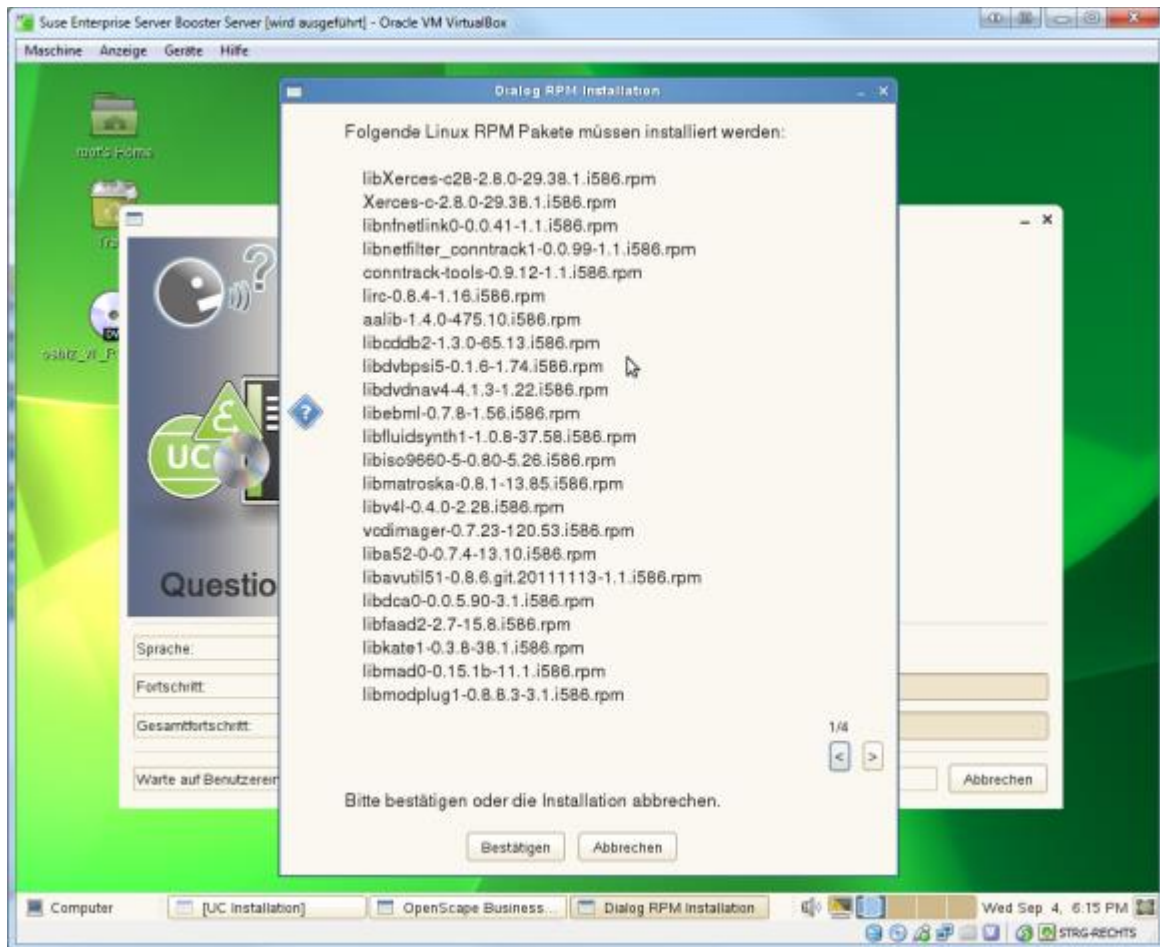
Select English as the installation language, then click *Start*



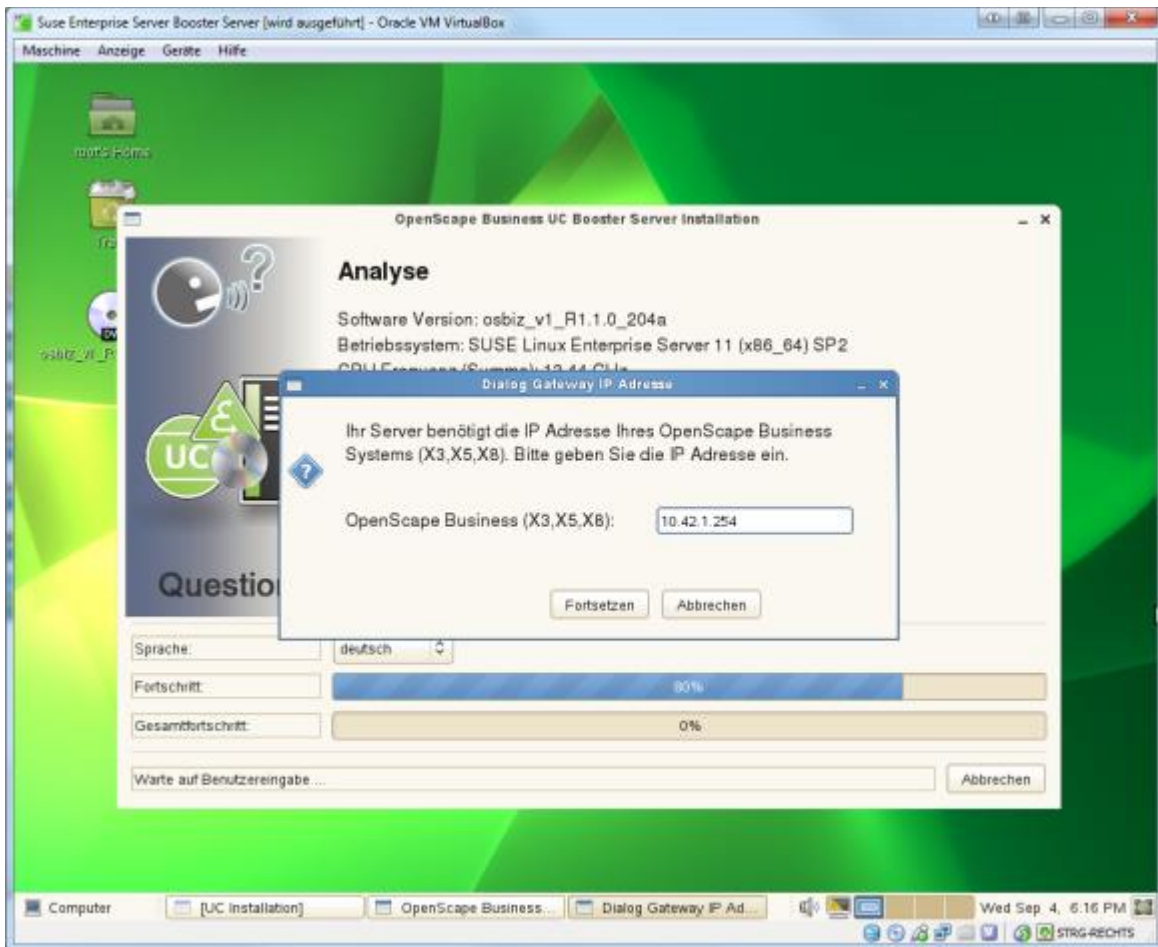
Select OpenScope Business UC Booster Server as the product and click *Select*



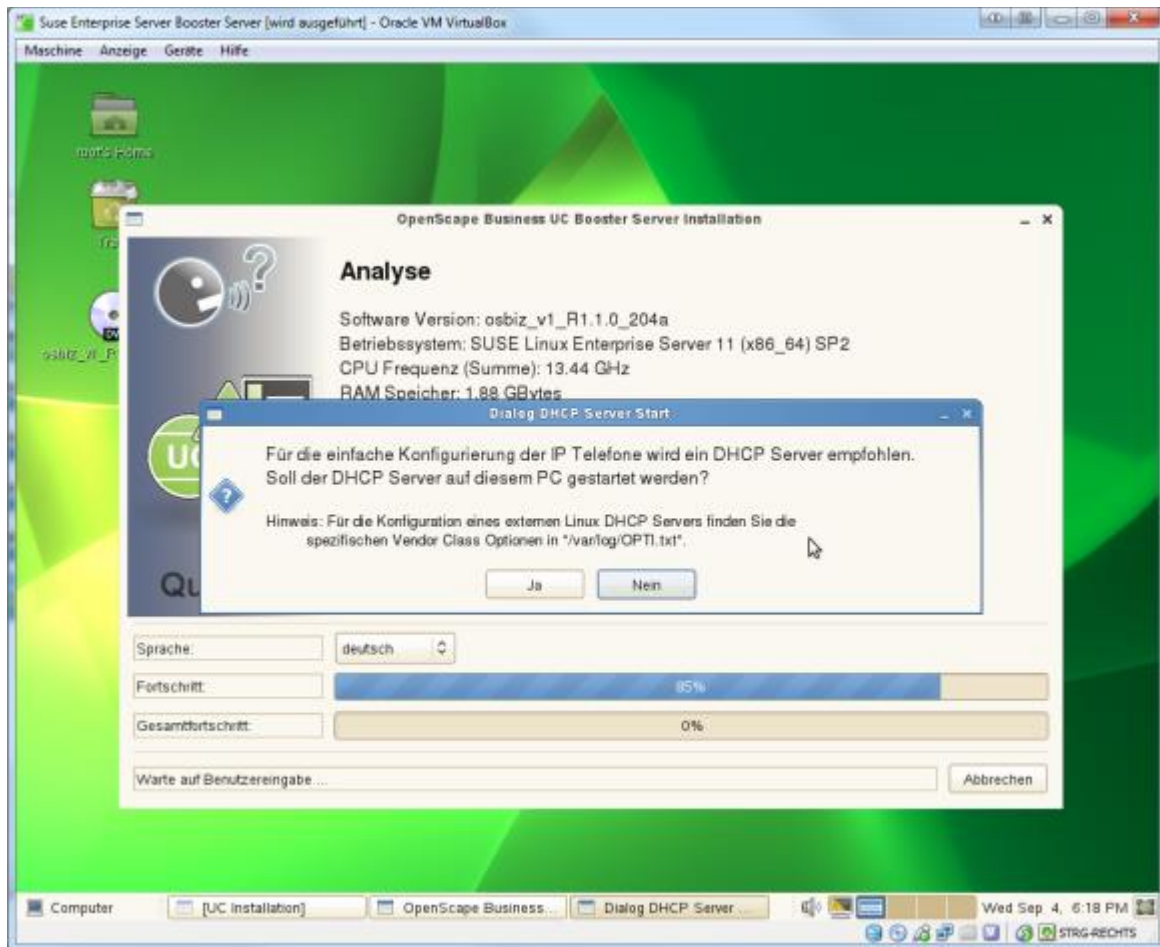
Confirm the installation of the RPM package by clicking *Confirm*.



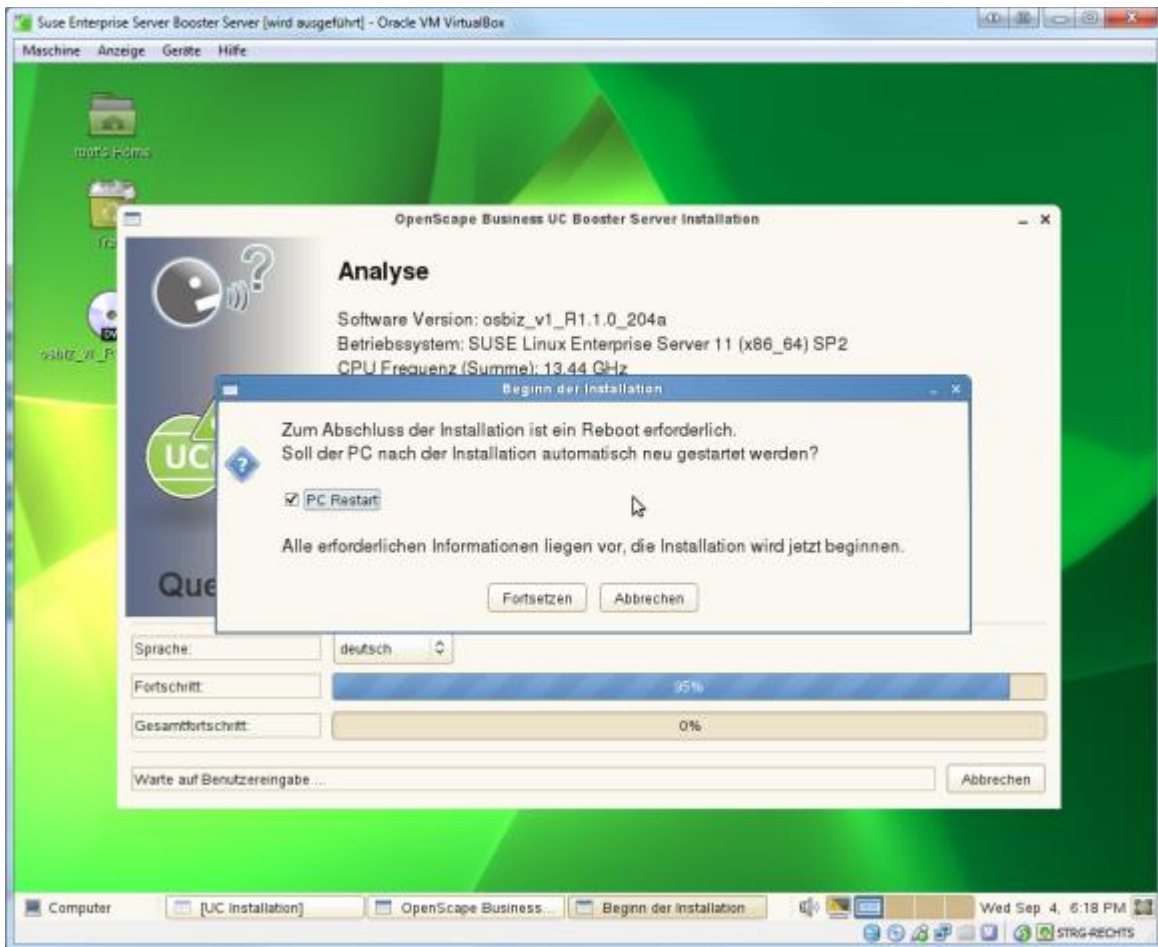
Enter the IP address for the OpenScope Business installation and click *Continue*.



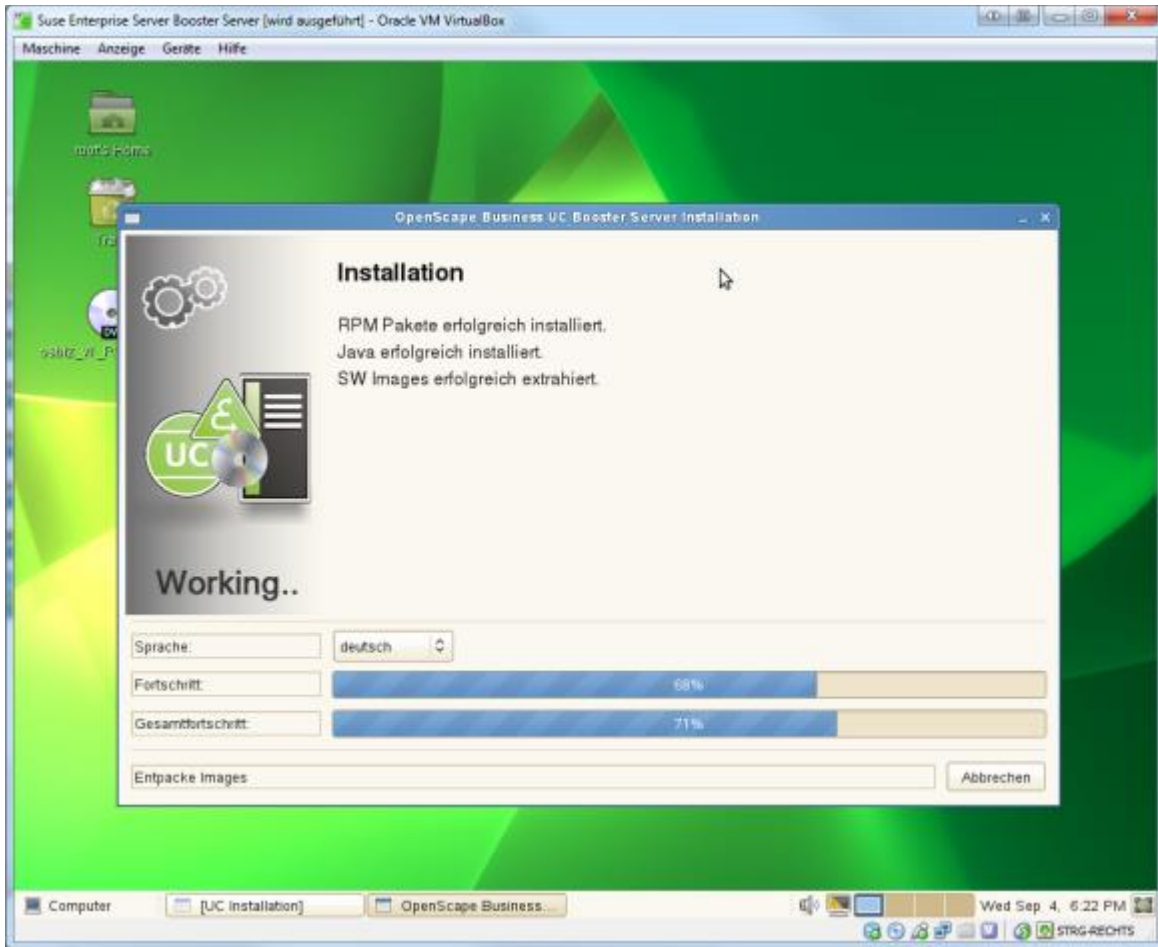
If you already use a DHCP server in your network, choose *No* so that this service will not be started (the default setting) by clicking *No*.

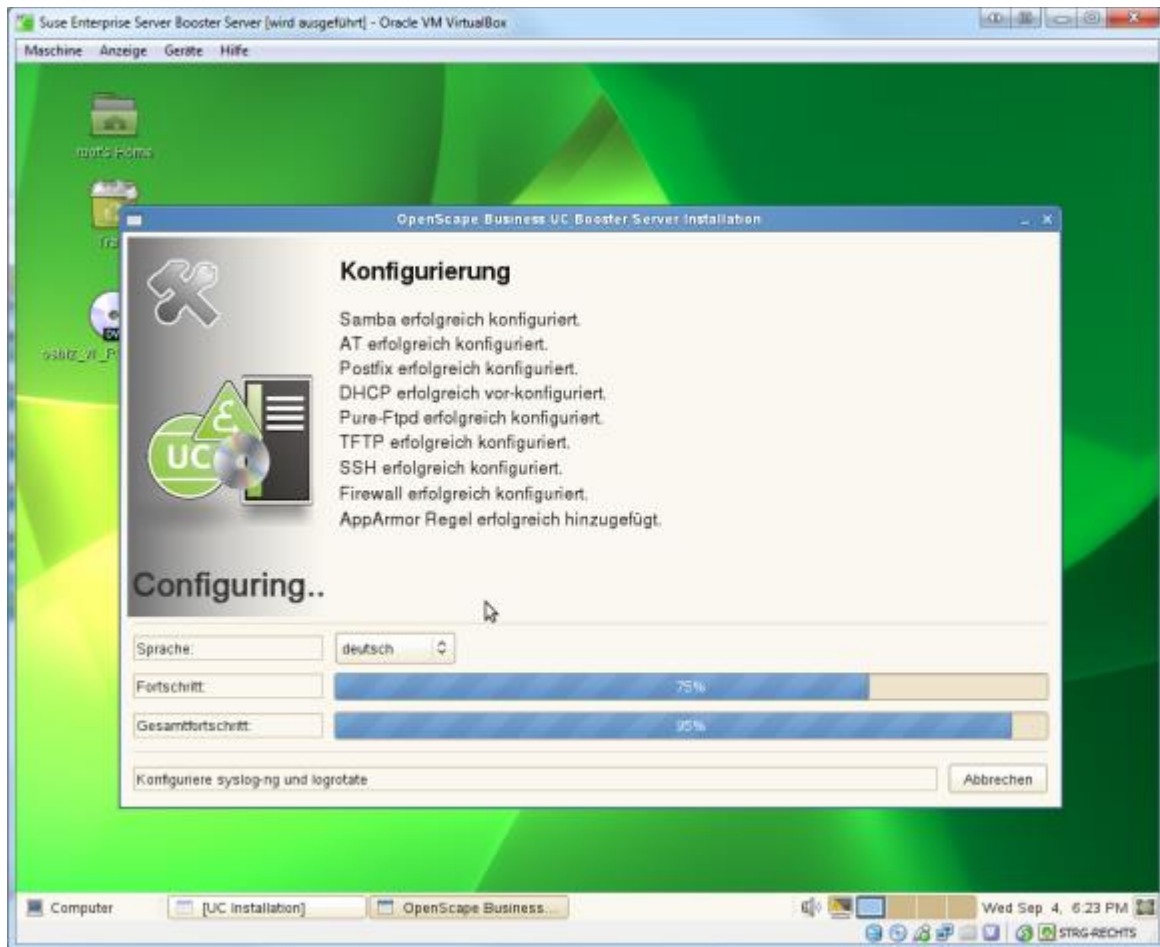


Set the PC to re-start by clicking the checkbox and then click *Continue*.



The software will then be installed and the initial configuration will start after the PC has been re-started.





Once the PC has been re-started, log into the Booster Server using the web interface. The web interface will only be available using the HTTPS protocol. Make sure to change the password for administrative users.

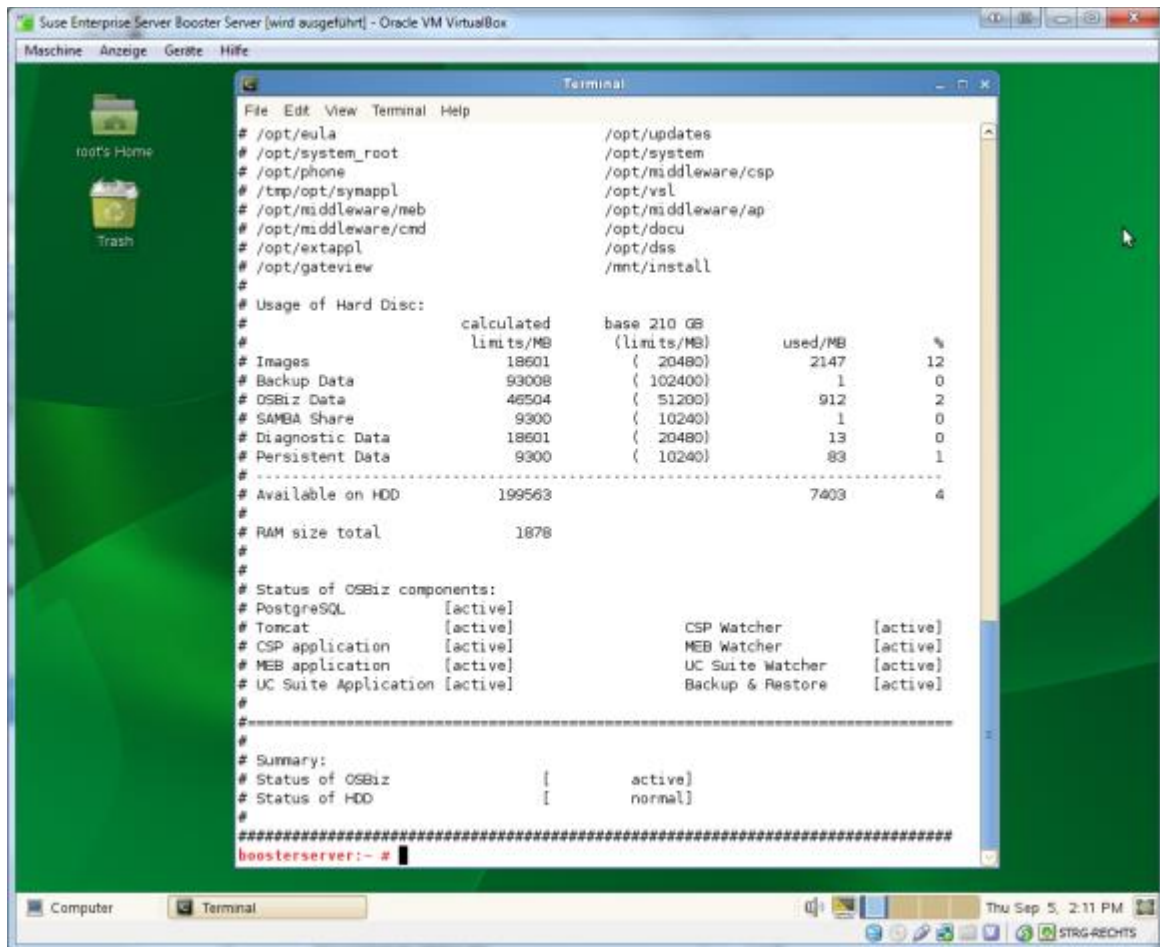
Login information for the initial login:

User: administrator@system

Password: administrator

The configuration of OpenScape Business will be presented in Integrating UC Booster Platform with the OpenScape Business System.

You can check the configuration and the status of the individual services using `oso_status.sh` while the software is running (once Booster Server has been integrated with the telephone system).



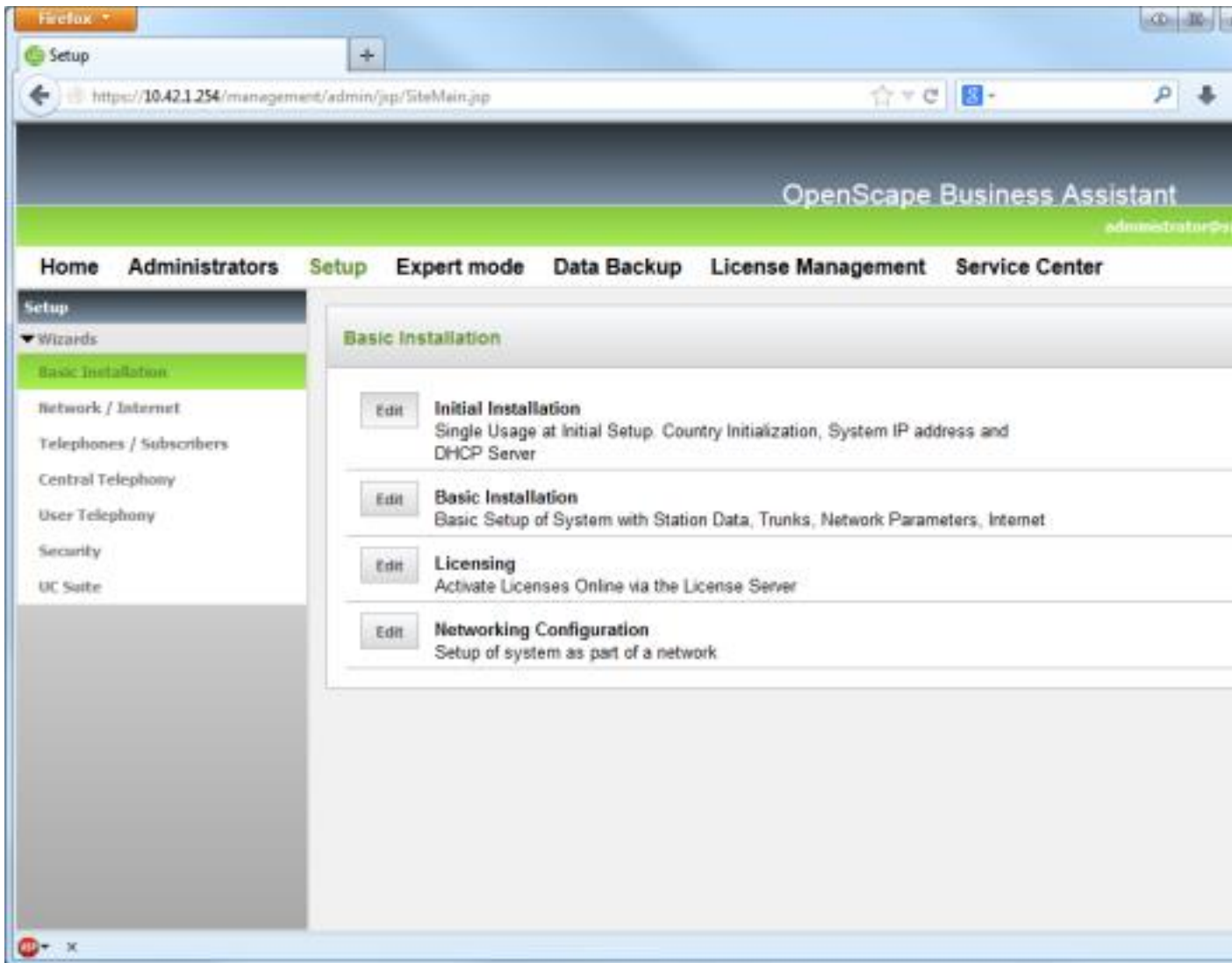
4.3 OpenScope Business UC Booster Card

Install the Booster Card into your OpenScope Business system based on the service documentation from Unify. The Booster Card is configured by running a wizard from the OpenScope Business web interface. This configuration process will be presented in the Integrating UC Booster Platform with the OpenScope Business System section.

4.4 Integrating UC Booster Platform with the OpenScope Business System

The system must be re-started to setup the UC Booster Server or Card in the OpenScope Business system. Log into the OpenScope Business web interface as the administrator.

Start the *Initial Installation* wizard from the menu under Setup.



The Booster Server or Booster Card will be selected and configured from the Application Selection page.

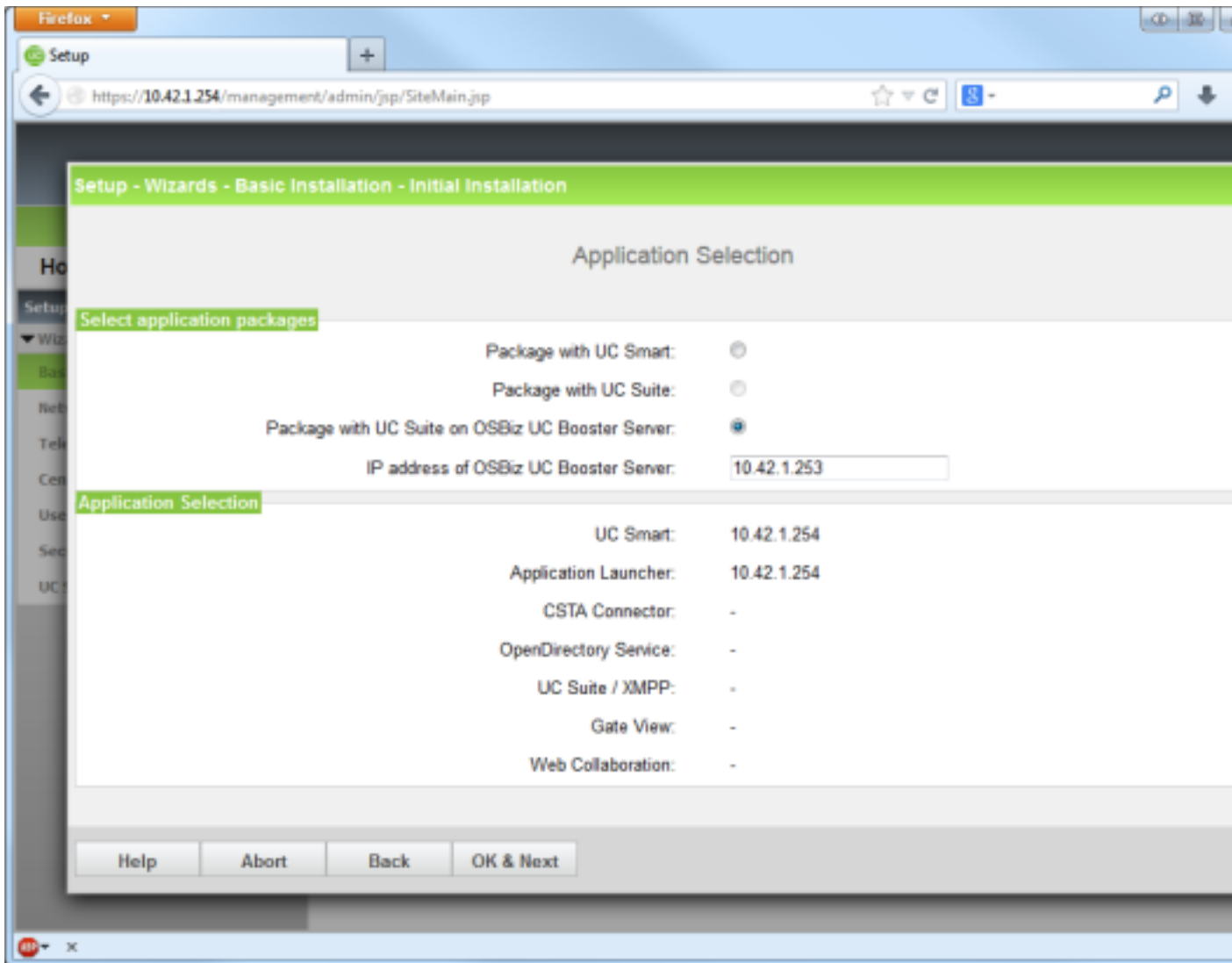
Installing the Booster Card:

- Click on the Package with UC Suite option.

Installing the Booster Server:

- Click on the Package with UC Suite on OSBiz UC Booster Server option.
- Enter the IP address for the Booster Servers.

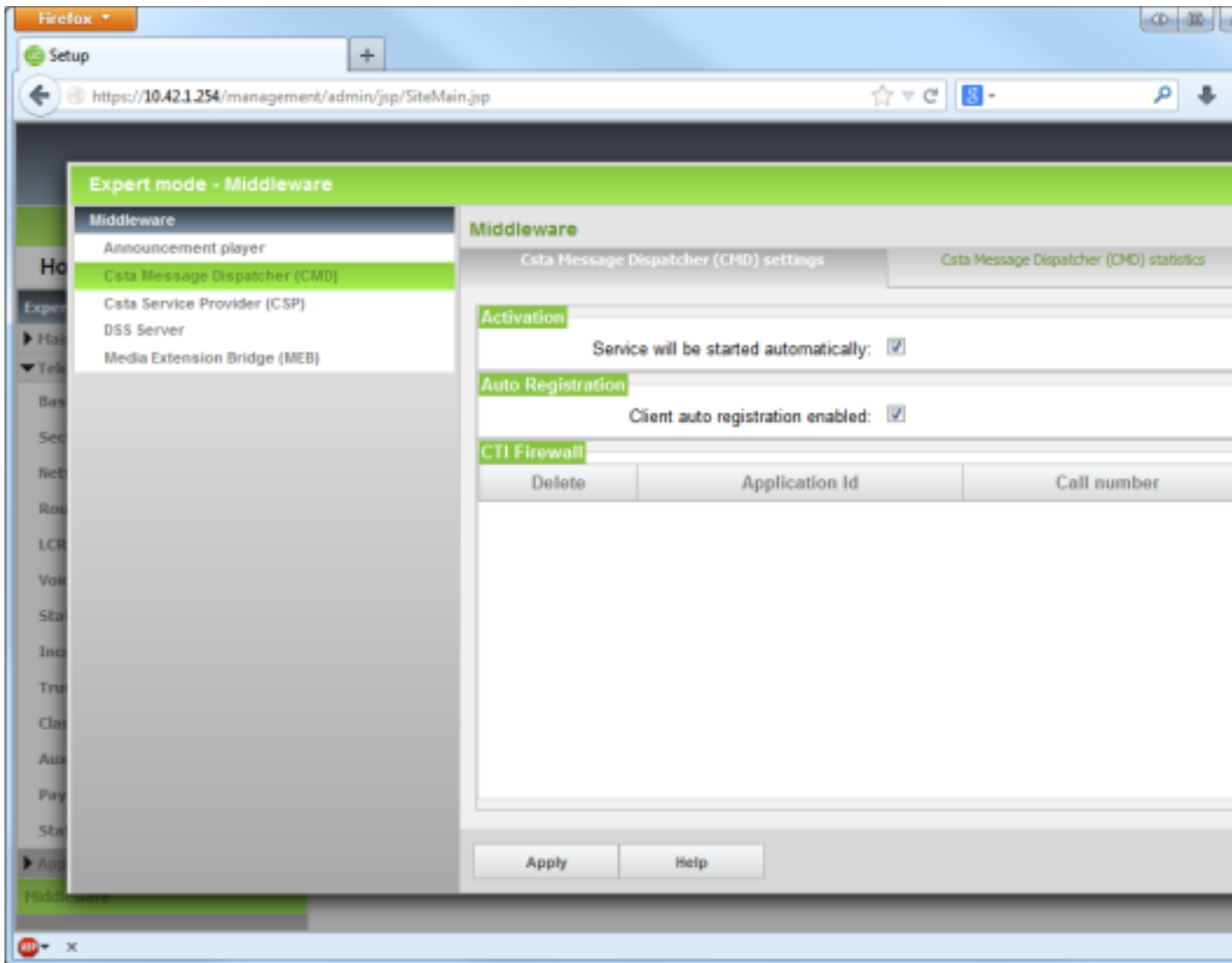
You can confirm the settings on this page and the following pages by clicking OK&Next. The telephone system will be re-started.



Once the system has been re-started, log into the OpenScope Business system as Administrator. If the user does not yet have the Expert role, add this role to the Administrator account. Open the Applications - Middleware menu item from the menu in Expert mode.

CSTA Message Dispatcher (CMD):

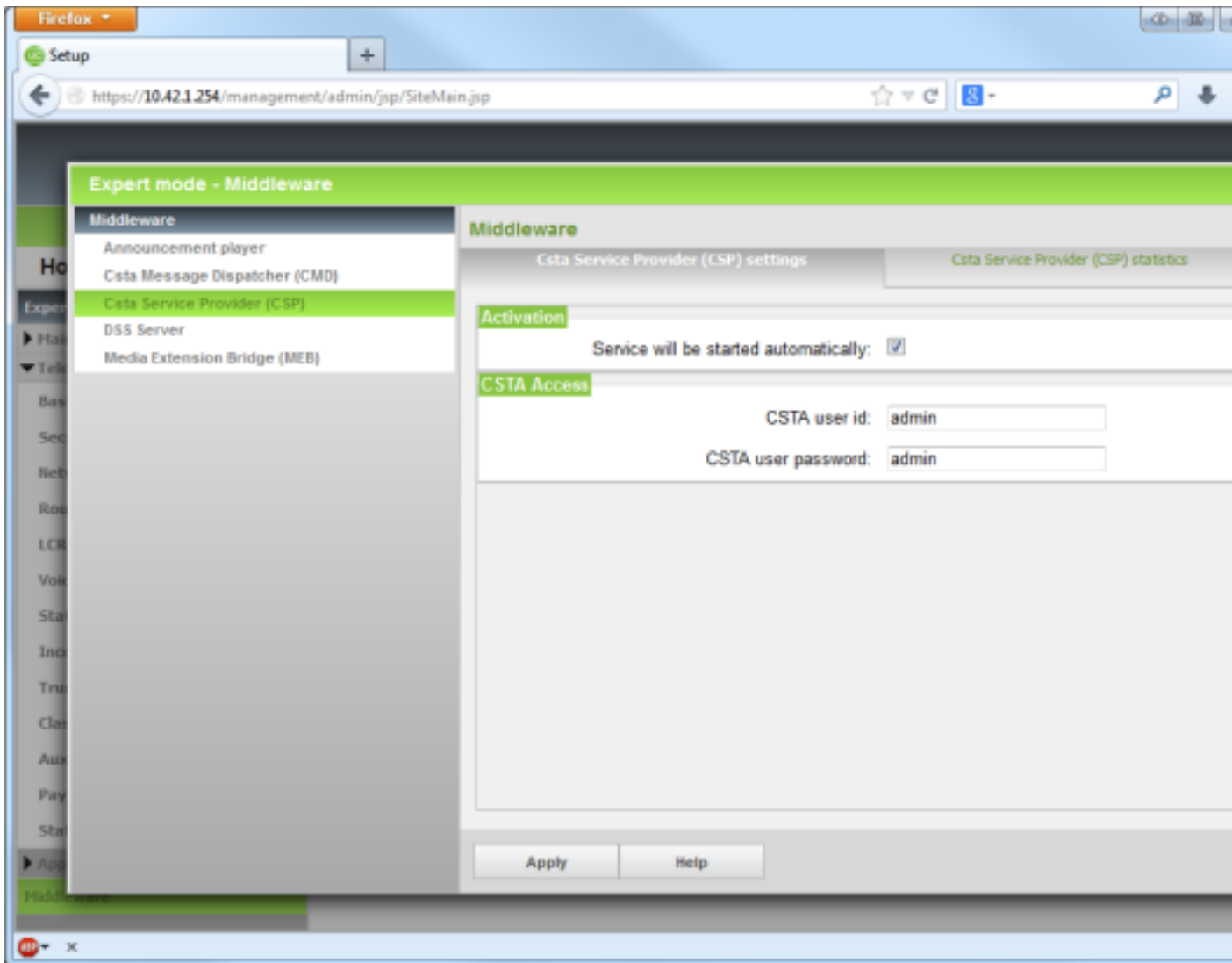
- Select the "Service will be started automatically" option.
- Select the "Client auto registration enabled" option.



CSTA Service Provider (CSP):

- Select the "Service will be started automatically" option.

Assign a CSTA User Id and a CSTA User Password. You will need both of these pieces of information afterwards for activating the ECSTA for OpenScope Business system.



Confirm the changes by clicking *Apply*.

The system will now have access to the Booster Card or the Booster Server through a CSTA interface, to which ECSTA for OpenScape Business will have access.

Installation and Configuration of ECSTA for OpenScape Business

5 Software requirements

The estos ECSTA for OpenScape Business can be installed on all Windows® systems that support Microsoft® TAPI 2.0 or higher. The following systems are supported in 32- as well as in 64-bit versions.

- Windows® 10
- Windows Server® 2008 R2
- Windows Server® 2012
- Windows Server® 2012 R2
- Windows Server® 2016
- Windows Server® 2019

6 estos ECSTA for OpenScape Business

When setting up the driver, follow these steps:

1. **Check if this version of the telephone system/firmware is supported**
See Supported Telephone Systems also.
2. **Setting up the Telephone System (Integration with Booster Card or Server) for CSTA Use**
See also UC Booster Platforms.
3. **Check network connection**
Check if a connection with the system can be established (ping hostname or telnet hostname port).
4. **Driver installation**
See also Settings

7 Settings

- Connection Settings
- Location Settings
- Phone Number Format
- Line Settings
- Advanced Settings
- Licenses Settings
- MULAP Monitoring
- Open Numbering Scheme
- Supported Telephone Systems
- Supported TAPI Features

7.1 Connection Settings

The connection with OpenScape Business may be optionally created using either an OpenScape Business UC Booster Card or the OpenScape Business UC Booster Server. The telephone system itself does not have a CSTA interface and a connection with cannot be made directly from this driver. There is no difference in the configuration and activation processes between these two middleware solutions. You will find detailed information about both options under OpenScape Business Booster Platforms.

Connection

Enter the host name or IP address for the Booster middleware solution

The default TCP port for the CSTA connection is 8800.

You can enter advanced TCP settings using the '...' button. The connection can be established using a SOCKS 5 firewall without authentication.

CSTA Login

Enter the CSTA login information as configured for OpenScape Business. You will find this information from the OpenScape Business web interface under Expert - Applications - Middleware - CSTA Service Provider (CSP) - CSTA Access

7.2 Line Settings

Enter the lines that the driver should make available through TAPI. The numbers are the internal phone numbers for your devices. The names will be used to display the TAPI lines.

Phone Number Format

The lines can optionally be indicated as an internal phone number, for example 123 or canonical +49(30)12345-123.

If you use several instances of the TAPI driver and therefore switch between several telephone systems at the same time, you should enter phone numbers in the international standard dialing format. This format consists of the following information:

+Country Code (Long Distance Indicator) Area Code Phone Number - Extension

You can set the country code, long distance indicator and area code from the Location dialog.

Manual addition of a line

Specify the internal phone number, the type of extension and, if necessary, the MULAP number. You will find detailed information about MULAP numbers in the MULAP Monitoring section. Optionally, a name can be specified for the line.

Extras...

Load Lines

The available lines will automatically be determined from the telephone system. Options for scanning the lines can be set in a dialog for this purpose.

Import Information File

Makes importing a system information file through HiPath 3000 Manager possible.

Import / Export Text

You can import and export the list of configured lines.

Attention

The lines will first be available under some circumstances after the PC has been re-started after the installation of the driver.

7.3 Location Settings

The telephone system phone numbers are defined from the Location Settings dialog.

Extension Range

Indicate here which internal phone numbers exist in the phone system. This information is used to determine the available lines from the phone system. The internal phone numbers of the telephone system and the phone number information of a call are used to determine whether it is an internal or an external call. In addition, when lines are generated automatically, estos UCServer checks whether the number of the line to be generated automatically lies within the range of internal numbers. Only then is the line generated by estos ECSTA for OpenScape Business and the TAPI notified.

Location

Indicate here which international phone numbers precede the internal extension numbers. The location information should only be entered when you use several driver instances and connect with several telephone systems. The location information can only be configured when the Use Location checkbox has been checked. If you enter a location here, all extensions will be specified in the fully international format. Example: With location information '49(89)1234' the extension '100' is formatted as '49(89)1234-100'.

Phone Number Format

The phone numbers provided to the application by the driver can be modified using rules. In addition, you can change the phone numbers that the PC sends to the telephone system. See Phone Number Formatting.

7.3.1 Phone Number Format

You may enter rules for formatting the phone numbers.

The phone numbers reported to the PC by the telephone system can be modified using rules, in order to adjust them to the TAPI application used.

The phone numbers sent to the PBX by the TAPI application (such as when making a call) can be modified as well.

Each line in the list contains an option if direct text compare or a regular expression is used.

The Search and Replace function uses regular expressions for making the modifications. When a search pattern matches, the result from the replace pattern will be used as output. If the search pattern does not match, the original number will be sent without modifications. The entries will be processed in sequence. If a match is found, the remaining entries will be ignored.

There are three categories:

- **Incoming**
This section is for phone number from incoming calls that are reported from the PBX system to the PC.
- **Outgoing**
This section is for phone number from outgoing calls that are reported from the PBX system to the PC.
- **PC Dialing**
This section is for phone numbers that are dialed on the PC and send to the PBX system

Search for:

Enter the regular expression to be used for finding the phone number.

Hint: The caret (^) symbol is the upper left key on the German keyboard.

An overview of allowed expressions:

Character	Description
^	The beginning of the search string (phone number). The expression "^o" matches 'o' only at the beginning of the search string.
^	Placing the caret (^) symbol immediately after an opening bracket ([]) changes the meaning of the regular expression. "[^" means that the characters between the brackets should not be matched. The expression "[^o-8]" means that the numbers o through 8 will not be considered part of the match.
\$	The dollar sign (\$) will match the end of the string. The expression "152\$" will match the sub-string "152" only if it is at the end of the string.
	The alternation character () allows either expression on its side to match the target string. The expression "1 2" will match '1' as well as '2'.
.	The dot (.) allows any character (or any number).
*	The asterisk (*) symbol looks for zero or more occurrences of the indicated character to the left of the current character.
+	The plus (+) sign operates similarly to the asterisk symbol, but looks for at least one matching character.
?	The question mark (?) matches the character on the left 0 or 1 times.
()	The parenthesis affects the order of pattern evaluation and also serves as a tagged expression that can be used when replacing the matched sub-string with another expression.
[]	The corner brackets ([and]) indicates the amount of signs that are permitted at this point.

Replace with:

Enter the expression that defines how the number is to be formatted.

\1 represents the first matched expression enclosed by parentheses '(')' from the *search pattern* field.

\2 the second ...

Check:

You can check your specification immediately. Enter the phone number that you want to test using the search & replace expressions in the Phone Number field. The modified phone number will be displayed in the Output field. If there is an error in the regular expression, it will be displayed there. If the Search expression is not found then the unmodified phone number will be displayed.

Examples:

Result	Search for	Replace with
Remove a leading 0 from the phone number	<code>^0(.*)</code>	<code>\1</code>
Replace a leading 80 at the beginning of the phone number by a 0	<code>^80(.*)</code>	<code>0\1</code>
Remove a private pin number that may be identified by a 50 followed by a 3 digit pin.	<code>^50[0-9][0-9][0-9](.*)</code>	<code>\1</code>
Suppresses all phone numbers that have three digits.	<code>^[0-9][0-9][0-9]\$</code>	
Add an access code (leading 0) to all numbers with more than 3 digits (e.g. all external numbers).	<code>^([0-9][0-9][0-9].+)</code>	<code>0\1</code>
Add base number (03012345) for the system to all internal numbers (with 1 to 3 digits)	<code>^([0-9][0-9]?[0-9]?)\$</code>	<code>03012345\1</code>
Add your long distance call indicator to all numbers that do not begin with 0 and have at least 4 digits (thus are not internal calls).	<code>^(^[^0][0-9][0-9][0-9].*)</code>	<code>08151\1</code>

See also location.

7.4 Advanced Settings

Feature Code FlexCall

The Feature Code configured in the telephone system is entered here for the FlexCall function. It is used for the CLIP No Screening feature. This feature allows you to choose only those extensions that are available within your company. You will not be able to use any number outside of the trunk line.

Depict MULAP Group Participants

Monitoring the individual members of a group will no longer be possible when using MULAP groups in OpenScape Business. You will have to activate this option so that calls can be started on the MULAP slave devices. The driver will then show the individual lines for the MULAP group members. You will find detailed information under MULAP Groups.

Report incoming calls on busy extension

If call waiting has not been configured for members of the telephone system, the driver can still indicate that a short call has come in. The user will then see that they have received a call.

Offer CLIP no screening

If this option is active, the driver can transfer an individual phone number with outgoing calls. See also Feature Code FlexCall.

Recognition of existing calls

If enabled, the phone system can recognize existing call while opening the line. Please note that not all call parameters are discovered!

Fees

The fee multiplier will enable you to modify the fee information reported to the driver from the telephone system.

Node number

If open numbering is used a node phone number can be configured here. See open numbering.

Snapshot for active calls

The driver can validate existing calls. This prevents that calls are displayed on the PC that do no more exist in the PBX system.

Enter a time interval in seconds.

If this value is set higher, it will take longer for the driver to detect an incorrect call. If the value is set lower, the load on the telephone system will be increased.

Retry MonitorStart

In the event that the driver cannot start monitoring an extension because, for example, the extension has not been connected to the PBX, the driver will attempt to start monitoring at periodic intervals.

Enter a time interval in seconds.

7.5 Licenses

You can test the driver for 45 days with 25 lines without a license and without other limitations. Once the trial period has expired, the lines will automatically be removed. You can purchase licenses codes and activate the driver permanently with them. To purchase licenses, please contact your dealer.

As many lines as desired may be configured in the driver. Opening a line requires a license. Once the existing licenses have been assigned to lines, opening more lines will not be allowed.

If you have added multiple driver instances, all instances will share the license specified. You can distribute the lines to any instance as you desire.

7.6 MULAP monitoring

With the introduction of OpenScape Business, Unify has decided to make MULAP monitoring mandatory at the telephone system for all MULAP groups. As a consequence of this change, it will no longer be possible to monitor and control the group members for a configured MULAP group in a dedicated manner. Functionally, this limitation occurs at the platform.

Limitations related to MULAP monitoring on the system side:

- MULAP group members can no longer be monitored.
- The MULAP group phone number will always be monitored. The driver will not know which device is used for a phone call. All calls will be registered to the MULAP group phone number by the telephone system.

If the driver should also initiate calls from the MULAP group member devices (such as a DECT phone), activate the "Depict MULAP Group Members" option from Advanced Settings. The driver will then show the slave

devices in addition to the group number for the MULAP group.

A call using this line will only be shown by the driver and subject to control, when it was initiated to a member over the application layer. If you initiate, or answer, a call manually on the same end device, the driver will show the call as going to the MULAP group number and not going to the corresponding line.

7.7 Open numbering scheme

In a network of multiple telephone systems, the open numbering service feature can be activated and a base phone number can be set (HiPath Manager - System Parameters - Flags, or Web Interface - Expert - Basic Settings - System Flags - Open Numbering Scheme).

In this case, the following issues must be taken into consideration:

All phone number extensions will be prefixed with the base phone number for the telephone system. If the base phone number is '6' and the extension is '130', the result will be '6130'.

Setting a root phone number for the lines is recommended. To do this, enter the range of extensions with the base phone number for the member parameter from Advanced Settings. If the extensions are 100 - 350 and the node phone number is 6, the result will then be 6100 to 6350.

The extensions can also be set up without a base phone number. In this case, the setting may designate that the phone numbers reported by ECSTA will appear without the base phone number. You will find this setting at Advanced Settings. If the base phone number has been entered there, it will be deleted from all internal phone numbers registered with the telephone system.

8 Software requirements

The estos ECSTA for OpenScope Business can be installed on all Windows® systems that support Microsoft® TAPI 2.0 or higher. The following systems are supported in 32- as well as in 64-bit versions.

- Windows® 10
- Windows Server® 2008 R2
- Windows Server® 2012
- Windows Server® 2012 R2
- Windows Server® 2016
- Windows Server® 2019

8.1 Supported TAPI Features

The driver offers the following TAPI call control operations.

Action:	Corresponding TAPI function:
Dial	TSPI_lineMakecall
Hang up ¹	TSPI_lineDrop
Answer call ¹	TSPI_lineAnswer
Hold call ¹	TSPI_lineHold
Retrieve call ¹	TSPI_lineUnhold
Redirect call ¹	TSPI_lineRedirect
Blind transfer ¹	TSPI_lineBlindTransfer
Setup transfer ¹	TSPI_lineSetupTransfer
Swap hold ¹	TSPI_lineSwapHold
Complete transfer ¹	TSPI_lineCompleteTransfer (LINETRANSFERMODE_TRANSFER)
Create conference ¹	TSPI_lineCompleteTransfer (LINETRANSFERMODE_CONFERENCE)
Add to conference ¹	TSPI_lineAddToConference
Remove from conference ¹	TSPI_lineRemoveFromConference
Pickup ¹	TSPI_linePickup
DTMF dialing ¹	TSPI_lineGenerateDigits

Dial in dial tone mode ¹	TSPI_lineDial
Forwarding ¹	TSPI_lineForward TSPI_lineGetAddressStatus <ul style="list-style-type: none"> • LINEFORWARDMODE_UNCOND • LINEFORWARDMODE_UNCONDEXTERNAL • LINEFORWARDMODE_UNCONDINTERNAL
Do not disturb ²	TSPI_lineForward TSPI_lineGetAddressStatus
Message waiting ²	TSPI_lineSetLineDevStatus TSPI_lineGetLineDevStatus

¹These features are not supported by MULAP slave members on the system side.

²These features are not support by MULAP groups and MULAP group members on the system side
 You will find detailed information about the limitations and solution concepts for the use of MULAP groups under MULAP Monitoring.

The following TAPI functions are implemented due to requirements of the TAPI subsystem.

Other functions exported by the driver:

TSPI_lineSendUserUserInfo

TSPI_lineClose

TSPI_lineCloseCall

TSPI_lineConditionalMediaDetection

TSPI_lineDevSpecific

TSPI_lineDevSpecificFeature

TSPI_lineGetDevConfig

TSPI_lineSetDevConfig

TSPI_lineGetAddressCaps

TSPI_lineGetAddressStatus

TSPI_lineGetAddressID

TSPI_lineGetCallAddressID

TSPI_lineGetCallInfo

TSPI_lineGetCallStatus

TSPI_lineGetDevCaps

TSPI_lineGetExtensionID

TSPI_lineGetIcon

TSPI_lineGetID

TSPI_lineGetNumAddressIDs

TSPI_lineNegotiateExtVersion

TSPI_lineNegotiateTSPIVersion

TSPI_lineOpen

TSPI_lineSelectExtVersion

TSPI_lineSetDefaultMediaDetection

TSPI_lineSetStatusMessages

TSPI_lineSetAppSpecific

TSPI_lineSetCallData

TSPI_providerCreateLineDevice

TSPI_providerEnumDevices

TSPI_providerFreeDialogInstance

TSPI_providerGenericDialogData

TSPI_providerInit

TSPI_providerShutdown

TSPI_providerUIIdentify

TSPI_lineGetCallIDs

TUISPI_lineConfigDialog

TUISPI_lineConfigDialogEdit

TUISPI_providerConfig

TUISPI_providerInstall

TUISPI_providerRemove

TUISPI_providerGenericDialog

TUISPI_providerGenericDialogData

9 Information about estos ECSTA for OpenScape Business

estos ECSTA for OpenScape Business is a product of estos GmbH.

Product updates can be found under <http://www.estos.de>.

Frequently asked questions and answers, as well as support, can be found under <https://www.estos.de/service>.

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