

# StartReady Lync Appliance

## Installation Guide

### Contents

1. Introduction .....	2
2. Preparations .....	2
3. StartReady Appliances in the Infrastructure .....	3
4. StartReady Configuration Tool .....	4
Performing an infrastructure check .....	5
Collecting the infrastructure data .....	6
Preconditions .....	6
Company Infrastructure .....	7
Company Infrastructure (2) .....	8
Server Names .....	9
Server Names (2) .....	10
Internal Infrastructure .....	11
Internal Infrastructure (2) .....	12
External Infrastructure .....	13
Documentation .....	14
5. Adjustments to the domain .....	15
6. Contact information .....	16
Sales information: .....	16
Technical information: .....	16

## 1. Introduction

The StartReady Lync Appliance installation guide has the following goals:

- Be as transparent as possible in what will happen during a deployment;
- The best possible preparation for a deployment;
- Understand any changes that should be made to the infrastructure.

## 2. Preparations

The purpose of proper preparations is to ensure that the Appliance deployment goes as smoothly as possible.

This can be divided into three parts:

1. Check to see if the infrastructure is ready for a StartReady Appliance;
2. Collect any necessary information from the domain where the Appliance will be running;
3. Document the environment.

To ensure that his preparation is done as well as possible, StartReady developed an application called the Configuration Tool. This application can be downloaded from the StartReady Web site.

<http://www.startready.com/downloads/LyncConfigTool.zip>

The Configuration Tool is discussed in Chapter 4. The documentation of the final configuration will discuss the necessary firewall and DNS changes. These changes should be performed before a StartReady Appliance is deployed within the environment. StartReady will pay attention to this piece to ensure it's completed during the project.

### 3. StartReady Appliances in the Infrastructure

Below you can find a diagram of a Lync Appliance. The example below features a SIP trunk connection. The VOIP connection can be altered should a different form of telephony integration be chosen.

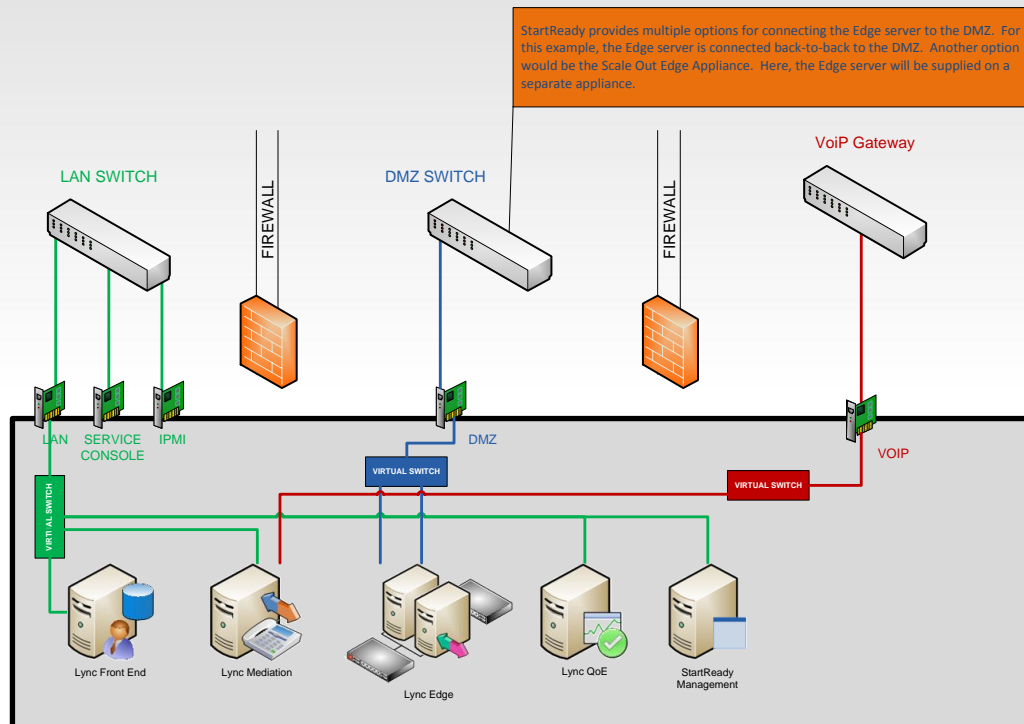


Figure 1: Diagram Lync PBX Appliance

The diagram shows both physical and virtual network connections. The physical connections are connected to different network segments:

1. LAN (Local Area Network)
2. Management LAN (this is optional, for example the service console and/or the IPMI interface)
3. DMZ (Demilitarized zone)
4. Internet Switch. This can also be in the DMZ, but the connection may not use NAT.<sup>1</sup>

The virtual network connections are connected via the physical network connections to the virtual servers inside the Appliance.

<sup>1</sup> The SIP protocol does not support NAT (Network Address Translation). If the firewall can only work by using NAT, the solution will not function properly.

There are 5 physical network connections in total:

1. LAN – This network connection couples all virtual servers (via the virtual switch) to LAN environment.
2. Service Console – This network connection couples the physical appliance to the LAN or optionally the Management LAN.
3. IPMI – This network connection couples the IPMI (Intelligent Platform Management Interface) to the LAN or optionally to the Management LAN. IPMI is also used for support should the physical server no longer be accessible through “normal” interfaces.
4. DMZ – This network connection couples (via the virtual switch) the “Lync Edge” to the DMZ. The “Lync Edge” is a Lync Server role that enables communication with external connections on the internet. These can be people who work from home, customers or federated organization.
5. VOIP – This network connection connected (via the virtual switch) the “Lync Mediation” to the SIP trunk provider. This connection has to be transparent and cannot be connected to the Appliance via NAT.

## 4. StartReady Configuration Tool

De StartReady Configuration Tool consists of three parts:

- Perform an infrastructure check;
- Collect infrastructure information;
- Document the configuration.

The Configuration Tool can be downloaded from the StartReady Web site:

<http://www.startready.com/downloads/LyncConfigTool.zip>

The tool does not have to be installed. The files can be copied to (for example) a domain controller in the domain where the Appliance will be installed. The tool must be started with an account which is part of the following groups: Domain Admins, Enterprise Admins and Schema Admins. These will eventually also be needed to roll out Lync.



### Performing an infrastructure check

Before a StartReady Appliance can be implemented, the environment needs to be checked. This ensures that when StartReady is ready to implement that this will happen without infrastructure complications. The below checks will be performed and the result of the check will be reflected with a symbol (red cross, green checkmark or a warning sign) along with an explanation. Click “Scan” in the Configuration Tool to start the process.

- 1. Validate Credentials**

The Configuration Tool must be started with an account that has the appropriate rights to roll out Lync. Should the tool be started without the proper credentials, a few of the checks will not be performed correctly. During implementation the same account will be called for, and this ensures we are confident the account has the correct rights to install Lync. It is advised to create a new account for the implementation that can be deleted once the implementation is finalized.
- 2. DNS check**

During this check the Active Directory will see which e-mail suffixes are present. This will see if there is a zone available in the internal DNS (for example startready.com). If this is not the case, the implementation cannot ensure that the SRV records are created in the internal DNS. The SRV records ensure that the Lync Client can automatically, without any settings changes, log on to the SIP-account of the user.
- 3. CA server available**

The Configuration Tool check to see if there is a Certificate Authority (CA server) in the domain and whether it's active. If so, great. If not found or if not active, an warning will appear. The implementation will as a result then ensure that a CA server will be installed.
- 4. Windows Update available**

StartReady will ensure that the software will be kept up to date with Microsoft patches. The Appliance has a WSUS server that points to StartReady WSUS environment. StartReady will release the patches after which the Appliance will synch these with StartReady. However, the downloading of the patches shall be done directly from the Microsoft Web site.
- 5. StartReady environment available**

The StartReady Appliance has contact with a few web services during implementation. These web services reside on the StartReady side, and therefore need to be available.
- 6. Time Server available**

The physical server will not become part of the domain, and therefore does not have automatic contact with the Windows time server. Should this not be available, the physical server must be configured so that it knows how to reach the internal time server.
- 7. Domain controllers responding**

All registered domain controllers in the domain will be checked to see if they can be pinged. Should this not be able to be completed, it will result in problems during rollout.
- 8. No OCS Installation found**

The domain will be checked to see if there is already an OCS or Lync installation. The rollout of the Appliance shall adjust a few global settings which will also apply for any existing Appliances. Therefore it's important to know if there is already a current OCS or Lync environment up and running. Users will actually need to be moved to a different pool.

### Collecting the infrastructure data

Below you will find a description of the data needed to complete a configuration.

### Preconditions

Chapter 3 describes how a StartReady Appliance is placed inside the infrastructure. It quickly becomes clear that multiple network connections are required. What follows is a check to see if the network connections are indeed present. Also asked is if there is room in the server rack for an Appliance, and if there are enough power outlets.

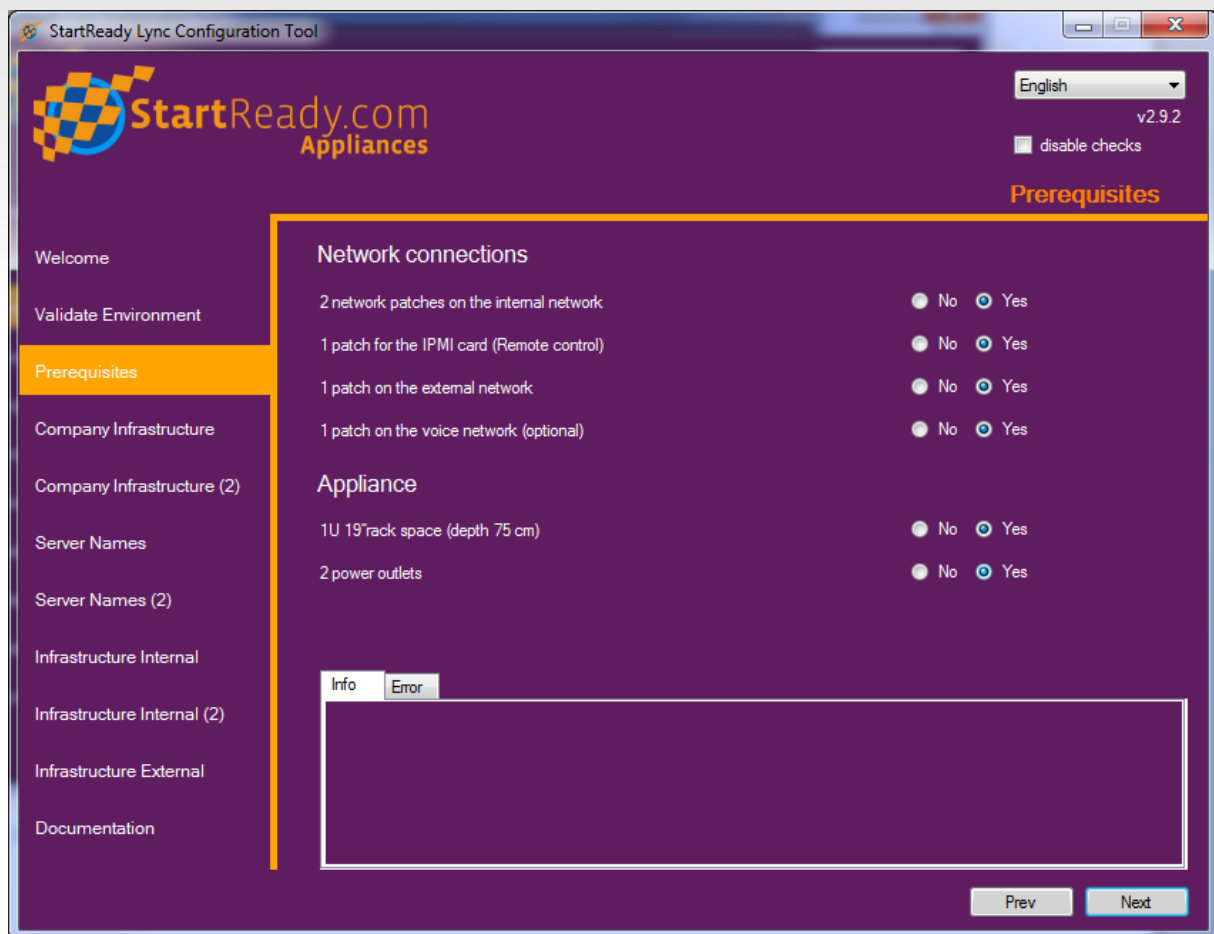


Figure 2: Preconditions

### Company Infrastructure

During the infrastructure check a few items are automatically completed. Please double-check these items and make sure they are correct and complete where necessary. In case the Windows Product Key is purchased via StartReady, this doesn't need to be filled in. If not, please fill in a key for Windows Server 2008 R2 Enterprise. The entered key will be used to activate the servers during installation. Should no keys be entered, this will need to be done manually afterwards.

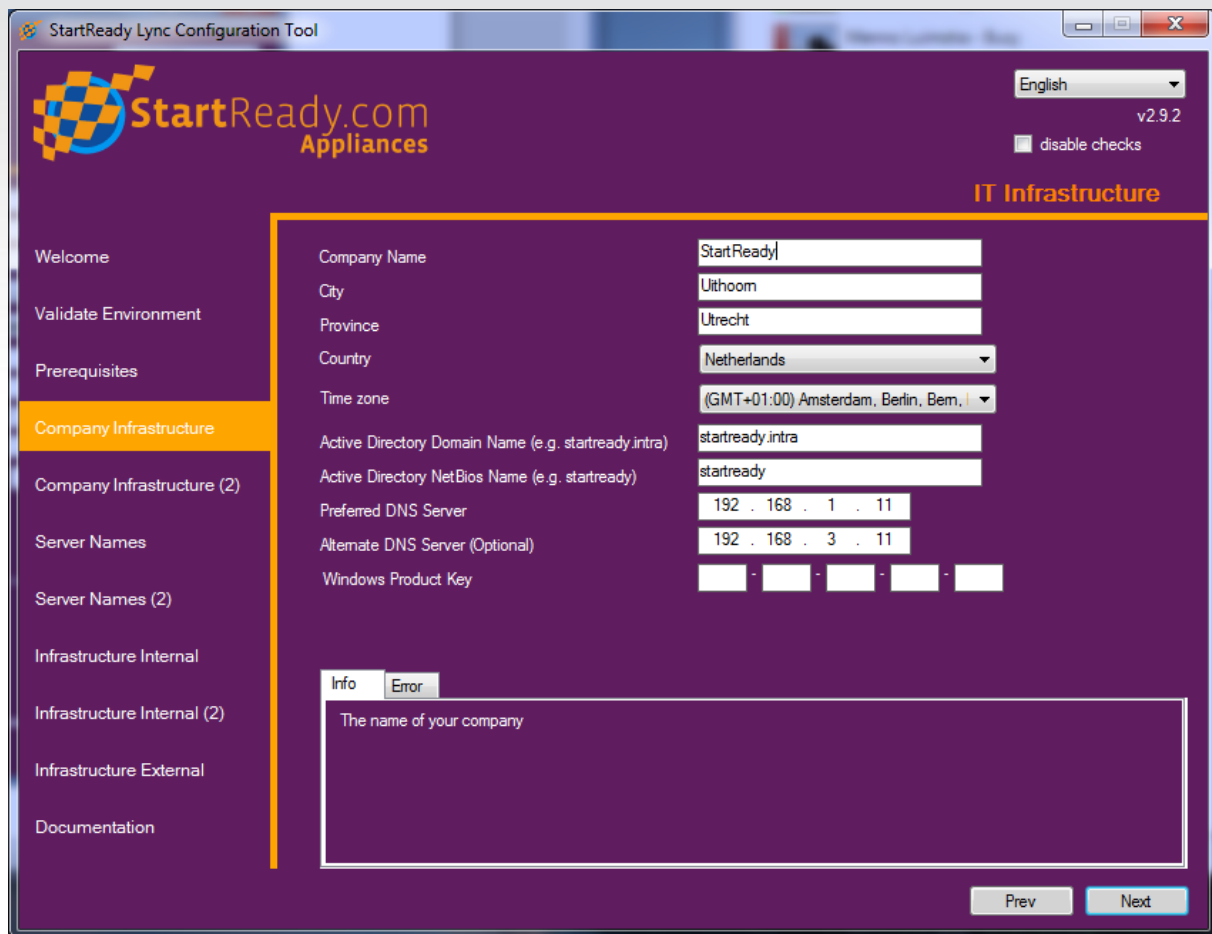


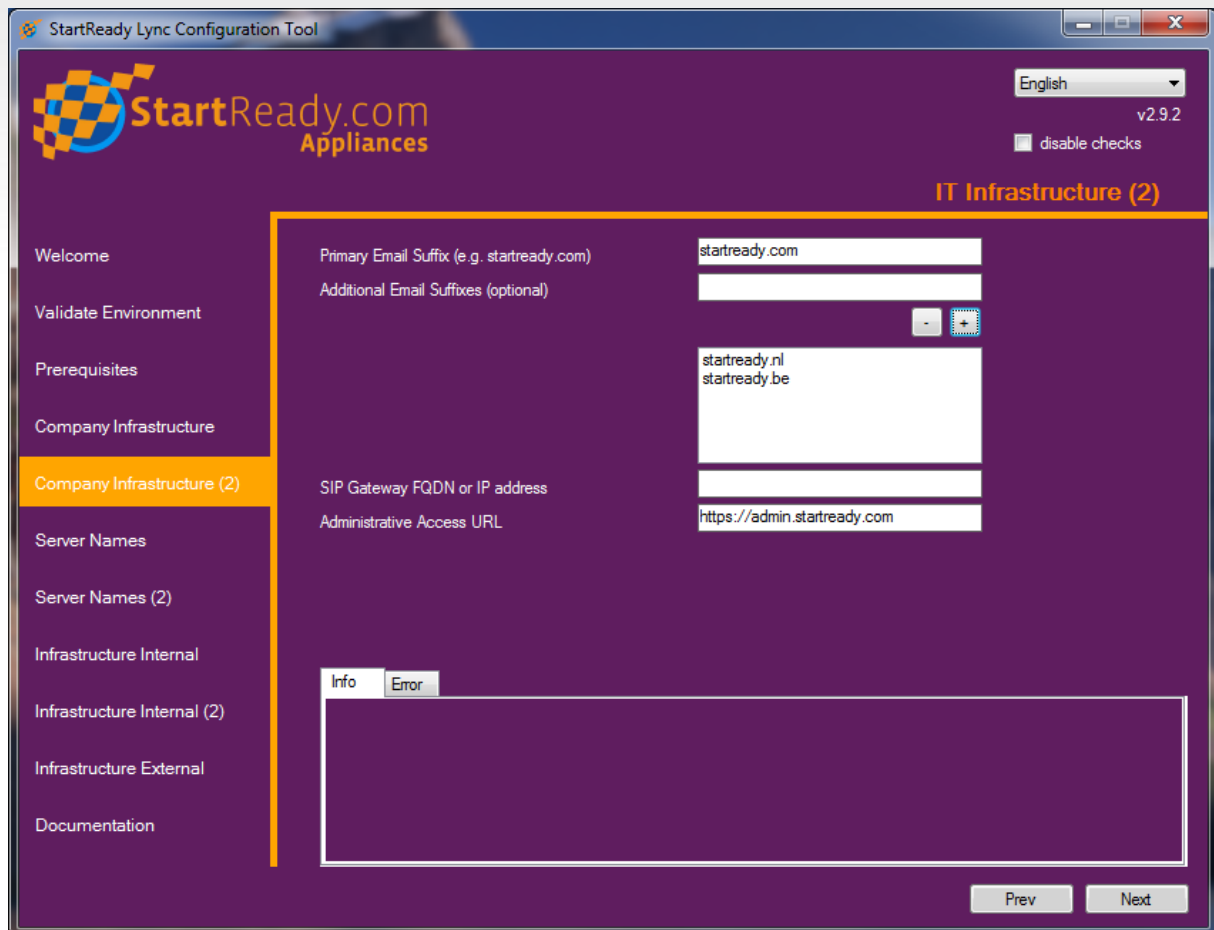
Figure 4: IT Infrastructure

## Company Infrastructure (2)

Email Suffix: *Enter the primary e-mail suffix here*

Additional Email Suffixes (optional): *Our advise is to take on all the e-mail suffixes that are configured as primary with the users as SIP domain. This will mean that the client of the user will have the same SIP account as their e-mail address.*

SIP Gateway FQDN or IP address: *Should the StartReady Lync Appliance be connected to a SIP trunk (this can be an online service, but also a PBX or a Gateway), the IP address of the gateway can be entered here.*



The screenshot shows the 'StartReady Lync Configuration Tool' window. The title bar includes the StartReady logo and the text 'StartReady Lync Configuration Tool'. The main window has a dark blue header with the StartReady logo and 'Appliances' text. A language dropdown is set to 'English' and the version is 'v2.9.2'. There is a 'disable checks' checkbox. The main content area is titled 'IT Infrastructure (2)' and contains several input fields: 'Primary Email Suffix (e.g. startready.com)' with 'startready.com' entered; 'Additional Email Suffixes (optional)' with a list box containing 'startready.nl' and 'startready.be'; 'SIP Gateway FQDN or IP address' which is empty; and 'Administrative Access URL' with 'https://admin.startready.com' entered. A left-hand navigation pane lists steps: Welcome, Validate Environment, Prerequisites, Company Infrastructure (highlighted), Company Infrastructure (2), Server Names, Server Names (2), Infrastructure Internal, Infrastructure Internal (2), Infrastructure External, and Documentation. At the bottom right, there are 'Prev' and 'Next' buttons. An 'Info' and 'Error' tab is visible above a large empty text area.

Figure 3: IT Infrastructure (2)

## Server Names

Internal Server Names: *All virtual servers have their own individual names. The Configuration Tool will propose names for these. But in case a naming convention is already being used inside the domain, then these server names can be used.*

External Server Names: *A few services inside Lync must also be given access to by users outside of the domain. Four names are needed for this. Of these four, three can be entered. The name of the Access Edge Server (sip.startready.com) is locked and cannot be changed. In the final documentation these names will come back as DNS records for the external DNS.*

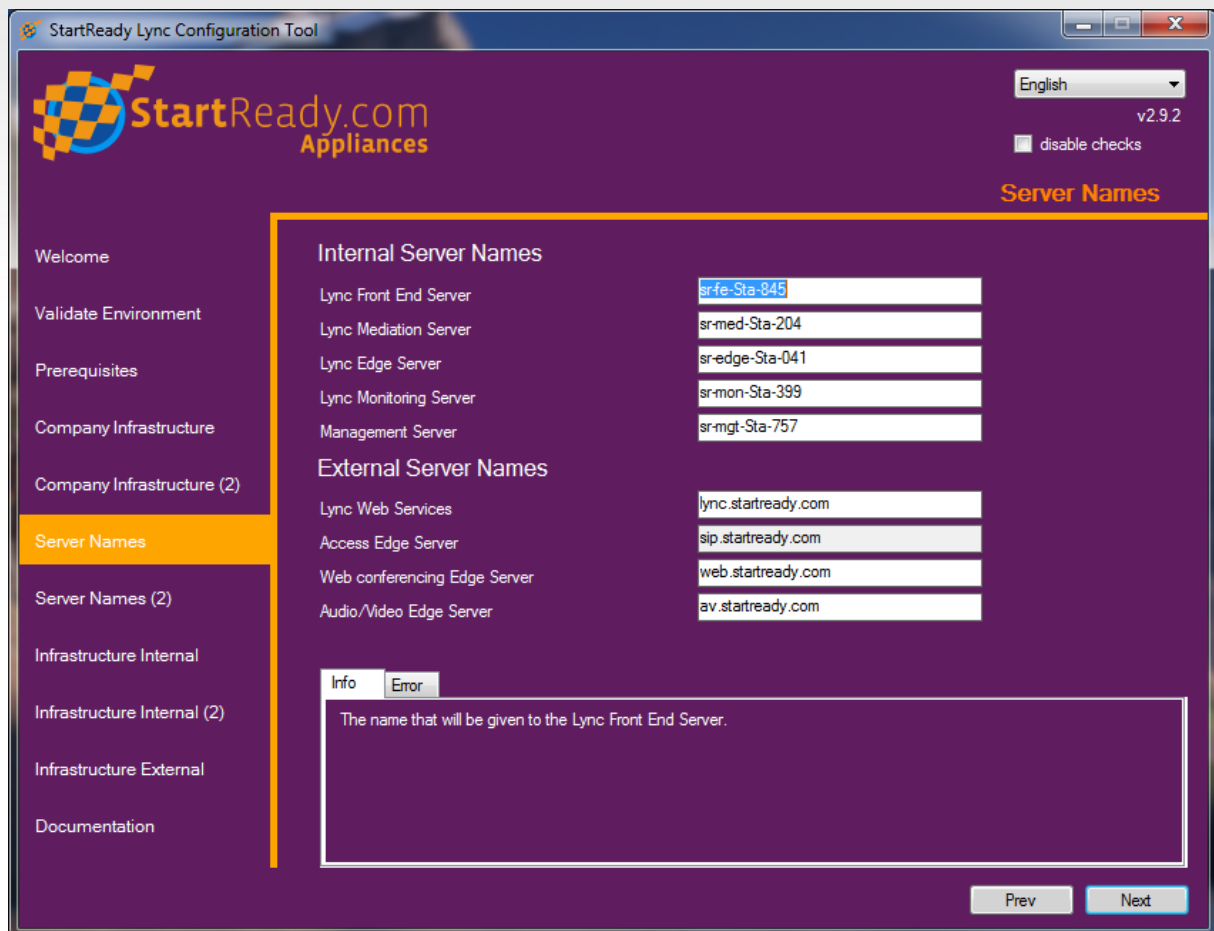


Figure 6: Server Names

### Server Names (2)

Phone access URL: *This URL points to a web page where the user can request a conference code pin, but also where various dial-in numbers (national and international) are mentioned.*

Meeting URLs: *All users (both internal and external or third parties) will use this URL when starting an online meeting. There can be a separate URL for every given SIP domain.*

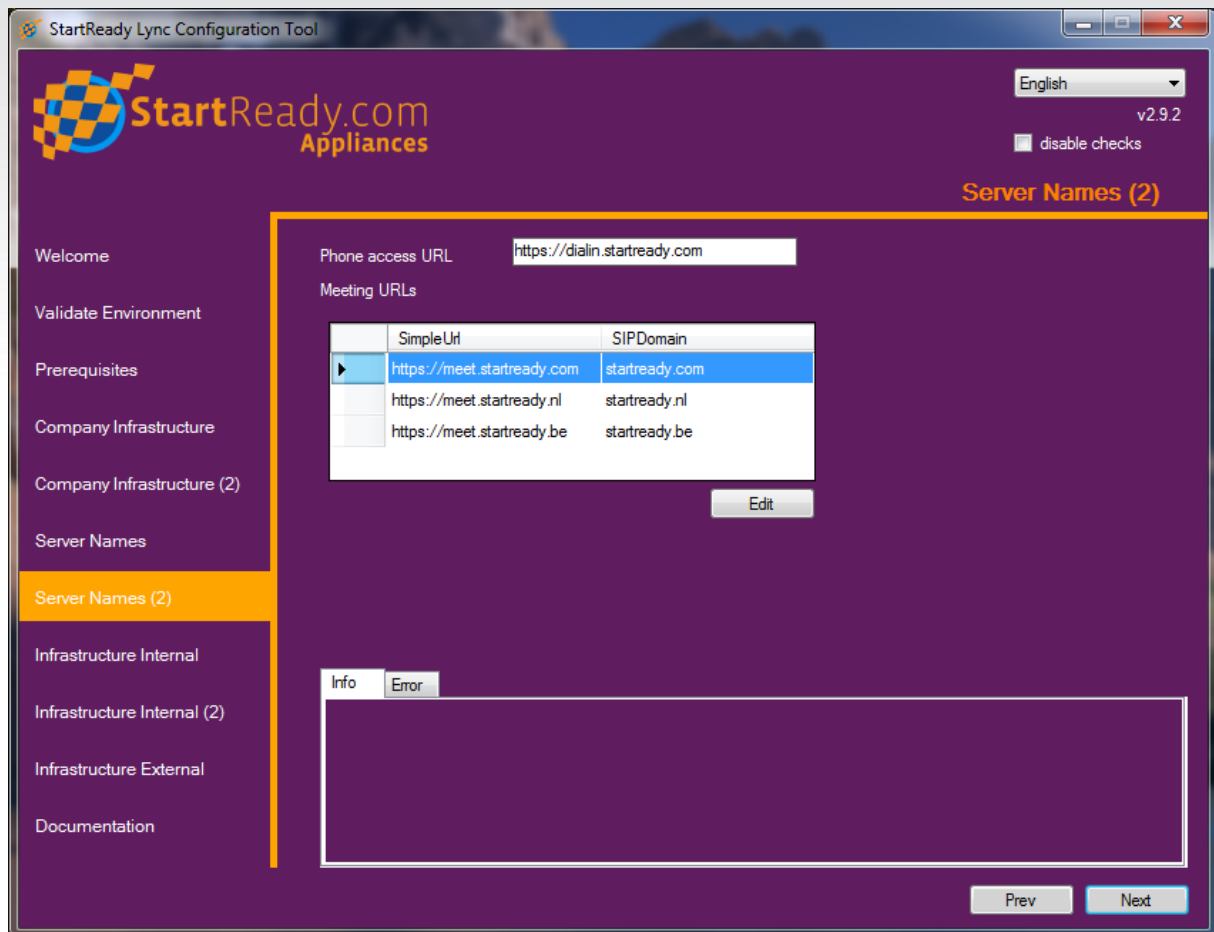


Figure 4: Server Names (2)

### Internal Infrastructure

An IP address must be given for every virtual server. Of course the mentioned IP addresses must be available in the domain. The Configuration Tool will make sure this is indeed the case.

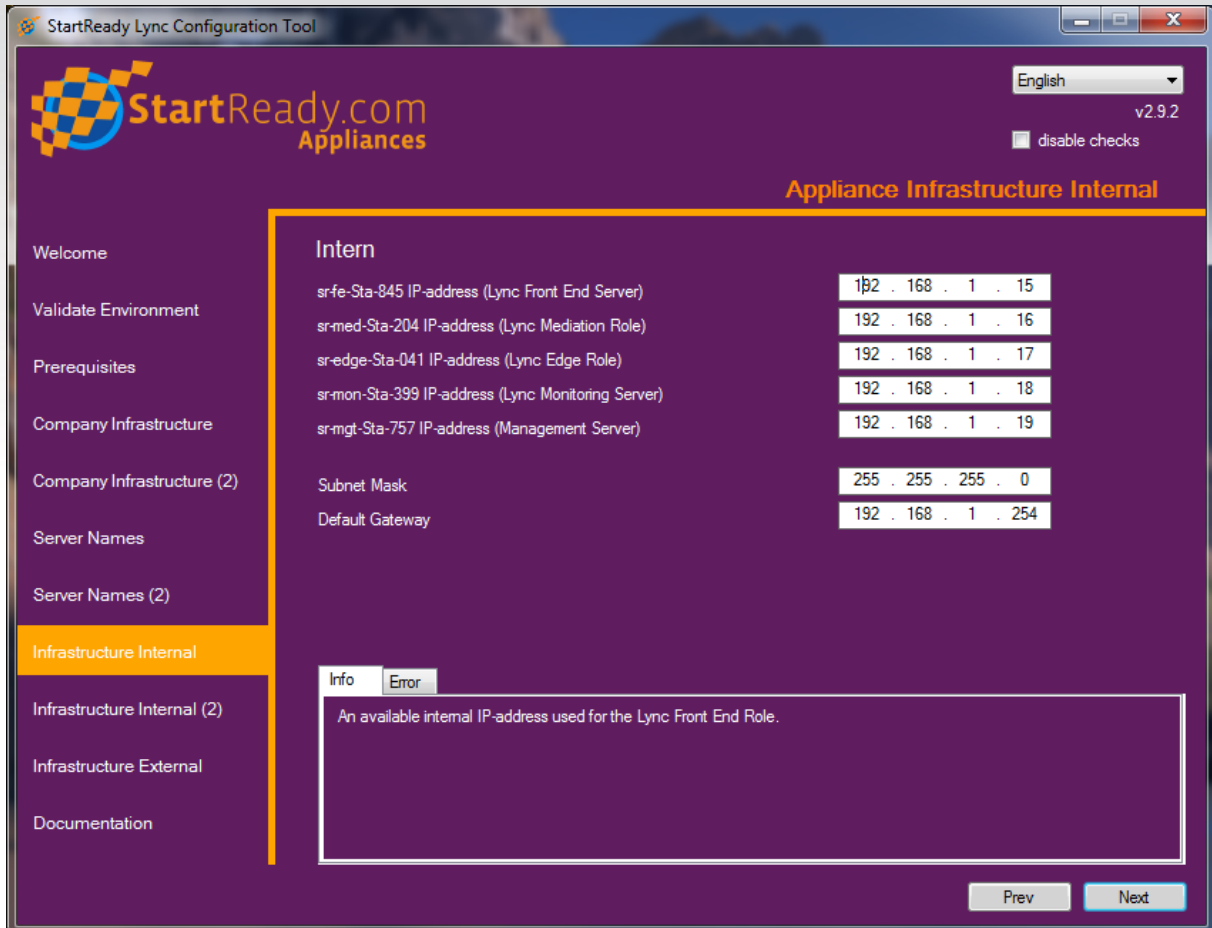


Figure 5: Internal Infrastructure

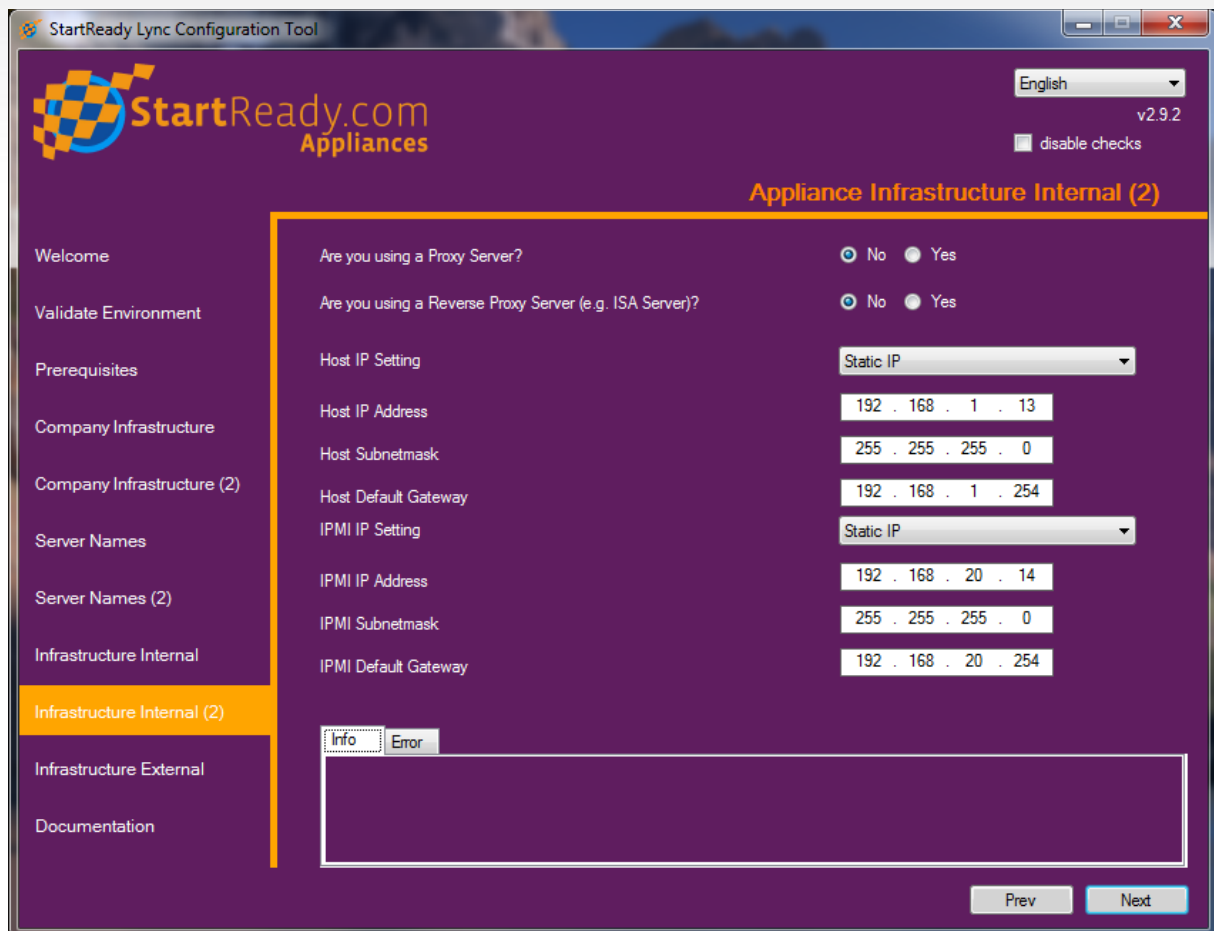
### Internal Infrastructure (2)

Are you using a Proxy Server?: *In case that the Appliance connects to the internet via a Proxy Server, this can be answered as “Yes”. During a roll out, the appropriate rights are needed to connect to the internet via a Proxy Server.*

Are you using a Reverse Proxy Server (example: ISA/TMG)?: *This can be answered as “Yes” if there is a reverse proxy present. The final documentation will then look slightly different.*

Host IP Setting: *The Appliance itself (the host) also needs its own IP address. This can be done via DHCP (when available) but also can be static.*

IPMI IP Setting: *The IPMI card also needs its own IP address. Again, this can be done via DHCP or can be entered as static.*



StartReady Lync Configuration Tool

English v2.9.2

disable checks

### Appliance Infrastructure Internal (2)

No  Yes  
 Are you using a Proxy Server?

No  Yes  
 Are you using a Reverse Proxy Server (e.g. ISA Server)?

Host IP Setting: Static IP  
 Host IP Address: 192 . 168 . 1 . 13  
 Host Subnetmask: 255 . 255 . 255 . 0  
 Host Default Gateway: 192 . 168 . 1 . 254

IPMI IP Setting: Static IP  
 IPMI IP Address: 192 . 168 . 20 . 14  
 IPMI Subnetmask: 255 . 255 . 255 . 0  
 IPMI Default Gateway: 192 . 168 . 20 . 254

Info Error

Prev Next

Figure 6: Internal Infrastructure (2)

### External Infrastructure

Are you using NAT?: *In case a firewall protects the DMZ, “Yes” can be selected. The Configuration Tool will then in turn request the public IP addresses and the DMZ IP addresses. The documentation will record the NAT rules for the firewall.*

Will you be using a Microsoft Certified SIP trunk provider?: *When this is answered as “Yes”, a public IP address will be requested. This is needed for the SIP trunk provider. As mentioned in Chapter 3, this connection cannot utilize NAT.*

The Edge Server has three separate roles: the Access Edge role, Web Edge role and the A/V Edge Role. For all these, public IP addresses are needed. This is because the communication of all these roles is done via port 443.

Reverse Proxy Extern IP-address: *Public IP address where the Lync Web Services can be published. An example of this would be the Lync address book.*

Extern IP-address (management server role): *Public IP address where the StartReady Management Role is available. This can be an IP address that is already being used, as long as port 4432 is available for external communication.*

StartReady Lync Configuration Tool

English v2.9.2  
 disable checks

### Appliance Infrastructure External

**Extern**

Are you using NAT?  No  Yes

Are you going to use a Microsoft Lync certified SIP trunk provider?  No  Yes

	DMZ IP	Public IP
sip.startready.com IP-address (Access Edge Role)	192 . 168 . 100 . 237	188 . 200 . 98 . 237
web.startready.com IP-address (Web Conferencing Edg	192 . 168 . 100 . 238	188 . 200 . 98 . 238
av.startready.com IP-address (Audio/Video Edge Role)	192 . 168 . 100 . 239	188 . 200 . 98 . 239
Public IP address for Mediation Role		188 . 200 . 98 . 240
Subnet Mask (External IP-addresses Edge Role)	255 . 255 . 255 . 0	255 . 255 . 255 . 224
Default Gateway (External IP-addresses Edge Role)	192 . 168 . 100 . 254	188 . 200 . 98 . 235
Reverse Proxy External IP-address (Lync Web Services)		188 . 200 . 98 . 241
External IP-address (Management Server Role)		188 . 200 . 98 . 242

Info Error

An available external IP-address. This IP-address can be shared with other services, so an existing IP-address can be used. This IP-address will be used by StartReady Administrators to log on to the appliance remotely.

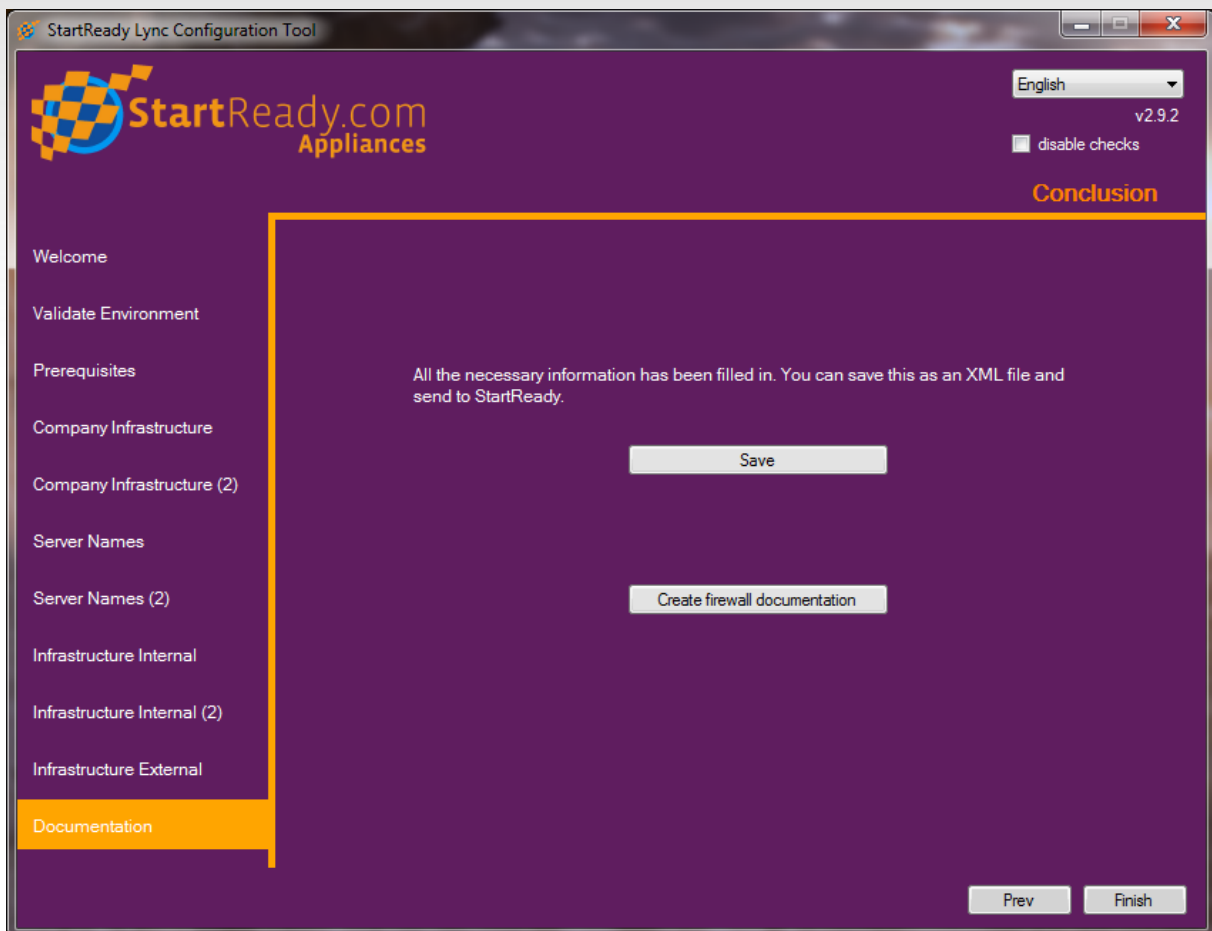
Prev Next

Figure 7: External Infrastructure

### Documentation

The last part of the Configuration Tool is made up of the documentation and the saving of the entered information. By clicking on “Save”, the configuration will be saved as an XML file that can be sent over to StartReady for review.

By clicking on “Make firewall documentation”, a Word document will be created with all the firewall and DNS settings. These settings are based on all user-entered information.



*Figure 8: Documentation*

## 5. Adjustments to the domain

When the StartReady Lync Appliance is deployed, a few items are changed and added to the domain. These changes can also be performed by whomever is managing the domain. The implementation will make sure the necessary changes have been made, otherwise this will be done automatically during the roll out.

On one hand these changes are pre-requisites by Microsoft, and on the other hand a few registrations that StartReady needs to be able to manage the Appliance remotely.

- Active Directory will be expanded with the necessary items (Lync Schema Extension)
- In case an operational CA server is found, one will be installed on the Front End server and registered in the domain
- Forrest and Domain are raised automatically if these are not minimally on 2003 level yet
- An OU (StartReady) will be created in the root of the Active Directory (this can be moved after the implementation, as long as the structure remains intact)
- Over-inheritance on the StartReady OU is blocked
- Under the StartReady OU a Computers OU will be created
- Under the StartReady OU a Groups OU will be created
- Under the StartReady OU a Services Accounts OU will be created
- In the Service Accounts OU the required computers and users are created
- In the Group OU the necessary groups are created
- Policies for automatic updates of the Appliance will be created
- Policies for Remote Monitoring of the Appliance will be created
- SRV records are created for internal SIP zones (when present)
- All users that have the entered e-mail suffix will be enabled for the use of Lync

Two accounts will be created:

1. SR-Admin, which is used for StartReady Support. This account is member of the RTCUniversalServerAdmins, RTCUniversalUserAdmins and CSAdministrator groups and has no domain admin rights.
2. SR-Partner, which is used by StartReady Partners. This account is member of RTCUniversalServerAdmins, RTCUniversalUserAdmins and CSAdministrator group and has no domain admin rights.

In order to guarantee the functionality of the Appliance, we request no changes are made to the StartReady OU.

## 6. Contact information

### Sales information:

Piet Vanhoutte

+1 (512) 279-2485

[pvanhoutte@startready.com](mailto:pvanhoutte@startready.com)

### Technical information:

Paul-Christiaan Diks

+31888946810

[paul-christiaan@startready.com](mailto:paul-christiaan@startready.com)

