

Site Environment Requirements Telia Touchpoint Plus

Company information

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1 Introduction

The document states requirements on the target environment in order to use Telia Touchpoint Plus.

Telia's central environment for Telia Touchpoint Plus is connected to PSTN (public switched telephone network), Internet and Telia's private IP-VPN service Telia DataNet.

This document specifies the requirements for the customer's target environment that must be met for Telia Touchpoint Plus to work as intended. For example, the document sets requirements on the customer's Internet connection/Telia DataNet connection, local area networks, choice of web browsers, mobile devices and IP-phones. It is the customer's responsibility to follow the instructions in this document.

Ordered options may affect the requirements for the target environment. This document specifies the requirements that are general and which requirements apply depending on options and any other products or services Telia Touchpoint Plus will interact with.

2 General requirements for the target environment

2.1 Internet and local area network

For each current IP-call, 100 Kbit/s needs to be available between the IP-phone and the Telia central environment for Telia Touchpoint Plus. This means that the capacity needs to be available in the customer's local network and Internet connection/Telia DataNet connection.

If two Telia Touchpoint Plus Softphone users are communicating and are located on the company network behind the same NAT address, the voice streams go internally in the customer's network.

For optimum performance, the total delay between the phones in an IP-call should be less than 150 ms and one-way delay between an IP-phone and the Telia central environment for Telia Touchpoint Plus should be less than 60 ms. Jitter should be less than 20 ms and packet loss should be less than 1%.

IP-phones, Telia Touchpoint Plus's client software and ATA fax adapters can have dynamic IP addresses assigned by DHCP or fixed IP addresses.

An IP address can be either a public IP address or a private IP address using NAT, and must be routable over the Internet

The customer's local network needs to be at least a 100 Mbit/s switched network with full-duplex Ethernet network. Repeaters and hubs shall not be used.

The service cannot be guaranteed in wireless network and mobile IP networks in GSM, 3G or 4G.

The customer must allow outbound Internet traffic for the protocols and ports as described in chapter 6.

Telia Touchpoint Plus's public DNS name on the Internet is **touchpoint.telia.se**. All terminals and personal computers used by the customer with Telia Touchpoint Plus needs to be able to perform name lookups against Touchpoint Plus's public DNS name, AND any subdomains under touchpoint.telia.se.



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If the customer has any form of web proxy solution for the users' web traffic, it is the customer's responsibility to exclude traffic to Telia Touchpoint Plus. Traffic from Softphone, IP phones etc are initiated over HTTP/HTTPS and if the web proxy does not handle Touchpoint Plus traffic correctly, the service may not work as intended.

To avoid disruption of Telia changing IP address to Telia Touchpoint Plus, the customer should allow outgoing traffic to arbitrary destination IP-addresses.

If the customer's security policy does not allow outgoing traffic to arbitrary destination addresses, it is important that the customer allows outgoing traffic to the following IP network:

- 81.228.2.192/27

If Telia makes any changes to the Telia Touchpoint Plus service's IP addresses, it may lead to disruptions. The customer will then be responsible for securing that his/her network equipment allows outgoing traffic to the new addresses.

2.2 SSL Certificates

The Touchpoint Plus service uses public SSL Certificates, these will need to be renewed when expired. To avoid any potential issues, make sure that your IT environment allow for auto renewal of expired, update pending and removal of revoked certificates.

2.3 DataNet connection

For customers connecting to the Telia Touchpoint Plus service over Telia DataNet, the requirement listed in chapter 2.1 are valid.

If connecting over Telia DataNet, as standard all your IP-networks will be allowed to connect to Touchpoint Plus. If you want to limit what networks should be allowed to connect to Touchpoint Plus, you need to specify and send this information to Telia during the planning of your installation.

In addition to that, the following requirements are also valid:

2.3.1 Demarcation point of DataNet at customer site

The formal demarcation point of DataNet is the CPE device – an access router provided by Telia. More specifically, it is the LAN port(s) facing the customer network. The customer must supply a *link network* between this access router and his/her own router/firewall.

2.3.2 Routing of data traffic

All traffic that is to be sent to Telia Touchpoint Plus must be sent over the DataNet connection. The customer is responsible for securing that traffic sent to the Telia Touchpoint Plus service is routed to the demarcation point of the DataNet connection (i.e. the access router provided by Telia).

The IP networks that exist in the Telia Touchpoint Plus service are:

81.228.2.192/27

Traffic for the add-on Advanced Attendant can not be routed over DataNet.

2.4 E-mail server

Each user should have their own email account.



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If the customer has activated the Sender Policy Framework (SPF) then it is preferred that the customer's DNS is to identify Telia's e-mail server (spf-b.telia.com) as an authorized e-mail server for the customer's domain.

2.5 Personal Computers

2.5.1 Web Browser

For administration of Telia Touchpoint Plus, the customer must use one of the following web browsers:

- Mozilla Firefox 54 or later
- Microsoft Internet Explorer 11
- Microsoft Chromium Edge 80 and later
- Safari 10 or later
- Google Chrome 60 or later

2.5.2 Touchpoint Plus Softphone

Touchpoint Plus Softphone can be installed on both PC and Mac.

PC must have at least 16 GB RAM, equipped with a sound card and running Windows 7.x or Windows 10.

Mac computers must have an Intel processor, running macOS Sierra High or Mojave, and have at least 16 GB RAM.

Screen resolution should be at least 1024x768 pixels, for users that is to have the ACD or Attendant view.

Telia Touchpoint Plus Softphone must be at least version 5.1.3 but recommends the customer to always update their softphones to the latest version available via distribution from the platform.

Telia does not support using Touchpoint Plus Softphone in multiuser, thin client, app streaming etc. environments. Touchpoint Plus Softphone can be used in such environments on an *as is basis*. Telia will only proceed with support requests that can be reproducible in a normal single user environment.

Telia recommends that the customer validates Telia Touchpoint Plus Softphone in existing environment, together with the business-related applications that will be running simultaneously, on every type of hardware where the Telia Touchpoint Plus Softphone will be installed.

2.5.3 Advanced Attendant

For users who have the Advanced Attendant, personal computers need to comply with Agent and administrator PC, see reference 2.

Advanced Attendant requires the installation of ACE Agent, ACE Admin and ACE Pulse on users' PCs.

2.5.4 Remote Installation

If the customer uses remote installation of software, such as Microsoft WSUS, the customer needs to ensure that the software is packaged and distributed in the appropriate manner.



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2.5.5 Local Firewall

If the customer uses a local firewall on the PCs, then network traffic needs to be permitted in accordance with this document and its annexes.

2.6 IP Phones

The customer must use IP phones supported by Telia Touchpoint Plus. Supported IP phones can be found in valid updated price list. These must be ordered via Telia. All IP-Phones should be connected behind NAT and/or firewall and not directly accessible from the Internet. IP-phones must support TLS 1.2 encryption.

2.7 ATA analogue Adapter

The customer must use analogue adapters supported by Telia Touchpoint Plus. Supported ATA analogue adapters can be found in valid updated price list. These must be ordered via Telia.

Telia create the configuration needed for the device. Telia can also update the configuration if needed. The box need access to public internet to be able to download the configuration.

The customer may not connect ATA analogue adapters directly to the Internet. They need to be protected by a firewall.

The device has two RJ45 ports. Only the WAN port is used and connected to the customer network. The LAN port is disabled by internal configuration.

DHCP/STATIC IP and VLAN configuration can be used. The customer needs to inform Telia about Static IP, Default Gateway and VLAN to be used in the device.

Please see chapter 6 for a complete table of all required firewall openings.

2.8 Mobile Devices

Cell phones should have Telia mobile subscription and associated SIM-card to be activated.

Some of Telia Touchpoint Plus's features require mobile subscriptions to have Mobile Integration or Office Extension, see reference 1 for more information.

The customer can use the Telia Touchpoint Plus App on any of the following mobile devices:

- Mobile Phones / Smartphones/Tablets with the 3 latest released Android versions
- iPhone or iPad with the 2 latest released iOS versions.

Please note that even newly purchased devices may need to be updated.

Mobile devices shall have voicemail or similar disabled, because voicemail is available in Telia Touchpoint Plus platform.



3 Requirements for Touchpoint Plus add-ons

3.1 Calendar Integration – Exchange

Telia Touchpoint Plus Calendar Integration works with both Microsoft Office 365 and Microsoft Exchange on-premise.

3.1.1 Microsoft Exchange Online in Microsoft Office 365

For integrations with Microsoft Office 365, the customer's environment must meet the following requirements:

- Telia needs a user account in the customer's Office 365 tenant, with the necessary privileges. This account may not have the requirement of periodic password change.

The calendar integration in Touchpoint Plus requires client secret set up according to the instruction "Configuration of IT environment for Telia Touchpoint Plus – Calendar integration". Microsoft has capped the maximum duration for a client secret to 2 years. You need to remember to renew the client secret before it expires, otherwise the calendar synchronization with Touchpoint Plus will stop working.

Calendar integration between Telia Touchpoint Plus and Microsoft Exchange Online in Microsoft Office 365 does not add any extra requirements on the customer's target environment in terms of firewall openings etc. All traffic between the two services goes directly between Telia's datacenters and Microsoft Office 365.

3.1.2 Microsoft Exchange on premise

For integrations with Microsoft Exchange on premise, the customer's target environment must meet the following requirements:

- Microsoft Exchange Server 2007 SP1 – Exchange Server 2019.
- Communication interface Exchange Web Services is published on port 443 externally and has a public DNS name.
- Allows incoming traffic to Exchange Web Services on port 443 from Telia Touchpoint Plus's following IP network: 81.228.2.192/27
- Allows Basic Authentication over HTTPS from Telia Touchpoint Plus's following IP network: 81.228.2.192/27
- Telia needs a user account in the customer's Exchange system with the necessary privileges. This account may not have the requirement of periodic password change.

Please see chapter 6 for a complete table of all required firewall openings.

The calendar integration needs 1,6 kbit/s per user available between the customer environment and Telia Touchpoint Plus. Synchronization between the Telia Touchpoint Plus service and the customer's Exchange takes place every 10th minute.



3.2 Skype For Business / Lync Integration

The add-on Touchpoint Plus Skype For Business / Lync Integration, is available in two levels, “Presence only” and “Presence & Voice”

3.2.1 Skype For Business / Lync Integration Presence only

For the add-on Touchpoint Plus Skype For Business / Lync Integration, with “Presence only” the customer’s target environment must meet the following requirements:

- Telia Touchpoint Plus supports Microsoft Skype For Business 2019, Skype For Business 2015 and Microsoft Lync Server 2013. (Hereafter referred as S4B/Lync) S4B/Lync is located at the customer premises (on premise). Both Standard and Enterprise editions are supported.
Skype For Business Online is not supported.
- Allows Telia Touchpoint Plus to initiate a connection towards the S4B/Lync Front End Servers and S4B/Lync Mediation Servers.
- S4B/Lync servers have public IP addresses, if connection towards Telia Touchpoint Plus is made over Internet. If the customer connects over Telia DataNet, the S4B/Lync servers may have private IP addresses
- S4B/Lync servers have certificates issued by a public certificate authority. (That is, the S4B/Lync services on the Front End and servers use public certificates.)
 - Wildcard certificates are not supported.
 - Certificates need to have both Server and Client Authentication EKU purposes enabled.
 - If using private certificates, then the customer needs to buy the add-on feature Skype For Business Private Certificate. The S4B/Lync servers' private root certificate and any intermediate certificate(s) must be sent to Telia. The certificate files must be Base64-encoded.
 - If using private certificates, it is the customer's responsibility to make sure that the root and intermediate certificates are correct, valid and have not expired.
 - If a private root and/or intermediate certificate(s) are about to expire, it is the customer's responsibility to inform and provide updated certificates to Telia at least a month prior to expiry date.
- Allows communication from Telia Touchpoint Plus towards S4B/Lync servers from the following site-specific IP-network 81.228.2.192/27. Other from addresses shall be blocked.
Due to security and to avoid unnecessary exposure toward the Internet, it is important that S4B/Lync, firewalls etc. are configured correctly.
- Allows encrypted SIP traffic from Touchpoint Plus to the S4B/Lync Front End servers port TCP/5061.
- Allows the S4B/Lync Front End servers to initiate encrypted SIP traffic to Telia Touchpoint Plus's port TCP/5061.



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- If the customer connects to Telia Touchpoint Plus over the Internet, the S4B/Lync Front End servers and Front End pool must exist in the customer's public DNS. If the customer connects over Telia DataNet, Telia will add these servers and pool names on the Touchpoint Plus side.
- Telia Touchpoint Plus needs to be configured as a *Trusted Application Server* in Microsoft S4B/Lync topology.
- The following bandwidth needs are applicable for the S4B/Lync integration:
 - Presence signaling needs 1,6kbit/s per user between the customer's network and Telia Touchpoint Plus
- To secure that the S4B/Lync environment is configured correctly with regards to function, performance and security, it is recommended that the required configuration of the S4B/Lync environment is performed by a certified S4B/Lync technician and that a Best Practice Analysis has been done.

3.2.2 Skype For Business / Lync Integration Presence & Voice

If any user in the customer solution is using the S4B integration with "Presence & Voice" the customer's target environment must meet the following requirements in addition to the requirements for S4B integration "Presence only":

- The S4B/Lync users that will have Touchpoint Plus S4B/Lync Integration must have the appropriate licenses in S4B/Lync, in order to use Enterprise Voice. (Plus CAL or Office 365 Enterprise E4/E5)
- Allows Telia Touchpoint Plus to initiate a connection towards the S4B/Lync Mediation Servers.
- S4B/Lync servers have certificates issued by a public certificate authority. (That is, the S4B/Lync services on Mediation servers use public certificates.)
 - Wildcard certificates are not supported.
 - Certificates need to have both Server and Client Authentication EKU purposes enabled.
 - If using private certificates, then the customer needs to buy the add-on feature Skype For Business Private Certificate. The S4B/Lync servers' private root certificate and any intermediate certificate(s) must be sent to Telia. The certificate files must be Base64-encoded.
 - If using private certificates, it is the customer's responsibility to make sure that the root and intermediate certificates are correct, valid and have not expired.
 - If a private root and/or intermediate certificate(s) are about to expire, it is the customer's responsibility to inform and provide updated certificates to Telia at least a month prior to expiry date.
- Allows encrypted SIP traffic from Touchpoint Plus to the S4B/Lync Mediation servers port TCP/5067.
- Allows the S4B/Lync Mediation servers to initiate encrypted SIP traffic to Telia Touchpoint Plus's port TCP/5061.



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- Allows audio streams between Telia Touchpoint Plus and S4B/Lync Mediation servers with encrypted RTP communication over UDP port range 49152-65535 in both directions.
- If the customer connects to Telia Touchpoint Plus over the Internet, the S4B/Lync, Mediation servers and Mediation pool must exist in the customer's public DNS. If the customer connects over Telia DataNet, Telia will add these servers and pool names on the Touchpoint Plus side.
- The following bandwidth needs are applicable for the S4B/Lync integration:
 - For each concurrent IP-call, where one of the parties is on S4B/Lync, 100 kbit/s is needed. (If two S4B/Lync users in the same company are in the same call, the traffic is internal in the customer's network.)
- The users' phone numbers in customer's Active Directory shall be formatted according to E.164-standard. That is international number formatted starting with +sign. For example +468123456.

Please see chapter 6 for a complete table of all required firewall openings.

3.3 Teams Integration

To connect MS Teams towards Telia Touchpoint Plus you need the appropriate licenses in Office 365 and follow configuration instructions from the MS documentation: Teams Phones System Direct Routing.

- Specific configuration according to instructions in Telia document: Configuration of IT environment for Teams MUCA/TPP integration.
- All integrated users need to be users in Office 365 with appropriate MS licenses. Hybrid solutions such as Office 365 with on premise Lync/Skype for Business solutions are not supported.
- The users' phone numbers in customer's Active Directory shall be formatted according to E.164-standard. That is international number formatted starting with +sign. For example +468123456.

3.4 Advanced Attendant

For the optional Advanced Attendant, the customer's target environment must meet the following requirements:

- Personal computers must meet environment requirements - *Agent and administrator PC*, see reference 2.
- Fixed IP phones must meet environment requirements – *Telia Touchpoint Plus telephony types*, see reference 2
- The customer's network must comply with the WAN/LAN, see reference 2
- The following software needs to be installed on the attendant's computers: ACE Agent, ACE Admin and ACE Pulse
- The following software needs to be installed on the administrator's computers: Ace Admin and ACE Pulse



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- Allows outgoing traffic to IP addresses 213.65.172.64-67 on ports TCP211 and TCP14711.
- Traffic for the add-on Advanced Attendant can not be routed over DataNet.

3.5 AD Integration

For the add-on AD Integration, the customer's target environment must also meet the following criteria:

- Allows outgoing traffic to Telia Touchpoint's AD Integration servers on port TCP/443. These servers are located on 213.65.58.109 and 213.65.37.180.
- For importing user data to Telia Touchpoint Plus, the customer supplies a CSV or LDIF formatted file with their user data from their Active Directory or other user database. As a unique identifier, the mobile number is used. If mobile number does not exist, the fixed number is used.
 - It is the customer's responsibility to produce the CSV/LDIF file and to upload it to Telia Touchpoint's AD Integration servers.
- For exporting user data from Telia Touchpoint Plus, the customer downloads a CSV or LDIF formatted file. This file is used by the customer to update their user database, such as Active Directory. A unique user identifier is required in the customer's Touchpoint Plus directory. Telia recommends to use the e-mail address as a unique identifier.
 - It is the customer's responsibility to download the CSV/LDIF file, this must not be done more than once per 24 hours.

Please see chapter 6 for a complete table of all required firewall openings.

3.6 Call recording

For the add-on Call recording, the customer's target environment must also meet the following criteria:

- Allow incoming email from no-reply@touchpoint.telia.se and make sure they are not regarded as spam.

4 Other Products and Services, demand for the Target Environment

If the customer has ordered other products and services that will interact with Telia Touchpoint Plus, additional requirements on the target environment could be added.

Contact Telia for more information.

5 Bandwidth requirements – Calculation examples

Below calculation example is based on a fictive customer, with certain assumptions about their call volumes and ways of working.



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Bandwidth requirements for respective product may change and therefore it is important to always consult the latest available documentation for each respective product or service, so that you have the correct information when making a new bandwidth calculation.

5.1 Example

A fictive customer with 165 employees, where some users shall have Softphone, some a fixed phone and some users Telia Touchpoint Plus with S4B/Lync integration (i.e. the users use S4B/Lync client as their softphone). The customer also has Telia Touchpoint Kontaktcenter where max 15 agents can be logged on. These agents use Softphone for phone calls.

- 50 users use Touchpoint Plus Softphone
- 50 users use fixed phone (Snom)
- 50 users use Skype/Teams
- Out of these 150 “normal” users, max 20% of them are assumed to be busy in a call at any given time (external calls)
- All users (incl. agents) shall have Exchange calendar integration
- The customer connects to Telia Touchpoint Plus over their existing internet connection

Function	Calculation	Bandwidth
Touchpoint Plus Softphone, for “normal” users	$10 * 100 \text{ kbit/s}$	1000 kbit/s
Fixed IP phones	$10 * 100 \text{ kbit/s}$	1000 kbit/s
Skype/Teams integration voice	$10 * 100 \text{ kbit/s}$	1000 kbit/s
Exchange calendar integration	$165 * 1.6 \text{ kbit/s}$	264 kbit/s
Total bandwidth		3.264 Mbit/s

The total required bandwidth in this example – 3.264 Mbit/s – illustrates the absolute minimum bandwidth for the service to work with the given assumptions.

6 Table for required firewall openings

Telia Touchpoint Plus requires that specific ports in the customer’s firewall are opened. The following tables list all ports that need to be open for different Touchpoint Plus services.



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6.1 Touchpoint Plus web portal (end-user and administrator)

Source address	Destination address	Protocol and port	Comment
Customer's network	81.228.2.192/27	TCP/80	HTTP traffic, redirection to HTTPS
Customer's network	81.228.2.192/27	TCP/443	HTTPS encrypted web traffic to Telia Touchpoint Plus

6.2 Touchpoint Plus Softphone

The firewall openings specified in 6.1 (Web portal) are needed for the Softphone as well. In addition to that, the following firewall openings are also needed:

Source address	Destination address	Protocol and port	Comment
Customer's network	81.228.2.192/27	TCP/5061	SIPS, encrypted call control signaling, presence and chat
Customer's network	81.228.2.192/27	UDP/49152-65535	SRTP, encrypted voice streams

6.3 Touchpoint Plus IP Phones and ATA-boxes

The firewall openings specified in 6.1 and 6.2 (Web portal and Softphone) are needed for the IP phones and ATA-boxes as well. In addition to that, the following firewall openings are also needed:

Source address	Destination address	Protocol and port	Comment
Customer's network	81.228.2.192/27	UDP/123	NTP, synchronization of time for IP phones
Customer's network	81.228.2.192/27	TCP/9443	Security authentication for IP-phones
Customer's network	DNS: ems2.media5corp.com ems.media5corp.com ems2.media5corp.com virtuo.media5corp.com IP:192.99.54.246	TCP/80 TCP/443	HTTP traffic, redirection to HTTPS Only for Mediatrix ATA at startup or after factory reset
Customer's network	rcs.aastra.com IP:216.191.234.139	TCP/80 TCP/443	HTTP traffic, redirection to HTTPS Only for Mitel IP-phones at startup or after factory reset

6.4 Calendar Integration – Exchange*

Source address	Destination address	Protocol and port	Comment
81.228.2.192/27	Customer's Exchange EWS	TCP/443	HTTPS, encrypted web traffic towards



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			Exchange Web Services (EWS)
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* - These firewall rules only apply for Microsoft Exchange on premise. No additional firewall openings are needed in the customer's firewall for traffic between Telia Touchpoint Plus and Microsoft Office 365.

6.5 S4B/Lync Integration

Source address	Destination address	Protocol and port	Comment
81.228.2.192/27	Customer's S4B/Lync Front End servers	TCP/5061	SIPS, encrypted presence traffic
81.228.2.192/27	Customer's S4B/Lync Mediation servers	TCP/5067	SIPS, encrypted call control signaling. Only valid if using "Presence &Voice" integration
Customer's S4B/Lync Front End servers	81.228.2.192/27	TCP/5061	SIPS, encrypted call control and signaling and presence traffic
Customer's S4B/Lync Mediation servers	81.228.2.192/27	TCP/5061	SIPS, encrypted call control and signaling and presence traffic. Only valid if using "Presence &Voice" integration
81.228.2.192/27	Customer's S4B/Lync Mediation servers	UDP/49152-65535	SRTP, encrypted voice streams. Only valid if using "Presence &Voice" integration
Customer's S4B/Lync Mediation servers	81.228.2.192/27	UDP/49152-65535	SRTP, encrypted voice streams. Only valid if using "Presence &Voice" integration

6.6 Advanced Attendant

Source address	Destination address	Protocol and port	Comment
Customer's network	213.65.172.64-67	TCP/211 and TCP/14711	Signaling with Advanced Attendant

6.7 AD Integration

Source address	Destination address	Protocol and port	Comment
The server(s) on the customer's network that uploads and/or	213.65.58.109, 213.65.37.180	TCP/443	HTTPS, encrypted web traffic towards



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downloads the actual AD data.			Touchpoint Plus's AD Integration interface
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7 References

Reference, document ID	Name or web link of the document
1.	Service Description – Telia Touchpoint Plus
2.	Telia ACE - Requirements for Target Environment

