

Honeywell

Smart Talk 2.1

For Android and iOS

Security Guide

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Customer Support

Technical Assistance

To search our knowledge base for a solution or to log in to the Technical Support portal and report a problem, go to honeywell.com/PSTechnicalsupport.

About Smart Talk

Smart Talk is a comprehensive and secure business communication solution that allows instant connection between remote teams. It is a fully customizable solution, tailored to the size and scope of any organization.

The Smart Talk app is designed for Android and iPhone. The browser-based version is called WebChat.

The supported services are:

- Safe and fully controlled environment
- Team management
- Business processes and business rules management
- Digital service for large organizations and companies
- Reliable solution for communication during crisis and/ or emergency situations.

Smart Talk supports users for both mobile and desktop systems:

- Mobile users access the Smart Talk solution through the dedicated application installed on their mobile equipment.
- Web (PC) users' access the Smart Talk solution through the WebChat application. WebChat is compatible with Firefox or Chrome.

Smart Talk consists of three main components: the Smart Talk Android and Smart Talk iOS Mobile applications and the Smart Talk Application Server.

- Smart Talk Application Server is designed to manage the mobile communication process and automation of notifications and consolidate all Instant Messenger, Voice, Video, File Transmission and GPS services, scheduling, reporting, and memberships management in a centralized management interface.
- Smart Talk Android and Smart Talk iOS are mobile applications for Android/iOS that provide an online chat with real-time data transmission. Messages can consist of text, images, videos, voices, files, or other content.

This document scopes the security of the application, analyzing the interactions and communication between modules and external devices, the local security, and potential threats.

Protocol and Ports

The main protocols between application elements are:

- Configuration services: HTTP via TLS on port 443
- Messaging services: SIP over TLS on port 5228
- Exchange of attachments: HTTP over TLS on port 5223
- Media flow (audio, video): SRTP on UDP ports 20000 to 40000

The following table lists application modules facing the Internet and corresponding port numbers.

Source	Destination	Protocol ID	Dest Port	Application	Protocol	Comment
Public network	Backend	TCP	5228	SwEngine	SIPS	SIPS for app Mobile
			5223		HTTPS	HTTPS upload/download for mobile client
Public network	Frontend / voip	TCP	5228	SwEngine	SIPS	SIPS for VoIP
Public network	Frontend / voip	TCP	5063	SwEngine	SIP over WSS	SIPS for WebChat
Public network	Frontend / voip	UDP	7000-7300	SwEngine	UDP	Flux SRTP
Public network	Frontend / voip	TCP	9999	SwEngine	TCP	ICE TCP for browsers
Public network	Frontend / voip	UDP	10000-20000	SwEngine	UDP	Media
Public network	Frontend / web	UDP	20000-40000	SwEngine	SRTP	Media, Flux SRTP
Public network	Frontend / web	TCP	80, 443	Nginx	HTTPS	Webchat - User Interface
Public network	Frontend / web	TCP	443	Nginx	HTTPS	Conf Service for Android App registration
Public network	Frontend / web	TCP	443	Nginx	HTTPS	SWAPI request interface
Administrator network	Frontend	TCP	443	Nginx	HTTPS	Superadmin web interface for TOTR Server administration
Administrator network	SwAPI Backend	TCP	443	Nginx	HTTPS	Communication between SwAPI Manager interface to SwAPI Backend
Administrator network	Backend	TCP	443	Nginx	HTTPS	Communication between Frontend to ResourceManager interface
Public network	Frontend / web	TCP	443	Nginx	HTTPS	Admin web interface for Organization administrators and SwAPI web interface
Frontend	Backend	TCP	443	Nginx	HTTPS	Communication between SwAPI Frontend to SwAPI Backend fqdn
Backend	Frontend	TCP	5063	SwEngine	TCP	ResourceManager cron check the media resource
Backend	Frontend	TCP	5228	SwEngine	TCP	ResourceManager cron check the voip resource
Backend	Backend	TCP	5228	SwEngine	TCP	ResourceManager cron check the voip resource
Frontend	Backend	TCP	8080	Nginx	HTTPS	Communication between Frontend and Backend
Backend	Frontend	TCP	8080	Nginx	HTTPS	Web Service between Backend to Frontend
Frontend	Backend	TCP	8080	Nginx	HTTPS	Communication between SwAPI Frontend and Backend
Frontend	Backend	TCP	6379	Redis	Redis	Redis from Frontend to Backend
Public network	Frontend / voip	TCP	5080	SwEngine InterAS	SIPS	communication between TOTR servers (Only for InterAS)
Public network	Frontend / voip	UDP	10000 - 40000	SwEngine InterAS	SRTP	communication between TOTR servers (Only for InterAS)
Administrator network	TOTR Server	TCP	5080	SwEngine InterAS	SIPS	communication between TOTR servers (Only for InterAS)
Public network	Backend	TCP	8080	Nginx InterAS	HTTPS	communication between TOTR servers (Only for InterAS)
Administrator network	Backend	TCP	5080	SwEngine InterAS	SIPS	communication between TOTR servers (Only for InterAS)
Frontend	Maps	TCP	443	Maps	HTTPS	
Backend	LDAP Server	TCP	389	LDAP	TCP	Communication for LDAP Sync to LDAP Server
Frontend	LDAP Server	TCP	389	LDAP	TCP	Communication for LDAP Login to LDAP Server
PBX Gateway	Frontend / voip	UDP	5060	SwEngine	SIP	Call-in feature from an external PBX Gateway
PBX Gateway	Frontend / voip	UDP	10000-20000	SwEngine	RTP	Call-in feature from an external PBX Gateway
Frontend / voip	PBX Gateway	UDP	5060	SwEngine	SIP	Call-out feature to an external PBX Gateway
Frontend / voip	PBX Gateway	UDP	10000-20000	SwEngine	RTP	Call-out feature to an external PBX Gateway
Frontend / voip	PCRF	TCP	3866	SwEngine	DIAMETER	
Frontend / voip	BMSC	TCP	3866	SwEngine	DIAMETER	

Flow Security

TLS Flow

All TLS flows are configured to accept only the following configurations:

- TLS 1.2/1.3 protocol version
- No TLS_FALLBACK
- No TLS compression

- Only the following Ciphers:
 - ECDHE-RSA-AES256-GCM-SHA384
 - ECDHE-RSA-AES128-GCM-SHA256

Additionally, the mobile application does not use the list of certification authorities offered by the system, but it includes a private list inside the APK package, allowing certificate pinning.

By default, this list contains only a single authority provided by the customer. The list is set up at build time.

Media Flow of Application Server

The media flows are encrypted using the AES256 algorithm with the keys generated on each session of the signalization flow.

Media Flow of WebChat Interface

The media flows are encrypted using the AES128 (SRTP_AES128_CM_HMAC_SHA1_80) algorithm with the keys generated during the DTLS negotiation as defined by the standard WebRTC (TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 cipher suite and the P-256 curve).

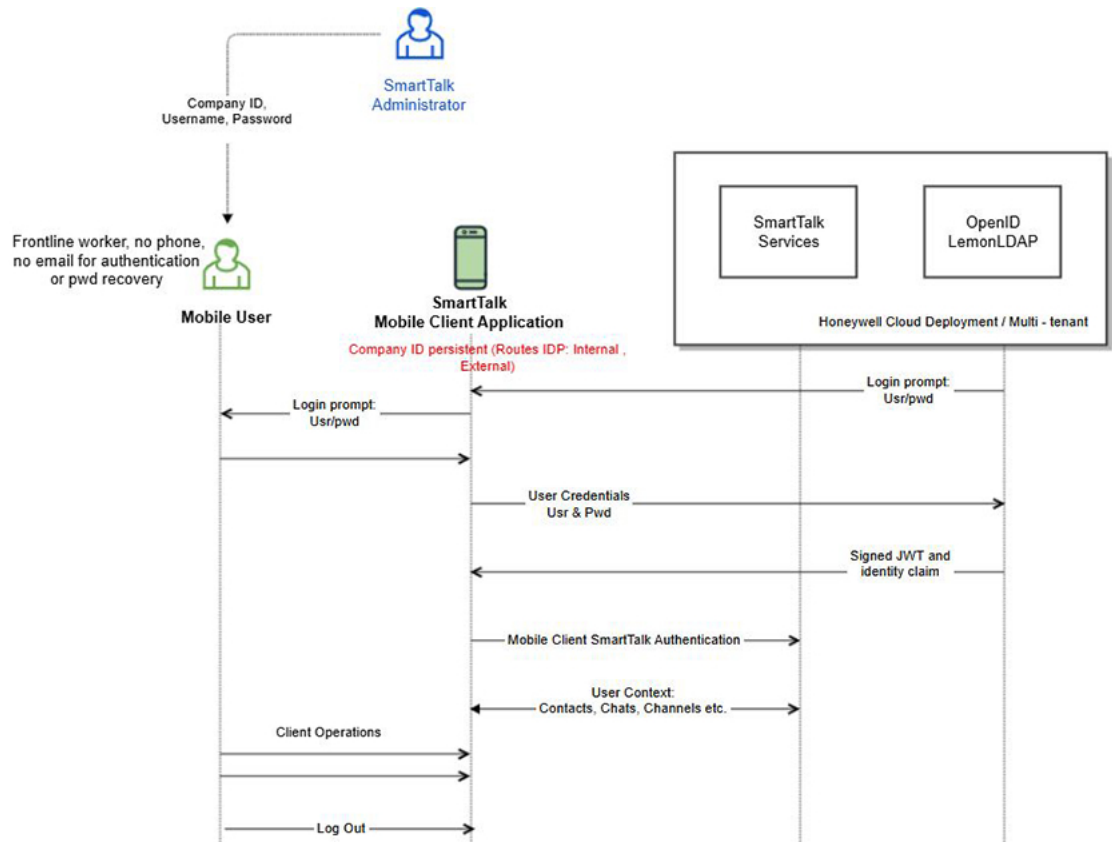
Authentication

During installation, the user is required to provide three pieces of information provided by their Smart Talk administrator:

- Company ID
- Username
- Password

Note: *The Smart Talk system does not enforce setting a strong password for Smart Talk application usage; however, it is important for company administrators to adopt strong passwords.*

Based on these three pieces of information, the following takes place:



Identification, Authentication, and Authorization

All users must authenticate with the solution before any information exchange.

After authentication, the server manages the access rights of the authenticated user and is responsible for sending to the application only the data that the user is authorized to access.

When users log into the Smart Talk application, the system is configured to prompt them to re-login only after a period of 180 days. While this setup is convenient, it also has the potential for misuse if users remain logged in indefinitely.

To enhance security and ensure that the system is used responsibly, it is advised that users should log out of the Smart Talk application by selecting the “Log out” option when they are done using the app. This practice will help safeguard data and prevent unauthorized access in case devices are lost or shared.

Additionally, if it is determined that a device is lost, the company administrator should delete the user account associated with that device using the Smart Talk Company admin portal. This measure will further protect information and ensure that no unauthorized individual can access the system.

Secure Communication

Messages and attachments (including private and group messages, files, geolocation, etc.) exchanged between users of the Mobile application are protected by the TLS 1.2/1.3 protocol. Real-time data is transported using the SRTP / SRTCP protocol. The protocols used are as follows:

- SIPS for messages and call signaling
- SRTP / SRTCP for real-time media streams (voice and video)
- HTTPS for attachments

The TLS session uses X.509v3 certificates installed on the server to validate the identity of the server. These certificates are signed by a certification authority provided by the customer. The certificate for this authority is included in the Android APK package and the application ignores certificates from the OS (certificate pinning).

For cryptographic operations, the application leverages the TLS 1.2/1.3 implementation provided by the Android OS and iOS for its SIPS/TLS and HTTPS / TLS communications. Additionally, the application disables the use of older versions of TLS.

In its use of the TLS library, the application limits cryptographic suites to the following two suites:

- TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384
- TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256

Media streams are protected using the SRTP_AES256_CM_HMAC_SHA1_80 cryptographic suite. (SHA1 is used for HMAC signature of packets due to the limitation of available suites in SRTP.)

SRTP session keys are generated in memory on the server and transmitted to the client during SDP negotiation included in SIPS call signaling messages.

Defense in Depth

Android

On startup, the Android Smart Talk app checks that:

- The terminal has the storage encryption feature enabled.
- The operating system is not “rooted.”
- The screen lock mechanism is active.
- The content of notifications on the lock screen is hidden.

If any of these conditions are not met, the application refuses to start.

The app allows screen capture when it is in the foreground.

In the event of theft or loss of the mobile device, it is possible to trigger the erasure of the data from the user management interface.

iOS

Conditions for iOS are:

- The device is not jail-broken.
- The screen lock mechanism is active.
- The application does not start until the user first authenticates (unlock device).

If the user restarts the device and does not enter the access code, the app will not start. Once the user enters the code for the first time, the app will be accessible.

In the event of theft or loss of the mobile device, it is possible to trigger the erasure of the data from the user management interface.

Android Certificate Pinning

The Smart Talk Mobile (both iOS and Android) application implements a certificate pinning mechanism to protect users against the threat of a rogue certificate authority that would allow a “man in the middle” attack. Pinning helps ensure that network data is not compromised even if the user has a malicious root certificate installed on their mobile device.

Secure File Exchange

To limit the risk of infection, a message filtering system has been integrated. It allows attachments to be passed to a third-party web service. In the case of the antivirus, the web service checks with the antivirus whether the attachment is valid or not. If the attachment is invalid, the entire message is declined, and the sender is notified.

The antivirus is the responsibility of the customer. The web service must meet the specification on the next page.

Note: *The antivirus feature is not available in the current Honeywell Smart Talk application.*

Secure Operation and Key Management

Mobile Application

The Smart Talk Mobile (both iOS and Android) application implements a certificate pinning mechanism to protect users against the threat of a rogue certificate authority that would allow a “man in the middle” attack. Pinning helps ensure that network data is not compromised even if the user has a malicious root certificate installed on their mobile device.

Web Application

The Smart Talk Mobile (both iOS and Android) application implements a certificate pinning mechanism to protect users against the threat of a rogue certificate authority that would allow a “man in the middle” attack. Pinning helps ensure that network data is not compromised even if the user has a malicious root certificate installed on their mobile device.

Threats

Threat agents are typically characterized by several factors such as expertise, available resources, and motivation, with the motivation being linked directly to the value of the assets at stake.

Agents

Threat agents could be:

- External entities that are not authorized to access the application. These entities may attempt to get access to the application either by masquerading as an authorized entity or by attempting to use the application without proper authorization. External threat agents may also passively capture data transmitted between the TOE and the back-end server or actively manipulate such data.
- Local users that unintentionally try to read notifications even when the screen is locked, access information, or use resources stored locally that they are not authorized for. Moreover, a local user could try to access information or use resources that are accessible through Smart Talk but not stored locally, for instance, impersonate another user, subscribe to receive calls or messages intended for another user, etc.
- Other software that can be installed or downloaded on mobile equipment and give hackers the opportunity to gain access to the application and capture/ manipulate data belonging to it.

Scenarios

The following threat scenarios are identified:

- **T1 Network Attack:** An attacker is positioned on a communications channel or elsewhere on the network infrastructure to perform a “man in the middle” attack and threatens the transmission of messages, attachments, media, or management data. The goal of the attacker is to gain access to or compromise (i.e., replacing or modifying the content) sensitive information (e.g., identifiers, certificates, secret keys, messages, voices, videos, files, etc.) exchanged between the Smart Talk Android application and the Smart Talk back-end server.

- **T2 Local Access**

Physical: An attacker who has access to the mobile equipment (equipment theft) may try to:

- Access sensitive data (encryption key, pre-shared key, messages, voices, videos, files) at rest stored by the Smart Talk Android application.
- Interact with the Smart Talk Application Server to access information or use resources that are accessible through Smart Talk but not stored locally by the Smart Talk Android application.

Logical: Other software on the same mobile equipment might try to access sensitive data.

- **T3 Limited Physical Access:** An attacker having physical access may attempt to read sensitive data from notifications even when the screen of the mobile equipment is locked.
- **T4 Privilege Escalation:** A privilege escalation may occur which allows an attacker to add members to a discussion, take the PTT floor when not allowed, or access the location of other users, thus stealing sensitive data.

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