



Information security manual

Guidelines for communications systems

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Telephone systems

Telephone system usage policy

All non-secure telephone systems are subject to interception. Personnel accidentally or maliciously communicating sensitive or classified information over a public telephone network can lead to its compromise.

Control: ISM-1078; Revision: 4; Updated: Dec-22; Applicable: NC, OS, P, S, TS; Essential 8: N/A

A telephone system usage policy is developed, implemented and maintained.

Personnel awareness

As there is a potential for unintended disclosure of information when using telephone systems, personnel should be made aware of the sensitivity or classification of information that may be discussed using them. In addition, personnel should also be made aware of the security risks associated with the use of non-secure telephone systems in areas where sensitive or classified conversations may occur.

When using cryptographic equipment to enable different levels of conversation for different kinds of connections, providing a visual indication to personnel as to the sensitivity or classification of information that can be discussed over the telephone system can assist in reducing the likelihood of unintended disclosure of information.

Control: ISM-0229; Revision: 4; Updated: Jun-24; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Personnel are advised of the permitted sensitivity or classification of information that can be discussed over internal and external telephone systems.

Control: ISM-0230; Revision: 3; Updated: Sep-18; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Personnel are advised of security risks posed by non-secure telephone systems in areas where sensitive or classified conversations can occur.

Control: ISM-0231; Revision: 2; Updated: Dec-21; Applicable: NC, OS, P, S, TS; Essential 8: N/A

When using cryptographic equipment to permit different levels of conversation for different kinds of connections, telephone systems give a visual indication of what kind of connection has been made.

Protecting conversations

When sensitive or classified conversations are held using telephone systems, the conversation needs to be appropriately protected by using encryption.

Control: ISM-0232; Revision: 3; Updated: Sep-18; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Telephone systems used for sensitive or classified conversations encrypt all traffic that passes over external systems.

Cordless telephone systems

Cordless telephone handsets and headsets typically have minimal transmission security and are susceptible to interception. This may result in the disclosure of sensitive or classified conversations to malicious actors unless suitable encryption is used. As such, it is critical that Australian Signals Directorate (ASD)-approved cryptography is used.

Control: ISM-0233; Revision: 5; Updated: Jun-26; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Cordless telephone handsets and headsets are not used for sensitive or classified conversations unless all communications are encrypted using ASD-approved cryptography.

Speakerphones

As speakerphones are designed to pick up and transmit nearby conversations, using speakerphones in TOP SECRET areas presents several security risks and they should not be used. However, if personnel reduce security risks by using an audio secure room that is secure during any conversations, they may be used.

Control: ISM-0235; Revision: 5; Updated: Dec-24; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Speakerphones are not used on telephone systems in TOP SECRET areas unless the telephone system is located in an audio secure room, the room is audio secure during conversations and only personnel involved in conversations are present in the room.

Off-hook audio protection

Using off-hook protection features minimises the chance of background conversations being accidentally coupled into handsets, headsets and speakerphones. Limiting the time an active microphone is open minimises this security risk.

Control: ISM-0236; Revision: 5; Updated: Dec-21; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Off-hook audio protection features are used on telephone systems in areas where background conversations may exceed the sensitivity or classification that the telephone system is authorised for communicating.

Control: ISM-0931; Revision: 7; Updated: Dec-24; Applicable: NC, OS, P, S, TS; Essential 8: N/A

In SECRET and TOP SECRET areas, push-to-talk handsets or push-to-talk headsets are used to meet any off-hook audio protection requirements.

Further information

Further information on encrypting communications can be found in the 'Cryptographic fundamentals' section of the [Guidelines for cryptography](#).

Video conferencing and Internet Protocol telephony

Internet Protocol telephony

This section describes the controls applicable to Internet Protocol (IP) telephony and extends upon the 'Telephone systems' section of these guidelines.

Video conferencing and Internet Protocol telephony gateways

Where a video conferencing or IP telephony network is connected to another network from a different security domain, the 'Gateways' section of the [Guidelines for gateways](#) applies.

Video conferencing and Internet Protocol telephony infrastructure hardening

Video conferencing and IP telephony infrastructure can be hardened to reduce its attack surface. For example, by ensuring that a Session Initiation Protocol server has a fully patched operating system, uses fully patched applications and only runs required services.

Control: ISM-1562; Revision: 0; Updated: Dec-19; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Video conferencing and IP telephony infrastructure is hardened.

Video-aware and voice-aware firewalls and proxies

The use of video-aware and voice-aware firewalls and proxies provides network security while supporting video and voice traffic. As such, when implementing a firewall or proxy in a gateway, and video conferencing or IP telephony traffic passes through the gateway, a video-aware or voice-aware firewall or proxy will need to be used. However, this does not require separate firewalls or proxies to be deployed for video conferencing, IP telephony and data traffic. In such cases, an organisation is encouraged to implement one firewall or proxy that is video-aware and data-aware; voice-aware and data-aware; or video-aware, voice-aware and data-aware depending on their needs.

Control: ISM-0546; Revision: 9; Updated: Jun-22; Applicable: NC, OS, P, S, TS; Essential 8: N/A

When video conferencing or IP telephony traffic passes through a gateway containing a firewall or proxy, a video-aware or voice-aware firewall or proxy is used.

Protecting video conferencing and Internet Protocol telephony traffic

Video conferencing and IP telephony traffic can be vulnerable to eavesdropping, denial-of-service, person-in-the-middle and call spoofing attacks. To mitigate this security risk, video conferencing and IP telephony signalling and audio/video data can be protected with the use of Transport Layer Security. This is achieved by using the Session Initiation Protocol Secure protocol and the Secure Real-time Transport Protocol.

Control: ISM-0548; Revision: 4; Updated: Dec-21; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Video conferencing and IP telephony calls are established using a secure session initiation protocol.

Control: ISM-0547; Revision: 4; Updated: Dec-21; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Video conferencing and IP telephony calls are conducted using a secure real-time transport protocol.

Video conferencing unit and Internet Protocol phone authentication

Blocking unauthorised or unauthenticated devices by default will reduce the likelihood of unauthorised access to a video conferencing or IP telephony network.

Control: ISM-0554; Revision: 1; Updated: Sep-18; Applicable: NC, OS, P, S, TS; Essential 8: N/A

An encrypted and non-replayable two-way authentication scheme is used for call authentication and authorisation.

Control: ISM-0553; Revision: 3; Updated: Sep-18; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Authentication and authorisation is used for all actions on a video conferencing network, including call setup and changing settings.

Control: ISM-0555; Revision: 3; Updated: Dec-19; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Authentication and authorisation is used for all actions on an IP telephony network, including registering a new IP phone, changing phone users, changing settings and accessing voicemail.

Control: ISM-0551; Revision: 7; Updated: Jan-20; Applicable: NC, OS, P, S, TS; Essential 8: N/A

IP telephony is configured such that:

- *IP phones authenticate themselves to the call controller upon registration*
- *auto-registration is disabled and only authorised devices are allowed to access the network*
- *unauthorised devices are blocked by default*
- *all unused and prohibited functionality is disabled.*

Control: ISM-1014; Revision: 6; Updated: Dec-21; Applicable: S, TS; Essential 8: N/A

Individual logins are implemented for IP phones used for SECRET or TOP SECRET conversations.

Traffic separation

Video conferencing and IP telephony traffic should be physically or logically separated from other data traffic to ensure availability and quality of service.

Control: ISM-0549; Revision: 5; Updated: Jun-26; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Video conferencing and IP telephony traffic is physically or logically separated from other data traffic.

Control: ISM-0556; Revision: 5; Updated: Oct-19; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Workstations are not connected to video conferencing units or IP phones unless the workstation or the device uses Virtual Local Area Networks or similar mechanisms to maintain separation between video conferencing, IP telephony and other data traffic.

Internet Protocol phones in public areas

IP phones in public areas may give malicious actors the opportunity to access data networks or poorly protected voicemail and directory services. As such, any services accessible to IP phones in public areas should be restricted.

Control: ISM-0558; Revision: 6; Updated: Dec-21; Applicable: NC, OS, P, S, TS; Essential 8: N/A

IP phones used in public areas do not have the ability to access data networks, voicemail and directory services.

Microphones and webcams

Microphones (including headsets and Universal Serial Bus [USB] handsets) and webcams can pose a security risk in SECRET and TOP SECRET areas. Specifically, malicious actors can email or host malicious code on a compromised website and use social engineering techniques to convince users into executing the malicious code on their workstation. Such malicious code may then activate microphones or webcams that are attached to the workstation to act as remote listening and recording devices.

Control: ISM-0559; Revision: 6; Updated: Dec-24; Applicable: NC, OS, P; Essential 8: N/A

Microphones (including headsets and USB handsets) and webcams are not used with non-SECRET workstations in SECRET areas.

Control: ISM-1450; Revision: 3; Updated: Dec-24; Applicable: NC, OS, P, S; Essential 8: N/A

Microphones (including headsets and USB handsets) and webcams are not used with non-TOP SECRET workstations in TOP SECRET areas.

Denial of service response plan

Video conferencing and IP telephony services may be a critical service for an organisation. In such cases, a denial of service response plan will assist in responding to denial-of-service attacks against these services.

Control: ISM-1019; Revision: 9; Updated: Dec-22; Applicable: NC, OS, P, S, TS; Essential 8: N/A

A denial of service response plan for video conferencing and IP telephony services is developed, implemented and maintained.

Control: ISM-1805; Revision: 0; Updated: Dec-22; Applicable: NC, OS, P, S, TS; Essential 8: N/A

A denial of service response plan for video conferencing and IP telephony services contains the following:

- *how to identify signs of a denial-of-service attack*
- *how to identify the source of a denial-of-service attack*
- *how capabilities can be maintained during a denial-of-service attack*
- *what actions can be taken to respond to a denial-of-service attack.*

Further information

Further information on gateways can be found in the 'Gateways' section of the [Guidelines for gateways](#).

Further information on firewalls can be found in the 'Firewalls' section of the [Guidelines for gateways](#).

Further information on the use of web conferencing solutions can be found in ASD's [Web conferencing security](#) publication.

Multifunction devices

Multifunction device usage policy

As multifunction devices (MFDs) are a potential source of cyber security incidents, it is important that an organisation develops, implements and maintains a policy governing their use.

Control: ISM-0588; Revision: 5; Updated: Dec-25; Applicable: NC, OS, P, S, TS; Essential 8: N/A

An MFD usage policy is developed, implemented and maintained.

Connecting multifunction devices to digital telephone systems

When MFDs are connected to both a network and a digital telephone system, they can act as a bridge between the two. As such, and to avoid potential data spills, MFDs should not be connected to digital telephone systems.

Control: ISM-0245; Revision: 6; Updated: Dec-25; Applicable: NC, OS, P, S, TS; Essential 8: N/A

MFDs are not connected to digital telephone systems.

Authenticating to multifunction devices

To prevent users from printing sensitive or classified documents and forgetting to collect them, as well as assisting with the collection of sufficiently detailed event logs, MFDs should implement authentication measures that are of the same strength as used for other devices on the same network they are connected to, such as user workstations. For example, if user access to workstations on a network requires multi-factor authentication, so should user access to MFDs before users can print, scan or copy documents.

Control: ISM-1854; Revision: 0; Updated: Jun-23; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Users authenticate to MFDs before they can print, scan or copy documents.

Control: ISM-0590; Revision: 8; Updated: Jun-23; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Authentication measures for MFDs are the same strength as those used for workstations on networks they are connected to.

Scanning and copying documents on multifunction devices

As MFDs residing on networks are often capable of sending scanned documents across networks they are connected to, personnel should be aware that if they scan documents at a level higher than the sensitivity or classification of the network it will cause a data spill. In addition, MFDs used to copy documents above the sensitivity or classification of the network may cause a localised data spill if copies are retained on non-volatile memory within the devices.

Control: ISM-0589; Revision: 7; Updated: Jun-23; Applicable: NC, OS, P, S, TS; Essential 8: N/A

MFDs are not used to scan or copy documents above the sensitivity or classification of networks they are connected to.

Logging multifunction device use

Centrally logging and analysing MFD events, including metadata and shadow copies of documents printed, scanned or copied by users, can assist in monitoring the security posture of systems, detecting malicious behaviour and supporting investigations following cyber security incidents.

Control: ISM-1855; Revision: 1; Updated: Dec-23; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Use of MFDs for printing, scanning and copying purposes, including the capture of shadow copies of documents, are centrally logged.

Observing multifunction device use

Placing MFDs in public areas can help reduce the likelihood of any suspicious use going unnoticed.

Control: ISM-1036; Revision: 5; Updated: Jun-26; Applicable: NC, OS, P, S, TS; Essential 8: N/A

MFDs are placed in areas where their use can be observed.

Further information

Further information on event logging can be found in the 'Security monitoring' section of the [Guidelines for security assurance](#).

Fax machines and services

Sending and receiving fax messages

As fax machines, and associated communications protocols, are legacy information technology, they should not be used for sending or receiving fax messages. Instead, more secure communications methods, such as scanning documents and attaching them to emails, should be used.

Control: ISM-2075; Revision: 0; Updated: Dec-25; Applicable: NC, OS, P, S, TS; Essential 8: N/A

Fax machines, and online fax services, are not used for sending or receiving fax messages.

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