HARDENING GUIDE

imageRUNNER ADVANCE

Canon

INTRODUCTION

Modern Canon Multifunction Devices (MFDs) provide print, copy, scan, send and fax functionality. MFDs are computer servers in their own right, providing a number of networked services along with significant hard drive storage.

When an organisation introduces these devices into their infrastructure, there are a number of areas that should be addressed as part of the wider security strategy, which should look to protect the confidentiality, integrity and availability of your networked systems.

Clearly, deployments will differ and organisations will have their own specific security requirements. While we work together to ensure that Canon devices are shipped with appropriate initial security settings, we aim to further support this by providing a number of configuration settings to enable you to more closely align the device to the requirements of your specific situation.

This document is designed to provide sufficient information to enable you to discuss with Canon or Canon partner the most appropriate settings for your environment. Once decided, the final configuration can be applied to your device or fleet. Please feel free to contact Canon or a Canon partner for further information and support.

Who is this document meant for?

This document is aimed at anybody who is concerned with the design, implementation and securing of office multifunction devices (MFDs) within a network infrastructure. This might include IT and network specialists, IT security professionals, and service personnel.

Scope and coverage

The guide explains and advises on the configuration settings for two typical network environments, so that organisations can securely implement an MFD solution based on best practice. These settings have been tested and validated by Canon's Security team.

We make no assumptions about specific industry sector regulatory requirements that may impose other security considerations and are out of scope of this document.

This guide was created based upon the typical feature set of the imageRUNNER ADVANCE platform, and while the information here applies to all models and series within the imageRUNNER ADVANCE range, some features may differ between models.

Implementing appropriate MFD security for your environment

To explore the security implications of implementing a multifunction device as part of your network, we have considered two typical scenarios:

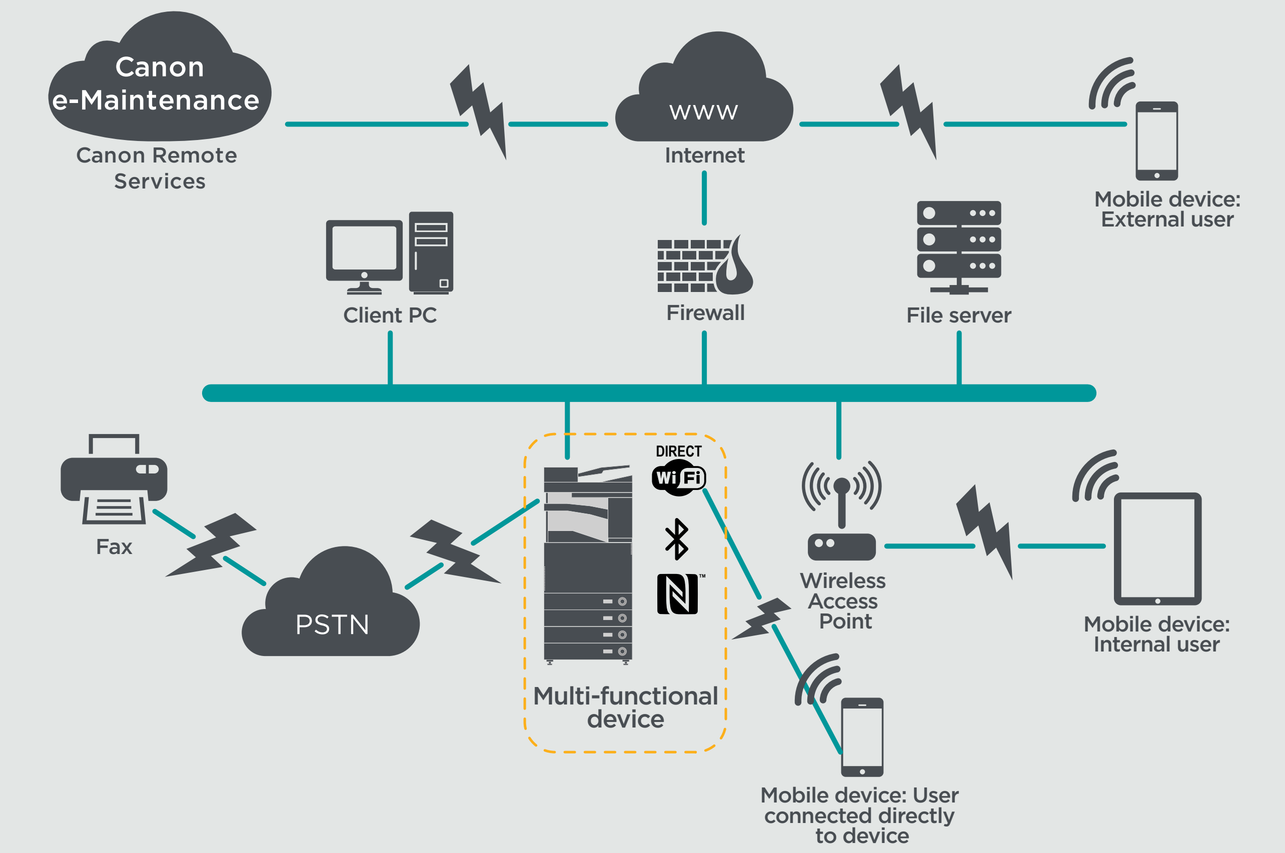
- **A typical small office environment**
- **An enterprise office environment**

SMALL OFFICE ENVIRONMENT

Typically, this will be a small business environment with an un-segmented network topology. It uses one or two MFDs for its internal use and these devices are not accessible on the Internet.

While mobile printing is available, additional solution components will be required. For those users requiring printer services outside of a LAN environment, a secure connection is required, but this will not be covered in this guide. However, attention should be paid to the security of the data in transit between the remote device and the print infrastructure.

Figure 1 Small Office Network



The latest generation of imageRUNNER ADVANCE models provide wireless network connectivity allowing the device to connect to a WiFi network. It can also be used to establish a point-to-point WiFi Direct connection with a mobile device without the need for a network connection.

Bluetooth and NFC options are available for several device models and are used to establish the WiFi Direct connection for iOS and Android devices respectively only.

CONFIGURATION CONSIDERATIONS

Please note that unless a feature of the imageRUNNER ADVANCE is mentioned below, it is regarded as being sufficient in the default settings for this business and network environment.

Table 1 Small Office Environment Configuration Considerations

imageRUNNER ADVANCE Feature	Description	Consideration
Service Mode	Allows access to Service Mode settings	Password protect with a non-default, non-trivial and maximum length password
Service Management System	Allows access to various non- standard device settings	Password protect with a non-default, non-trivial and maximum length password
SMB Browse/Send	Store and retrieve to and from Windows /SMB network shares	System administrators should, by policy, disallow any users from creating local accounts on their client machine for use in sharing documents with the imageRUNNER ADVANCE over SMB
Remote UI	Web-based configuration tool	The imageRUNNER ADVANCE administrator should enable HTTPS for the remote UI and disable HTTP access. Enable the use of PIN authentication unique to each device
SNMP	Network monitoring integration	Disable version 1 and enable version 3 only
Send to e-mail and/or IFAX	Send emails from the device with attachments	Enable SSL Do not use the POP3 authentication before SMTP send Use SMTP authentication
POP3	Automatically fetch and print documents from mailbox	Enable SSL Enable POP3 authentication
Address book / LDAP	Use directory service to look up home number or email addresses to send scans to	Enable SSL Do not use domain credentials to authenticate against the LDAP server; use LDAP specific credentials
FTP Print	Upload & download documents to and from the embedded FTP server	Turn on FTP authentication. Be aware that FTP traffic will always travel in clear text over the network
WebDAV Send	Scan and Store documents on a remote location	Enable authentication for WebDAV shares
Encrypted PDF	Encrypt documents	By policy sensitive documents should only be encrypted using PDF version 1.6 (AES-128)
Secure Print	Print job is sent to the device but locked in the print queue until the corresponding PIN number is entered	Enable PIN protected print jobs
Embedded web browser (available from Generation 3 2nd edition models)	Browser access to Internet	Enforce through administration, the use of a content filtering web proxy to avoid malicious or viral content being accessed. Disable the creation of favourites
Bluetooth and NFC (available from Generation 3 models)	Used to establish a WiFi Direct connection	Enable WiFi Direct to allow direct connection to a mobile device. WiFi Direct may not be used when WiFi is used to connect to a network
Wireless LAN	Provides Wireless access	Use WPA-PSK/WPA2-PSK with strong passwords
IPP	Connect and send printing jobs over IP	Disable IPP

AN ENTERPRISE OFFICE ENVIRONMENT

This is typically a multi-site, multi-office environment with segmented network architecture. It has multiple MFDs deployed on a separate VLAN accessible for internal use via print server(s). These MFDs are not accessible from the Internet.

This environment will usually have a permanent team to support its networking and back- office requirements along with general computer- issues but it is assumed they will not have specific MFD training

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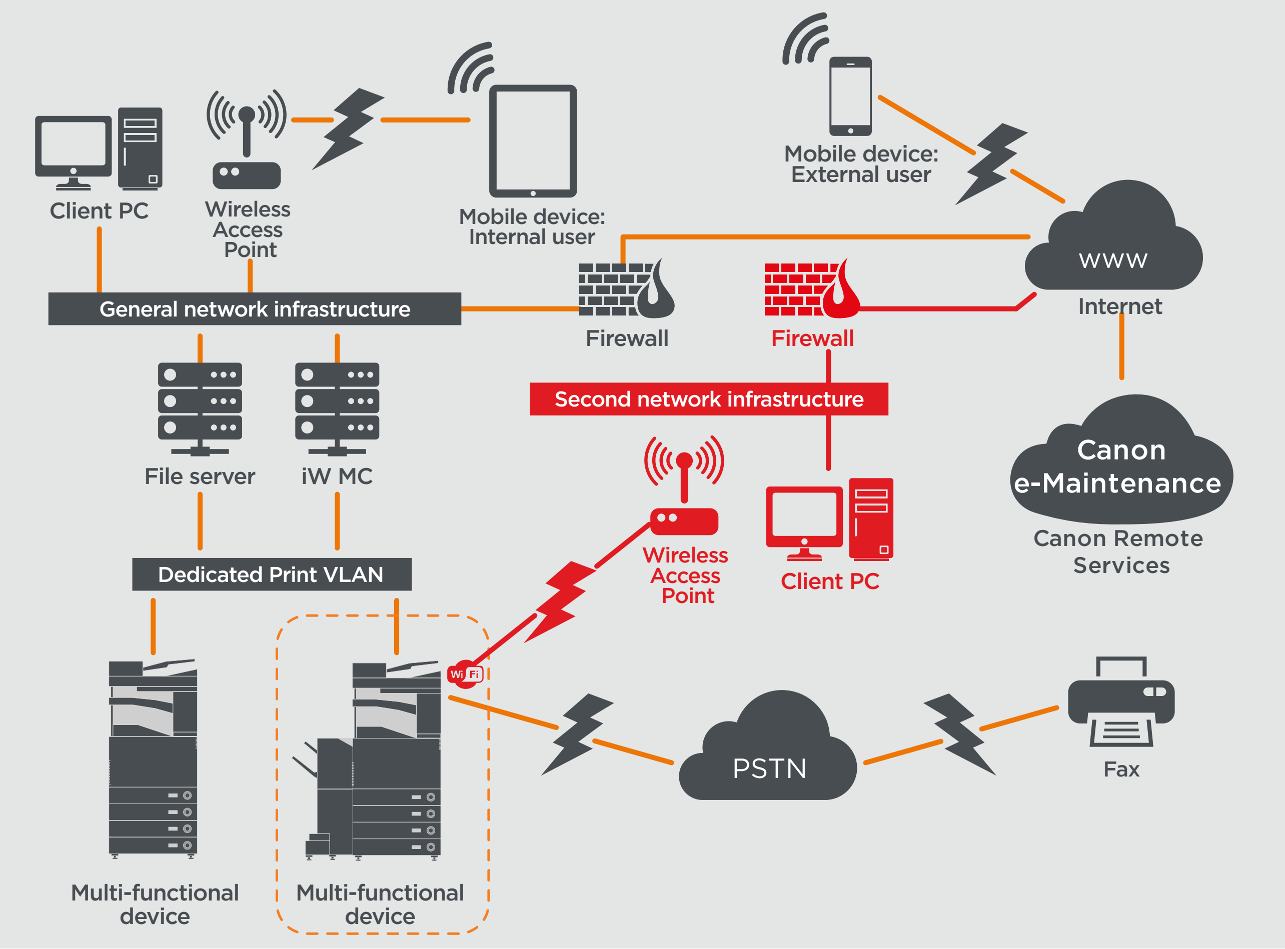
Figure 2 Enterprise Office work



Connections highlighted in red will be available from generation 3 2nd edition models

CONFIGURATION CONSIDERATIONS

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Service Management System	Allows access to various non- standard device settings	Password protect with a non-default, non-trivial and maximum length password
SMB Browse/Send	Store and retrieve to and from Windows /SMB network shares	System administrators should, by policy, disallow any users from creating local accounts on their machine for use in sharing documents with the imageRUNNER ADVANCE over SMB
Remote UI	Web-based configuration tool	Following initial device configurations disable the Remote UI completely by disabling HTTP and HTTPS
SNMP	Network monitoring integration	Disable version 1 and enable version 3 only
Send to e-mail and/or IFAX	Send emails from the device with attachments	Enable SSL Enable: - Certificate verification at the SMTP server Or if not viable: - Only use this feature in an environment where a Network Intruder Detection System collector is present Do not use the POP3 authentication before SMTP send Use SMTP authentication
POP3	Automatically fetch and print documents from mailbox	Enable SSL Enable: - Certificate verification at the POP3 server Or if not viable: - Only use this feature in an environment where a Network Intruder Detection System collector is present Enable POP3 authentication
Address book / LDAP	Use directory service to look up phone number or email addresses to send scans to	Enable SSL Enable: - Certificate verification at the LDAP server Or if not viable: - Only use this feature in an environment where a Network Intruder Detection System collector is present Do not use domain credentials to authenticate against the LDAP server; use LDAP specific credentials
IPP	Connect and send printing jobs over IP	Disable IPP
WebDAV Send	Scan and Store documents on a remote location	Enable authentication for the WebDAV shares Enable SSL Enforce the printer to only allow files ending with the "file printing extensions" to be uploaded
IEEE802.1X	Network access authentication mechanism	EAPOL V1 supported
Encrypted PDF	Encrypt documents	By policy sensitive documents should only be encrypted using PDF version 1.6 (AES-128)
Encrypted Secure Print	Enhance the protection of Secure Print by encrypting the file and the password during transmission	Configure the username in the Printer tab on the client printer configuration to a different username than the LDAP/domain credentials of that user. Ensure "Restrict printer jobs" is turned off
Wireless LAN	Provides Wireless access	Use WPA-PSK/WPA2-PSK with strong passwords
WiFi Direct	Used to establish a WiFi Direct connection	Disable WiFi Direct
Embedded web browser (available from Generation 3 2nd edition models)	Browser access to Internet	Apply appropriate restrictions or disable ability to download files acquired via the browser

The latest generation of imageRUNNER ADVANCE models provide wireless network connectivity allowing the device to connect to a WiFi network whilst simulatiously connected to a wired network. This scenario can be useful where the customer needs to share a device across two networks. A school environment is a typical example where there are separate staff and pupil networks.

REMOTE DEVICE SUPPORT

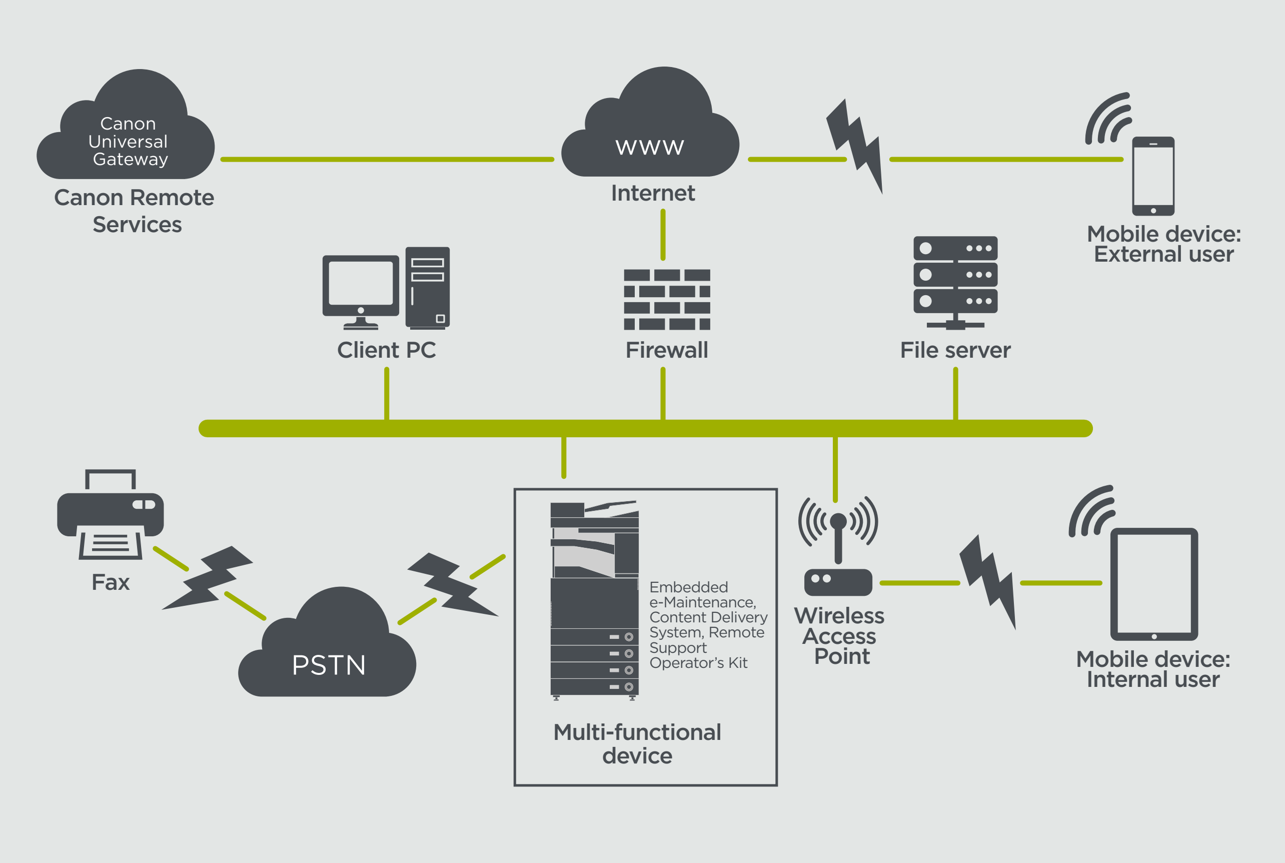
For Canon or a Canon Partner to be able to provide efficient service, the imageRUNNER ADVANCE is capable of transmitting service related data, as well as receiving firmware updates or software applications. It should be noted that no image or image metadata is sent.

Shown below are two possible implementations of Canon's remote services within a company network.

Implementation scenario 1: Dispersed connection

In this setting, each MFD allows direct connection to the remote service through the Internet.

Figure 3 Dispersed connection


Canon Universal Gateway
Canon Remote Services
WWW
Internet
Mobile device: External user
Client PC
Firewall
File server
Fax
PSTN
Embedded e-Maintenance, Content Delivery System, Remote Support Operator's Kit
Multi-functional device
Wireless Access Point
Mobile device: Internal user

Implementation Scenario 2: Centralised Managed Connection

In an enterprise environment scenario, where multiple MFDs are installed, there is a need to be able to efficiently manage these devices from one central point, and this includes the connection to Canon's remote services. To facilitate the holistic management approach, individual devices would establish management connections through a single iW Management Console (iWMC) connection point. For communication between the Device Firmware Upgrade (DFU) plug-in and Multi-Functional Devices, UDP port 47545 is used.

Figure 4 Centralized managed connection

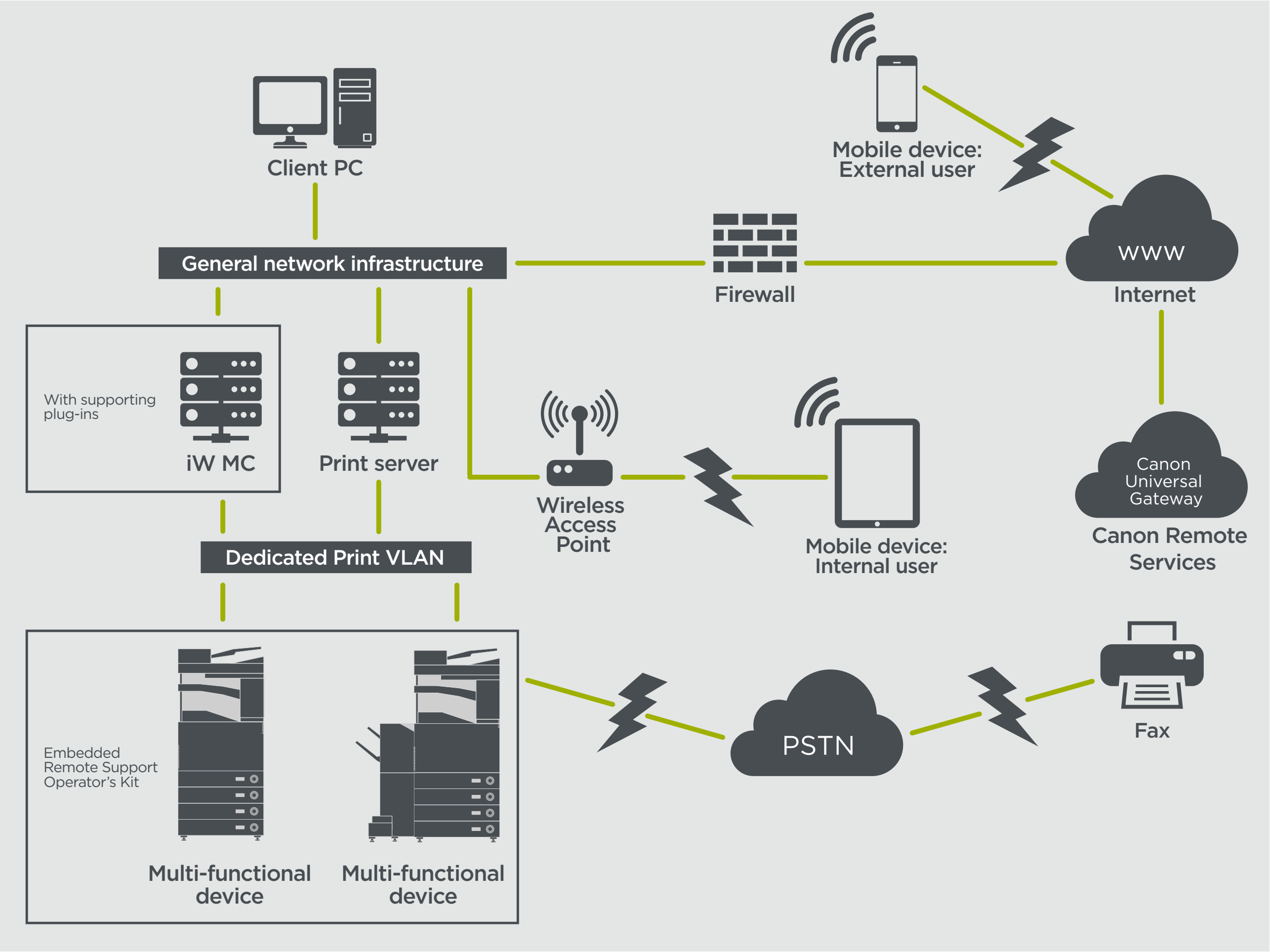
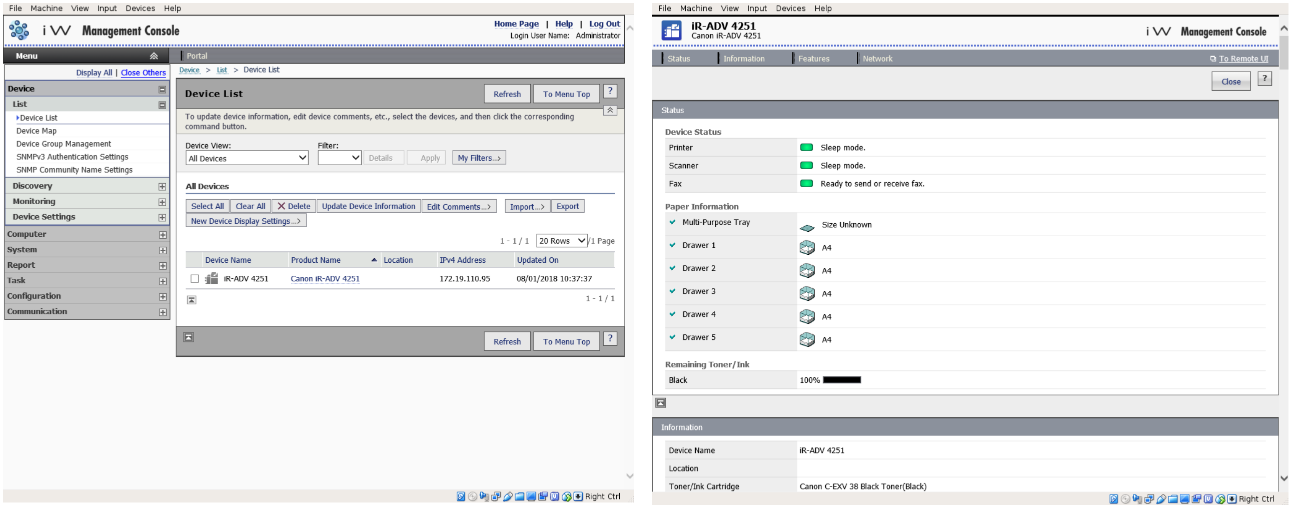


Figure
5a. Device list (in this case a single device) as reported on imageWARE Management Console and
5b. Device details and settings



Login User Name: Administrator

Device List

To update device information, edit device comments, etc., select the devices, and then click the corresponding command button.

Device View: All Devices

Filter:

All Devices

1 - 1 / 1 20 Rows /1 Page

	Device Name	Product Name	Location	IPv4 Address	Updated On
□	iR-ADV 4251	Canon iR-ADV 4251		172.19.110.95	08/01/2018 10:37:37

1 - 1 / 1

iR-ADV 4251
Canon iR-ADV 4251

Status

Device Status

Printer	🟩 Sleep mode.
Scanner	🟩 Sleep mode.
Fax	🟩 Ready to send or receive fax.

Paper Information

✓ Multi-Purpose Tray	Size Unknown
✓ Drawer 1	A4
✓ Drawer 2	A4
✓ Drawer 3	A4
✓ Drawer 4	A4
✓ Drawer 5	A4

Remaining Toner/Ink

Black	100%

Information

Device Name	iR-ADV 4251
Location	
Toner/Ink Cartridge	Canon C-EXV 38 Black Toner(Black)

e-Maintenance

The e-Maintenance system provides an automated way of collecting device usage counters for billing purposes, consumables management and remote device monitoring through status and error alerts.

The e-Maintenance system consists of an Internet facing server (UGW) and either an embedded Multi-Functional Device software (eRDS) and/or additional server-based software (RDS plug-in) to collect device service related information. The eRDS is a monitoring program which runs inside the imageRUNNER ADVANCE. If the monitoring option is enabled in the device settings, the eRDS obtains its own device information and sends it to the UGW. The RDS plug-in is a monitoring program which is installed in a general PC, and can monitor 1 to 3000 devices. It obtains the information from each device via network and sends it to the UGW.

The table shown on the next page overviews the data transferred, protocols (depends upon options selected during the design and implementation) and ports used. At no point is any copy, print, scan or fax image data transferred.

Table 3 E-Maintenance Data Overview

Description	Data Handled	Proctocol/ Port	Port
Communication between eMaintenance (eRDS or RDS plug-in) and UGW	UGW web service address Proxy server address / port number Proxy account / password UGW mail destination address SMTP server address POP server address Device status, counter and model information Serial number Remaining toner/Ink information Firmware information Repair request information Logging information Service call Service alarm Jam Environment Condition log	HTTP/HTTPS/SMTP/POP3	TCP/80 TCP/443 TCP/25 TCP/110
Communication between eMaintenance and Device (only RDS plug-in, as eRDS is embedded software)		SNMP Canon proprietary SLP/SLP/HTTPS	UDP/161 TCP/47546, UDP/47545, TCP9007 UDP/427 UDP/11427 TCP/443

Content Delivery System

The Content Delivery System (CDS) establishes a connection between the MFD and Canon Universal Gateway (UGW). It provides device firmware and application updates.

Table 4 Content Delivery System Data Overview

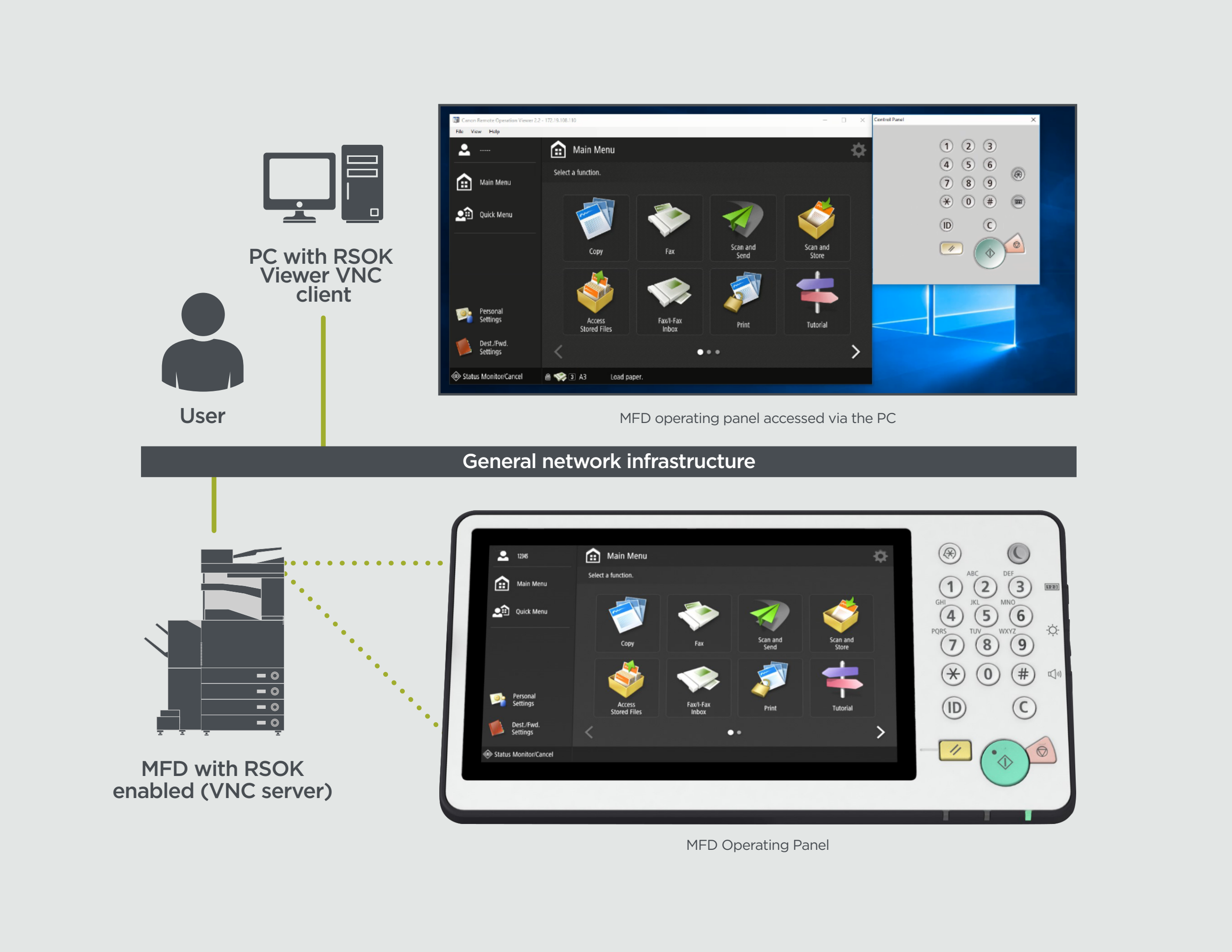
Description	Data Sent	Proctocol/ Port	Port
Communication between the MFD and UGW	Device serial number Firmware version Language Country Information relating to the device EULA	HTTP/HTTPS	TCP/80 TCP/443
Communication between the UGW and MFD	Test file (Binary random data) for communication testing Firmware or MEAP application binary data	HTTP/HTTPS	TCP/80 TCP/443

A specific CDS access URL is pre-set in the device configuration.
If there is a requirement to provide centralised device firmware and application management from within the infrastructure, a local installation of iWMC with Device Firmware Upgrade (DFU) plug-in and Device Application Management plug-in will be required.

Remote Support Operator's Kit

The Remote Support Operator's Kit (RSOK) provides remote access to the device control panel. This server-client type system consists of a VNC server running on MFP and Remote Operation Viewer VNC Microsoft Windows client application.

Figure 6 Remote Support Operator's Kit (RSOK) Setup



MFD operating panel accessed via the PC

MFD Operating Panel

Table 5 Remote Support Operator's Kit Data Overview

Description	Data Sent	Proctocol	Port
VNC password authentication	User password	DES encryption	5900
Operation Viewer	Device control panel - screen data - hardware key operation	Version 3.3 RFB protocol	5900

APPENDIX

Canon imageRUNNER ADVANCE Security Related Features

The imageRUNNER ADVANCE platform provides remote configuration through a web services interface known as the Remote User Interface (RUI). This interface provides access to many of the device configuration settings and can be disabled if not permitted and password protected to prevent unauthorised access.

Whilst the majority of the device settings are available through the RUI, it is necessary to use the device control panel to set items which cannot be set using this interface. Our recommendation is to disable any unused services. To provide flexibility and support, the Remote Service Operator's Kit (RSOK) provides remote access to the device control panel. This is based on VNC technology consisting of a server (the device) and a client (a network PC). A specific Canon client PC viewer is available which provides simulated access the control panel keys.

This section gives an overview of key imageRUNNER ADVANCE security related features and their configuration settings.

Managing the Machine

To reduce leakage of personal information or unauthorised use, constant and effective security measures are required. By designation of an administrator to handle device settings, user management and security settings can be restricted to those authorised only.

The links below details the:

- Basic management of the device
- Limitation of risks by negligence, user error and misuse
- Device management
- Management of System Configuration and Settings

http://ug.oipsrv.net/USRMA-0945-zz-CS-enGB/contents/CT0305_admin_0001.html

http://ug.oipsrv.net/USRMA-0945-zz-CS-enGB/contents/CT0305_admin_0037.html

IEEE P2600 Standard

A number of imageRUNNER ADVANCE are IEEE P2600 compliant which is a global information security standard for multifunctional peripherals and printers.

The link below describes the security requirements defined in the IEEE 2600 standard, and how the device functions meet these requirements.

http://ug.oipsrv.net/USRMA-0945-zz-CS-enGB/contents/CT0305_admin_0095.html#345_h1_01

IEEE 802.1X Authentication

When there is a requirement to connect to an 802.1X network, the device must authenticate to ensure that it is an authorised connection.

The link below authentication methods available and configuration settings.

http://ug.oipsrv.net/USRMA-0945-zz-CS-enGB/contents/CT0305_admin_0036.html#296_h1_01

Applying a Security Policy to the Machine

The latest imageRUNNER ADVANCE models allow multiple device security settings, the security policy, to be managed in batch via the Remote UI. A separate password can be used permitting only the security administrator to modify the settings.

The link below details:

- Using a Password to Protect the Security Policy Settings
- Configuring the Security Policy Settings
- Security Policy Setting Items

http://ug.oipsrv.net/USRMA-0945-zz-CS-enGB/contents/CT0305_admin_0002.html

Managing Users

Customers requiring a higher level of security and efficiency can utilise either built-in functionality or use a print management solution such as uniFLOW.

For further details on our print management solutions, please contact our local representatives or refer to the uniFLOW product brochure.

Configuring the Network Security Settings

Authorized users may incur unanticipated losses from attacks by malicious third parties, such as sniffing, spoofing, and tampering of data as it flows over a network. To protect your important and valuable information from these attacks, the machine supports the following features to enhance security and secrecy.

http://ug.oipsrv.net/USRMA-0945-zz-CS-enGB/contents/CT0305_admin_0028.html

Managing Hard Disk Data

The device hard disk drive is used to store the device operating system, configuration settings and job information. Most device models provide full disk encryption (compliant to FIPS 140-2) pairing it to the specific device preventing it from being read by unauthorised users. A preparatory Canon MFP Security Chip is certified as a cryptographic module under the Cryptographic Module Validation Program (CMVP) established by the U.S. and Canada, as well as the Japan Cryptographic Module Validation Program (JCMVP).

http://ug.oipsrv.net/USRMA-0945-zz-CS-enGB/contents/CT0305_admin_0092.html

SECURITY POLICY SETTINGS OVERVIEW

The third generation of the imageRUNNER ADVANCE models introduce the Security Policy Settings and Security Administration User. This requires successful login of the Administrator and, if configured, an additional Security Administrator login with an additional password.

The table below details the settings available.

1. Interface	Notes
Wireless Connection Policy	
Prohibit Use of Direct Connection	<Use Wi-Fi Direct> is set to <Off>. It is not possible to access the machine from mobile devices.
Prohibit Use of Wireless LAN	<Select Wired/Wireless LAN> is set to <Wired LAN>. It is not possible to establish a wireless connection with the machine via a wireless LAN router or access point.
USB Policy	
Prohibit use as USB device	<Use as USB Device> is set to <Off>. You will not be able to use the print or scan functions from PCs connected via USB) when use as a USB device is prohibited
Prohibit use as USB storage device	<Use USB Storage Device> is set to <Off>. It is not possible to use USB storage devices However, the following service functions still work even if "Prohibit use as USB storage device" is ON. • Firmware update by USB stick (from download mode) • Copying the Sublog data from device to USB. (LOG2USB) • Copying the report from device to USB (RPT2USB)
Network Communication Operational Policy Note: These settings do not apply to communication with IEEE 802.1X networks, even if the check box is selected for [Always Verify Server Certificate When Using TLS].	
Always verify signatures for SMS/WebDAV server functions	In <SMB Server Settings>, the <Require SMB Signature for Connection> and <Use SMB Authentication> options are set to <On>, and <Use TLS> in <WebDAV Server Settings> is set to <On>. When the machine is used as an SMB server or WebDAV server, digital certificate signatures are verified during communication.
Always verify server certificate when using TLS	<Confirm TLS Certificate for WebDAV TX>, <Confirm TLS Certificate for SMTP TX>, <Confirm TLS Certificate for POP RX>, <Confirm TLS Certificate for Network Access>, and <Confirm TLS Certificate Using MEAP Application> are all set to <On>, and a check mark is added to <CN>. In addition, the <Verify Server Certificate> and <Verify CN> options in <SIP Settings> > <TLS Settings> are set to <On>. During TLS communication, verification is performed for digital certificates and their common names
Prohibit clear text authentication for server functions	• <Use FTP Printing> in <FTP Print Settings> is set to <Off> • <Allow TLS (SMTP RX)> in <E-Mail/I-Fax Settings> <Communication Settings> is set to <Always TLS>, <Dedicated Port Authentication Method> in <Network> is set to <Mode 2>, • <Use TLS> in <WebDAV Server Settings> is set to <On>. When using the machine as a server, functions that use plain text authentication are not available TLS will be used if clear text authentication is prohibited. Moreover, you will not be able to use applications or server functions, such as FTP, that only support clear text authentication. May not be possible to access the machine from device management software or driver
Prohibit use of SNMPv1	In <SNMP Settings>, <Use SNMPv1> is set to <Off>. You may not be able to retrieve or set the device information from the printer driver or management software if the use of SNMPv1 is prohibited
Port Usage Policy	
Restrict LPD port	Port number: 515 <LPD Print Settings> is set to <Off>. It is not possible to perform LPD printing.
Restrict RAW port	Port number 9100 <RAW Print Settings> is set to <Off>. It is not possible to perform RAW printing.
Restrict FTP port	Port number 21 In <FTP Print Settings>, <Use FTP Printing> is set to <Off>. It is not possible to perform FTP printing.
Restrict WSD port	Port number 3702, 60000 In <WSD Settings>, the <Use WSD>, <Use WSD Browsing>, and <Use WSD Scan> options are all set to <Off>. It is not possible to use WSD functions

Restrict BMLinkS port	Port number 1900 Not used in European Region
Restrict IPP port	Port number 631 You will not be able to use Mopria, AirPrint and IPP if the IPP port is restricted
Restrict SMB port	Port number: 137, 138, 139, 445 In <SMB Server Settings>, <Use SMB Server> is set to <Off>. It is not possible to use the machine as an SMB server.
Restrict SMTP port	Port number 25 In <E-Mail/I-Fax Settings> > <Communication Settings>, <SMTP RX> is set to <Off>. SMTP reception is not possible.
Restrict dedicated port	Port number: 9002, 9006, 9007, 9011-9015, 9017-9019, 9022, 9023, 9025, 20317, 47545-47547 You will not be able to use the remote copy, remote fax, remote scan, or remote print functions, or applications, etc. if the dedicated port is restricted.
Restrict Remote Operator's Software port	Port number 5900 <Remote Operation Settings> is set to <Off>. It is not possible to use remote operation functions.
Restrict SIP (IP Fax) port	Port number: 5004, 5005, 5060, 5061, 49152) <Use Intranet> in <Intranet Settings>, <Use NGN> in <NGN Settings>, and <Use VoIP Gateway> in <VoIP Gateway Settings> are all set to <Off>. It is not possible to use IP fax.
Restrict mDNS port	Port number 5353 In <mDNS Settings>, the <Use IPv4 mDNS> and <Use IPv6 mDNS> options are set to <Off> <Use Mopria> is set to <Off>. It is not possible to search the network or perform automatic settings using mDNS. It is also not possible to print using Mopria™ or AirPrint
Restrict SLP port	Port number 427 In <Multicast Discovery Settings>, <Response> is set to <Off>. It is not possible to search the network or perform automatic settings using SLP.
Restrict SNMP port	Port number 161 You may not be able to retrieve or set the device information from the printer driver or management software if the SNMP port is restricted In <SNMP Settings>, the <Use SNMPv1> and <Use SNMPv3> options are set to <Off>

2. Authentication	Notes
Authentication Operational Policy	
Prohibit guest users	• <Advanced Space Settings> > <Authentication Management> is set to <On> • <Login Screen Display Settings> is set to <Display When Device Operation Starts> • <Restrict Job from Remote Device without User Auth.> is set to <On> It is not possible for unregistered users to log in to the machine. Print jobs sent from a computer are also cancelled.
Force setting of auto logout	This setting is for logging out from the control panel. This does not apply to other methods of logging out (settable range 10 sec – 9 minutes) <Auto Reset Time> is enabled. The user is automatically logged out if no operations are performed for a specified period of time. Select [Time Until Logout] on the Remote UI setting screen.
Password Operational Policy	
Prohibit caching of password for external servers	This setting does not apply to passwords the user explicitly saves, such as passwords for address books, etc. <Prohibit Caching of Authentication Password> is set to <On>. Users will always be required to enter a password when accessing an external server.
Display warning when default password is in use	<Display Warning When Default Password Is in Use> is set to <On>. A warning message will be displayed whenever the machine's factory default password is used.
Prohibit use of default password for remote access	<Allow Use of Default Password for Remote Access> is set to <Off>. It is not possible to use the factory default password when accessing the machine from a computer
Password Settings Policy (The policy will not apply to department ID management or PIN)	
Set minimum number of characters for password	Minimum Number of characters settable between 1 and 32
Set password validity period	Validity Period settable between 1 and 180 days
Prohibit use of 3 or more identical consecutive characters	
Force use of at least 1 uppercase character	
Force use of at least 1 lowercase character	
Force use of at least 1 digit	
Force use of at least 1 symbol	
Lockout Policy	
Enable lockout	Does not apply to department ID/mail box PIN, PIN or secure print authentication, etc. Lockout Threshold: Settable between 1 – 10 times Lockout Period: Settable between 1 – 60 minutes

3. Key/Certificate	Notes
Prohibit use of weak encryption	Applies to IPSec, TLS, Kerberos, S/MIME, SNMPv3, and wireless LAN. You may not be able to communicate with devices that only support weak encryption
Prohibit use of key/certificate with weak encryption	Applies to IPSec, TLS, and S/MIME. If you use a key/certificate with weak encryption for TLS, it will be changed to the pre-installed key/certificate. You will not be able to communicate if you are using a key/certificate with weak encryption for functions other than TLS
Use TPM to store password and key	Only available for devices with TPM installed. Always back up the TPM keys when TPM is enabled. Refer to the user manual for details Important when TPM settings are enabled: • Make sure to change the “Administrator” password from the default value, to prevent a third party other than the administrator from being able to back up the TPM key. If a third party takes the TPM backup key, you will not be able to restore the TPM key. • For the purpose of enhanced security, the TPM key can only be backed up once. If the TPM settings are enabled, make sure to back up the TPM key on to a USB memory device, and store it in a secure place to prevent loss or theft. • The security functions provided by TPM do not guarantee complete protection of the data and hardware.

4. Log	Notes
Force recording of audit log	• <Save Operation Log> is set to <On> • <Display Job Log> is set to <On> • <Retrieve Job Log with Management Software> in <Display Job Log> is set to <Allow> • <Save Audit Log> is set to <On> • <Retrieve Network Authentication Log> is set to <On> Audit logs are always recorded when this setting is enabled
Force SNTP settings	Enter SNTP server address In <SNTP Settings>, <Use SNTP> is set to <On>. Time synchronization via SNTP is required. Enter a value for [Server Name] on the Remote UI setting screen.

5. Job	Notes
Printing Policy	
Prohibit immediate printing of received jobs	Received jobs will be stored in fax/I-Fax memory if immediate printing of received jobs is prohibited. • <Handle Files with Forwarding Errors> is set to <Off> • <Use Fax Memory Lock> is set to <On> • <Use I-Fax Memory Lock> is set to <On> • <Memory Lock End Time> is set to <Off> • <Display Print When Storing from Printer Driver> in <Set/Register Confidential Fax Inboxes> is set to <Off> • <Settings for All Mail Boxes> > <Print When Storing from Printer Driver> is set to <Off> • <Box Security Settings> > <Display Print When Storing from Printer Driver> is set to <Off> • <Prohibit Job from Unknown User> is set to <On>, and <Forced Hold> is set to <On>. Printing does not occur immediately, even when printing operations are performed.
Sending/Receiving Policy	
Allow sending only to registered addresses	In <Limit New Destination>, the <Fax>, <E-Mail>, <I-Fax>, and <File> options are set to <On>. It is only possible to send to destinations that are registered in the Address Book.
Force confirmation of fax number	Users are required to enter a fax number again for confirmation when sending a fax.
Prohibit auto forwarding	<Use Forwarding Settings> is set to <Off>. It is not possible to automatically forward faxes.

6. Storage	Notes
Force complete deletion of data	<Hard Disk Data Complete Deletion> is set to <On>

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