

PLUG 2.0



# PrintMonitor Plug 2.0 Security

Technical White Paper  
1.3

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# Introduction

This technical white paper provides an in-depth look at the security features and functionality that enable the device to be used securely on your network.

This paper is primarily intended for administrative personnel responsible for the configuration and maintenance of your PrintMonitor Plug 2.0 device.

TI-Tool does not warrant that use of the information contained within this document will prevent malicious attacks, or prevent misuse of your PrintMonitor Plug 2.0.

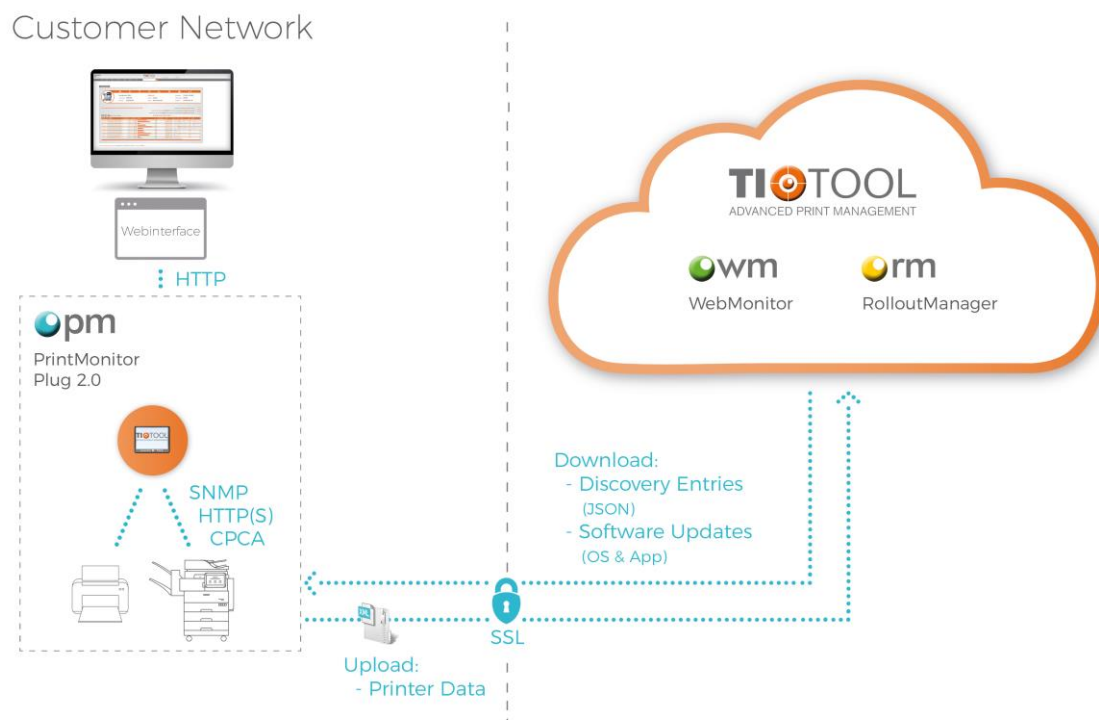
## How PrintMonitor Plug 2.0 Works

The PrintMonitor Plug 2.0 device communicates with our cloud services over an encrypted HTTPS (SSL) connection to protect the data. The standard port 443 is used for HTTPS communication and the port used cannot be changed.

If the HTTPS standard port is blocked by the customer's environment, communication between the customer network and the TI-Tool Cloud is not possible.

The TI-Tool Cloud is addressed by URLs and requires DNS resolution on the customers' site.

Communication using a proxy solution is supported with "basic authentication" method only.



# Communication Targets

The following servers are used to upload printer data:

- › update1.printmontior.at
- › update2.printmonitor.at

The following servers are used to download software updates and configuration settings (discovery entries):

- › download.printmonitor.at
- › download2.printmonitor.at

## Data Transfer

### Communication Sequence & Frequency

Communication is initiated every 2 hours by the device at a scheduled time between 5 AM and 7 PM. The start time is randomly delayed by up to 20 minutes (to avoid that all devices report exactly at the same time). Communication to the device cannot be initiated by the TI-Tool Cloud.

Device Alerts (SNMP Traps) will initiate real-time transmission to the TI-Tool Cloud – according to specified filter settings.

### Content and Size of Outbound Data

Data	From	To	Frequency	Size (Kb)	Notes
Printer data	Device	Cloud	Daily every 2 hours (+ up to 20 minutes) between 6 AM and 8 PM	3	Size depends on the number of devices

## Content and Size of Inbound Data

Communication cannot be initiated from the TI-Tool Cloud. It is only a reply to the communication initiated by the device.

Data	From	To	Frequency	Size (Kb)	Notes
Discovery entries & system update check	Cloud	Device	Daily every 2 hours (+ up to 20 minutes) between 5 AM and 7 PM	10	Size depends on number of discovery entries
Discovery entries & system update check	Cloud	Device	On startup	10	Size depends on number of discovery entries
System updates	Cloud	Device	Daily every 2 hours (+ up to 20 minutes) between 5 AM and 7 PM	97.280	Only if update is available

## Port Settings

The PrintMonitor Plug 2.0 uses following TCP and UDP Ports:

Port Name	Protocol TCP / UDP	Port #	Direction	Description
SNMP	UDP	161	Outbound	Querying the printers
HTTP/HTTPS	TCP	80/443	Outbound	Connection to printers web interface to get detailed meter data. Only used for Lexmark & Brother devices
CPCA	UDP	47545	Outbound	Connection to Canon printers for detailed meter data
HTTPS	TCP	443	Outbound	Uploading printer data to the TI-Tool Cloud
SNMP	UDP	162	Inbound	Receive SNMP Trap notifications
HTTP	TCP	80	Inbound	User Interface for administration
WS	TCP	8080	Inbound	WebSocket for real-time communication with web user interface
SSH	TCP	2322	Inbound	SSH Management Port is restricted to TI-Tool technicians only.

# Device administration

## Web interface

The PrintMonitor Plug 2.0 device has a user-friendly web interface. It can be accessed through any modern web browser.

Default login credentials:

Username: admin  
Password: printmonitor

## Basic configuration – via USB keyboard

The USB port allows you to connect a USB keyboard to enter basic configuration (DHCP, static IP settings, NTP servers,...)

## Transport Security

Each Plug 2.0 device ships with a pre-installed client certificate for secure authentication with the TI-Tool Cloud. Please make sure, that firewalls or other network security devices do not intercept and modify the certificate during the communication process.

The entire communication between the device and TI-Tool Cloud is secured by TLS/SSL.

## System & Software Updates

System update is initiated at startup of the device and at scheduled times (see [Data Transfer](#)). There are 3 different update types:

- › Bootloader
- › Operating System
- › PrintMonitor Software

Please do not unplug the device during update. It may reboot several times.

