



PrintMonitor Server System-Reference

Technical System Information

3.2

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General Information about the PrintMonitor

The PrintMonitor Server Edition Software is used for logging and processing status messages, page counters and consumables of printers and multifunctional devices.

Therefore, manual client operations like counter readings or reorder consumables are no longer needed.

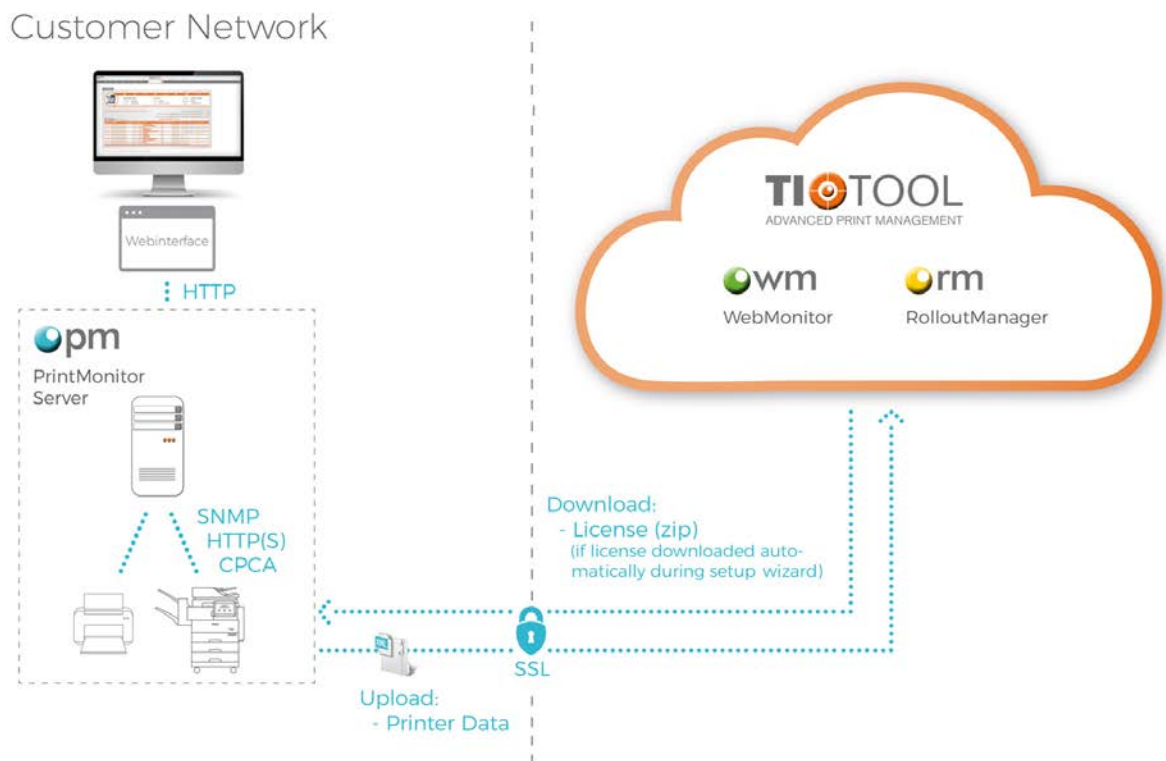
The Software has to be installed on a Windows Server or computer (for further information see [Requirements](#)).

License

The PrintMonitor is a part of the WebMonitor license. All PrintMonitor functions are based on the TI-Tool WebMonitor. It's not possible to get a license for the PrintMonitor only.

Please contact your partner to obtain a license.

System overview



Getting started

Please make sure, that your system meets the requirements (for further information see [Requirements](#)).

Installation

Please download the latest PrintMonitor version from our download page:

<https://www.titool.eu/downloads>

and extract the setup files. Follow the windows installer instructions. The setup program guides you through the installation process step by step.

A detailed manual can be found online at <https://www.titool.eu/manual>

Discover and query printers

The PrintMonitor does support SNMP V1 and V2. Community names for reading and writing are adjustable for each discover entry. It's not possible to query data from printers with a wrong community name.

Please choose one of the following possibilities of detection in your specific internal network.

- › IP range (192.168.1.1-192.168.1.254)
- › Multiple IP ranges (192.168.1.1 – 192.168.2.254)
- › Single IP (192.168.1.111)
- › Single DNS name (Printer1 or Printer1.domain.xx)

Please note, that a discovery with multiple IP ranges takes some time, and could wrongly be recognized as a network attack.

Data transfer

It's not absolutely necessary to have an internet connection to use the software. There must be the possibility to download the license file. This can be made by another computer.

Transmission (counters, consumables, status messages)

› Option 1: HTTPS Upload (Standard)

The PrintMonitor does upload a zipped xml file, containing all printer data via HTTPS (Port: 443). A proxy server can be used optionally. Please keep in mind, that we support BASIC proxy authentication only.

› Option 2: SMTP / Mail-Server

The PrintMonitor sends a zipped xml file, containing all printer data by E-Mail via the specified mail server. SMTP login information can be used optionally.

The given mail server must allow relaying to external addresses. If relaying is not possible, you can alternatively create a dedicated mailbox and setup an automated forward.

Direct sending via Microsoft Exchange Server (without SMTP) is not supported at the moment.

Services

PrintMonitor Service Monitor

The main task of this service is to monitor the PrintMonitor Traps Monitor service. If the Traps Monitor is started and configured as Start type "Automatically", the Service Monitor will check its status each minute, and restart if necessary.

PrintMonitor Web Socket Server

This service is used by the PrintMonitor for internal communication between web interface and core components. It is absolutely necessary that this service is started, in order to ensure a smooth functionality.

PrintMonitor Traps Monitor

The Traps Monitor is an optional service, used to receive and handle SNMP traps. Unless SNMP Traps are in use, this service should not be started.

Applications

pm_query.exe [query | discover]

Parameter: query

This application will query all known printers, which are already recognized and listed in the PrintMonitor. Each device will be queried by the following sequence:

- › Query all printer details (SysName, SysLocation, model, etc.)
- › Query miscellaneous page counters
- › Query all consumable, including capacity and level
- › Query all status messages
- › Query all inputs, including capacity and level
- › Query all outputs, including capacity and level
- › Query all storage information, including capacity and used space

The printers, depending on the settings, are queried by IP address or host name. Known printers will be queried only (no discovery). After successful query, the printer data will be uploaded by HTTPS or sent by mail (SMTP).

Parameter: discover

This application performs a printer discover by the configured discovery entries. All already known printers will be updated during this process, if they are defined in the discovery list. After successful discover, the printer data will be uploaded by HTTPS or sent by mail (SMTP).

`pm_import_printers.exe` [<importlist> | <exclusionlist> | HttpUsername & HttpPassword]

This application can be used for an automated csv file import. The discovery entries will be maintained automatically by this csv import list.

Additionally, all printers, which are not part of this csv list will be removed, if they were not available since 48 hours.

Parameter: importlist

This parameter defines the path to the csv file. The path can be on the local machine or on a network drive. Please check the permissions.

Examples:

- > `C:\Path_PrintMonitor\pm_import_printers.exe printers.csv`
- > `C:\pm_import_printers.exe \\servername\directory\printers.csv`

Please note that this import file has to be saved as csv with following pattern:

IP / Hostname; Communityname read; Communityname write

Examples:

- > 192. 168. 1. 15; publ i c; pri vate
- > 192. 168. 1. 20; SnmpRead; SnmpWri te
- > Pri nter1; publ i c; pri vate
- > Pri nter2; SnmpRead; SnmpWri te

Note: It's possible to import entries by IP or DNS name only. In this case, standard community names will be used (public / private).

Parameter: exclusionlist

The exclusion list can be used optionally to remove entries from the specified import list. This list consists of a row with IP address or DNS name, which are contained in the import file, but should be ignored / excluded during import.

Parameter: HttpUsername & HttpPassword

The import list can be acquired with a HTTP username and password. It will be used to fetch counter data from Lexmark and Brother web interfaces. These values apply to all discovery entries in the specified import list.

Example:

- > C:\Path_PrintMonitor\pm_import_printers.exe printers.csv exceptions.csv admin 1234

pm_wizard.exe

This application will be started automatically after the setup process. It can also be started on demand to generate a new license, or update / renew the windows task scheduler.

Testapp.exe [<Target/Host> |<SNMP_Version> | <CommunityName>]

This application can be used to query a single printer for testing purposes. It will output all necessary information about the target printer.

Parameter: Target/Host

This target can be a single ip or a DNS name

Parameter: SNMP_Version

The SNMPVersion, which is used to query the printer. SNMP V1 can be used in most cases.

Parameter: CommunityName

The CommunityName to read SNMP data.

Requirements

| Hardware / Software | Minimum requirements | Recommended requirements |
|---|---|---|
| Processor | Intel Core i3 or processor of other manufacturer | Intel Core i3 or processor of other manufacturer |
| Memory (RAM) | 1 GB | 2 GB |
| Disc space | 150 MB | > 500 MB |
| Operating system | Windows 7 or Server 2008 R2 incl. IIS + CGI * | Windows 7 or Server 2016 / 2019 incl. IIS + CGI * |
| Microsoft .NET Framework | Version 4.0 | Version 4.5 |
| Browser (Web UI) (can be used on a client) | Internet Explorer 10 Firefox 15 Opera 11.0 Chrome 14 | Internet Explorer 11 or higher Microsoft Edge Firefox 20 or higher Opera 15 or higher Chrome 29 or higher |

* IIS + CGI will be installed automatically during setup process.

Ports used (PM = PrintMonitor)

| Port Name | Protocol | Port # | Direction | Description |
|----------------|----------|---------------------|---|---|
| SNMP | UDP | 161 * | Outgoing • from PM to Printer | Printer query (SNMP) |
| CPCA | UDP | 47545 | Outgoing • from PM to Printer | Connection to Canon printers for detailed meter data |
| HTTP | TCP | 80 | Outgoing • from PM to Printer | Connection to the web interface of the printer to get printer detail-information (only Lexmark und Brother) |
| HTTPS | TCP | 443 | Outgoing A) from PM to Printer B) from PM to Backend-System | A) Connection to the web interface of the printer to get printer detail-information (only Lexmark und Brother) B) Send printer data (XML) in a compressed and encrypted ZIP File to the TI-Tool cloud. |
| WEB UI HTTP | TCP | "freely selectable" | Incoming • from Browser to PM | Graphic User Interface for administration |
| SMTP | TCP | 25 | Outgoing • from PM to SMTP Server | Send mail (SMTP, only used if transmission mode set to mail) |
| WebSocket | TCP | "freely selectable" | Incoming • from Browser to PM | Socket WEB UI – PM |
| SNMP Traps | UDP | 162 | Incoming • from Printer to PM | Receive SNMP Trap notifications. Need to be started manually |

*freely selectable (Standard: 161)

Webinterface

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

Data traffic (Bytes)

The following table shows you the average count of data traffic (pm_query.exe query / discover)

| Manufacturer | Model | Number of packages | Bytes |
|----------------|--------------------|--------------------|---------|
| HP | LaserJet M3027 MFP | 470 | 47'166 |
| Konica Minolta | Bizhub C253 | 414 | 36'472 |
| Lexmark | Optra T642 | 441 | 44'461 |
| Ricoh | Aficio MP C4000 | 1834 | 170'260 |

Transport Security

Each PrintMonitor Server installation has a 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.

Appendix

Sample printer data (XML, sample can be downloaded from https://static.ti-tool.com/files/printmonitor/sample_data.xml)

| | | |
|--|---|--|
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