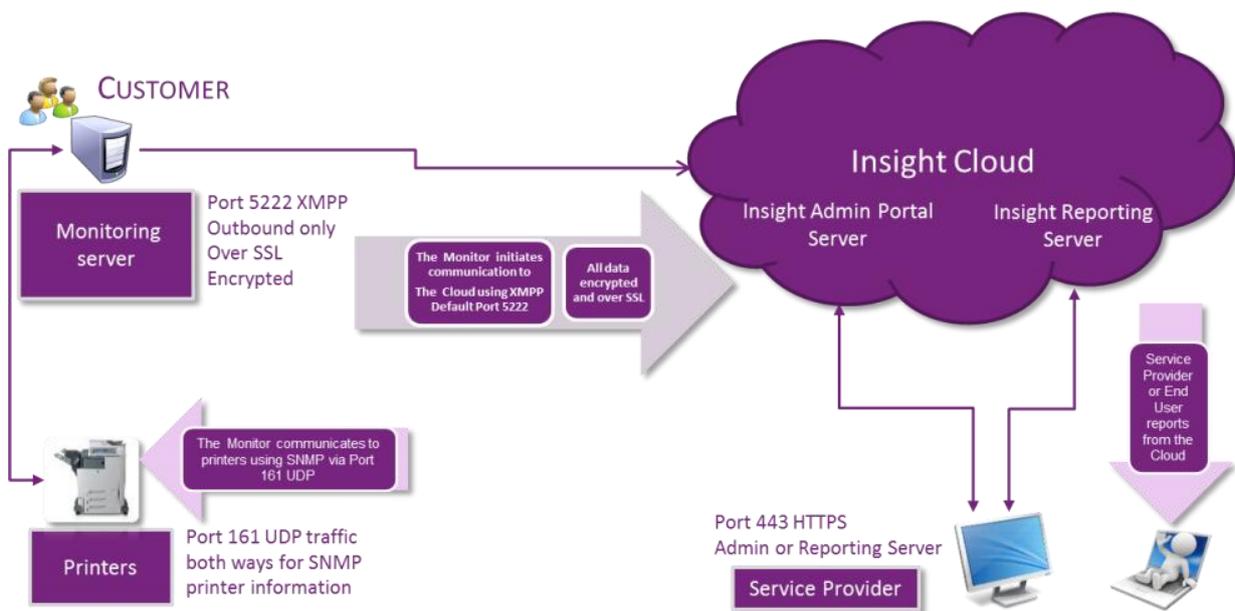


EKM Insight data, security and protocols

Ensuring safe reliable remote print service delivery



Secure Real Time Print Service Management

Insight is a real time continuous service management solution which provides efficient and effective print service management from a central location. This is available to service providers over the internet as a cloud service reducing costs for their customers whilst maintaining exceptionally responsive service delivery and service quality.

To provide this highly responsive service it is critical that information is sent securely and reliably to the central service management system in near real-time. This ensures that customer print service management requirements are met facilitating timely deliveries of consumables and associated services.

This white paper discusses the technologies used to provide secure and reliable data transmission and the steps taken to meet the most stringent expectations of corporate customers in delivering a highly reliable and comprehensive print management service.

Specialised industry standard protocol for real time communication

To achieve the requirements of security, and the provision real time service information for decision support, the system uses a specialised highly secure industry standard data transmission protocol. This has been specifically designed for real time data communication. It is called XMPP and it transmits encrypted XML information securely over SSL with extra encryption applied by the application to further enhance security.

Low overhead fast and secure

Data messages are small therefore extremely fast with very low overhead ensuring effective scalability. The protocol is a point of presence protocol meaning that both the transmitting server and the recipient server must be present and securely logged in for data transmission to take place maintaining both security and data integrity.

The presence requirement and the encryption virtually eliminate the possibility of a man in the middle attack. As implemented within EKM Insight all data transmission is outbound only from customer's servers meaning **no connections** are made with your network initiated from outside of your controlled and secure environment.

This same technology is used by NATO for secure real time communication between systems, applications and people where required.

Industry standard technology

XMPP is an industry standard defined by The Internet Engineering Task Force (IETF). In 2004 the IETF published RFC 3920 and 3921 officially adding XMPP to the list of Internet standards.

As part of this process a default computer port was defined by the Internet Assigned Numbers Authority (IANA) for XMPP traffic. This default Port is 5222 and is the recommended port to use. Being an IANA defined port this will be open by default within firewalls, routers and switches.

The XMPP protocol is used in cloud printing, network management and financial trading.

Insight however will allow you to select an alternative port if required. By default, Insight will attempt to use the defined XMPP port 5222, if this port is not open then EKM Insight can use alternative ports such as port 443. Should you wish to use a different port please advise your service provider and EKM Insight can be configured to accept transmissions on your selected port.

Port 5222 is the recommended port since routers and firewalls expect to see encrypted XML data being sent. Should you wish to use an alternative port you should ensure that your routers and firewalls will accept encrypted XML over that port.

To support HP Smart Device Services specialised features port 443 is used for HTTPS traffic. Again this is outbound only communication from your network.

Information transmitted

The information sent is only the information needed for remote printer service management. This information falls into three core categories of Asset data, Consumable status data, Service incident or alert data:

The asset data provides core details about each printer asset

- What it is (make, model)
- Asset identifiers (anonymous database record ID, Serial No, MAC address, hostname)
- Location identifiers electronic and physical if available within the device and mapped (IP address, Hostname, physical location or zone name)
- Page counts or meter readings
- Identifier data is only sent once unless a change is detected then the changed data is sent.

The current consumable status information for each printer asset

- What the consumable item is (toner, ink, drum, waste toner bottle, its colour, its description and an anonymous consumable record ID)
- The consumable(s) status (current level, maximum level and status codes if applicable)
- Page counts at that status point
- Time and date stamps

The current service alert conditions reported by the printer

- What the alert is (the description, an anonymous alert record ID)
- The alert details (the alert code, the error code if available, the alert class, the alert severity, the alert training level required to resolve the issue)
- Page counts at that status point
- Time and date stamps

No user or print job data

No user data, no print job data nor content is collected, recorded or transmitted by the system.

Cloud server location and data protection

As standard, EKM Insight uses Microsoft Azure cloud computing services. This provides the ability to select the region or country in which your printer service data is stored. Microsoft Cloud computing services have met Europe's stringent data protection rules, one of few companies so far to receive such approval. Microsoft already operates data centres in Amsterdam, Dublin, Frankfurt and London, allowing European customers to store their data locally. Additional locations may be added over time. The regionalised efforts are likely to become increasingly important, as European policy makers finalise new data protection and privacy rules, which will come into force during 2018. Microsoft also provides multiple data centres in North America, South America and Asia Pacific which are used for our customers operating in those regions and to which we apply our strict data security policies. EKM Global holds the Cyber Essentials Plus accreditation.

Additional information used for service management

Other information which is not transmitted can be associated with the printer data in the central system to facilitate effective service management.

This might include consumable shipping information or key user contact details, device specifications, part numbers and consumable yields.

In addition, the central system maintains histories of the assets, the consumables used and service alert conditions raised. These are used in decision support, forecasting, asset management, supply chain and service chain management information and reporting services.

System Protocols and communication ports

The system uses the following protocols and ports:

Protocol	Port	Connection	Function
SNMP	161	Local	Local network print device discovery and monitoring
HTTPS	443	Local and outbound	To access the EKM Insight Cloud Portal Server systems and for local operations via Web Browser. Also used to pass some specific HP SDS data from the monitor to the HP SDS Portal servers
HTTP	80	Local and outbound	To monitor some devices which provide their detailed data via web services as opposed to SNMP. To allow the monitor to access and check its licence server
XMPP	5222	Outbound	Passing data from local monitor to the EKM Insight Portal servers

In conclusion

EKM Insight delivers a highly efficient and secure remote print service management solution enabling your service provider to have full visibility of the status of your printing assets in near real time without the need to have remote access into your network. The underlying technologies used for communication are industry standard, flexible and extensible, making them the protocols of choice for real-time communications over the Internet.

The EKM Insight solution enables the reliable transport of structured XML data between systems. Numerous mission-critical business applications use the XMPP protocol used by Insight, including, cloud printing, network management and financial trading.

Only the data required for efficient print service delivery is collected and transmitted to the central server. No user data or print job content is collected or transmitted.

All central servers are configured to be within the customer's region or country eliminating risks associated with data protection legislation both now and in the future. With inherent security features, scalability and support for multi-vendor print services; EKM Insight is more than able to meet the needs of the most demanding environments.