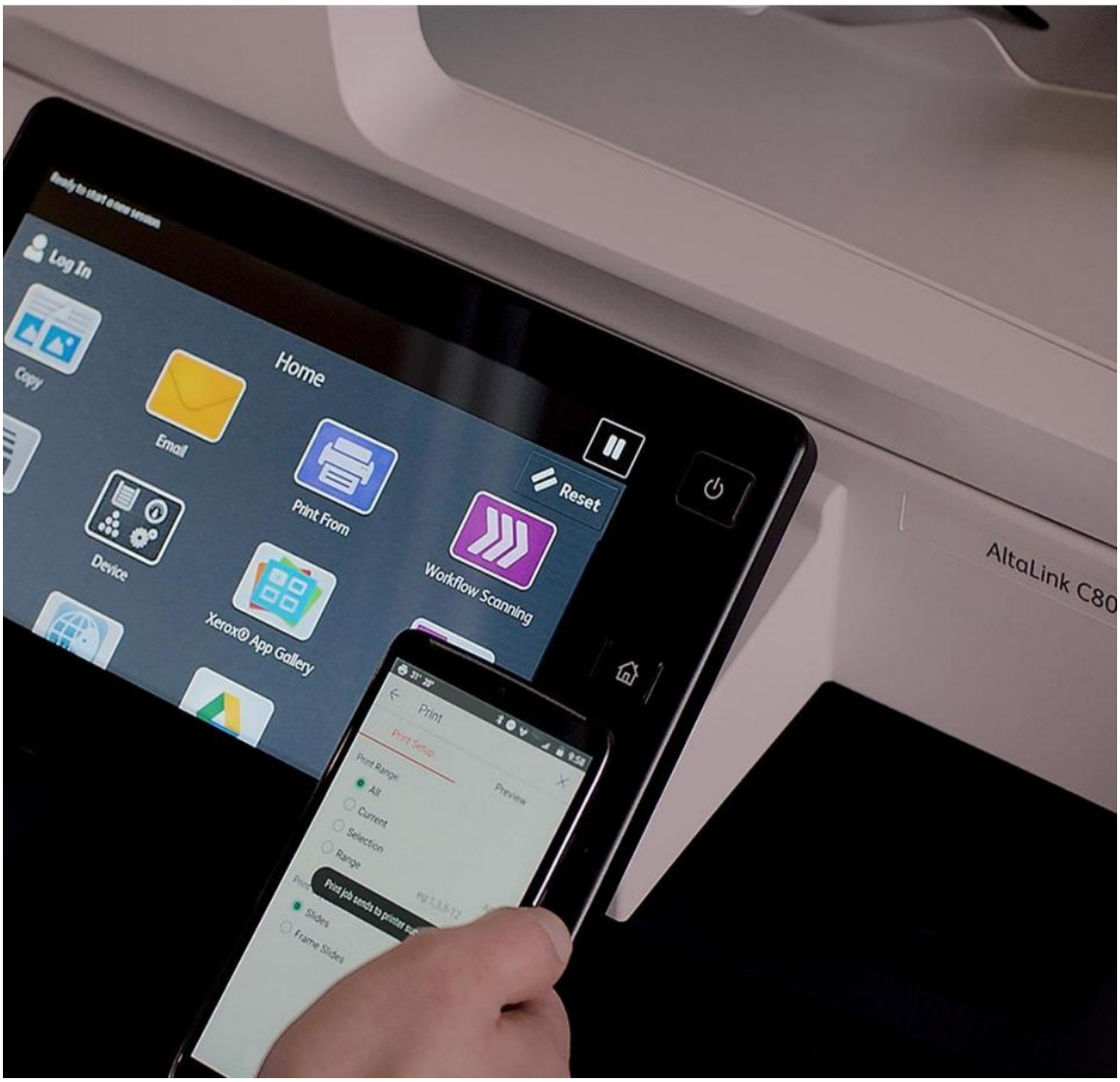
Security Guide

Xerox® Connect App for Google Drive™



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1. Introduction

Purpose

The purpose of the Security Guide is to disclose information for Xerox® Apps with respect to device security. Device security, in this context, is defined as how data is stored and transmitted, how the product behaves in a networked environment, and how the product may be accessed, both locally and remotely. This document describes design, functions, and features of the Xerox® Apps relative to Information Assurance (IA) and the protection of customer sensitive information. Please note that the customer is responsible for the security of their network and the Xerox® Apps do not establish security for any network environment.

This document does not provide tutorial level information about security, connectivity or Xerox® App features and functions. This information is readily available elsewhere. We assume that the reader has a working knowledge of these types of topics.

Target Audience

The target audience for this document is Xerox field personnel and customers concerned with IT security. It is assumed that the reader is familiar with the apps; as such, some user actions are not described in detail.

Disclaimer

The content of this document is provided for information purposes only. Performance of the products referenced herein is exclusively subject to the applicable Xerox® Corporation terms and conditions of sale and/or lease. Nothing stated in this document constitutes the establishment of any additional agreement or binding obligations between Xerox® Corporation and any third party.

2. Product Description

Overview

The Xerox® Connect App for Google Drive™ consists of two primary workflows. The two workflows are:

- Print files from a Google Drive™ repository
- Scan files to a Google Drive™ repository

The app and two workflows facilitate a combination of the following steps:

- Single Sign-On
- Authentication
- App Hosting
- Repository Navigation
- Scanning
- Printing
- Document Format Conversion
- Emailing
- SNMP & Device Webservice Calls

Application	What can I do?
Xerox® Connect App for Google Drive™	• Login to my Google account • Select Print or Scan workflow • Navigate to a folder in my Google Drive repository • Scan a hard copy document to Google Drive with standard scan settings along with option to email the scanned document • Select one or more files in Google Drive and Print hard copies with standard print settings

Table 1 Xerox® App user benefits

CONFIGURING APP SETTINGS

Xerox® Connect App for Google Drive™ provides the following set of configurable settings to customize before installation. If unmodified, the app will use the default setting.

Tenant ID: Define the local organization's ID assigned to their Google Drive instance.

Searchable PDF: Defines the default PDF settings to be searchable, converting the scanned document into selectable text.

SNMP V1/V2 Community Name: The string used to identify which group of users can access SNMP data on a device.

Enable Email a Copy: Defines the default setting for emailing a copy of each document after scan.

Use Google Drive SSO: Enables Google SSO Authentication.

Enable Mobile Login: If enabled, the app will provide the user with the option of choosing a device or Mobile Login method.

Enable Print Workflow: If enabled, the app will provide the user with the option of choosing a Scan or Print workflow.

APP HOSTING

The Xerox® Connect App for Google Drive™ depends heavily on cloud hosted components. A brief description of each can be found below.

The Xerox® Connect App for Google Drive™

The Xerox® App consists of two key components, the device weblet and the cloud-hosted web service. The device weblet is a Xerox® EIP/eSF web app that enables the following behavior on a Xerox® /Lexmark Device:

- Presents the user with an application UI that executes functionality in the cloud.
- Interfaces with the EIP API, which delegates work, such as document scanning and printing.

The weblet communicates with the cloud-hosted web service, which executes the business logic of the app.

Google Drive™ Storage Service

For the Xerox® App to communicate and interact with the correct storage location, the user needs to establish a connection with their Google Drive repository. This connection process utilizes the sign-in dialog provided by a customer's chosen identity provider. By default, the primary identity authority is the Google Online Identity Service. It's also possible for a customer to choose to configure their MSOL tenant so that the Google identity authority delegates to a customer's federated identity provider. In either case, the customer tenant's identity authority requests the username and password needed to access Google Drive content.

Single Sign-On via Xerox® Workplace Suite/Cloud and SSO Manager

To improve user experience, Xerox offers an optional Single Sign-On (SSO) capability that removes the need for a user to sign-in to the Xerox® App each time. Users can log into the printer and are then able to launch the app without the need to provide additional credentials.

Single Sign-On via Kerberos

If Xerox® Workplace Suite/Cloud is not used Xerox offers an optional on-premises Single Sign-On (SSO) capability that removes the need for a user to sign-in to the Xerox® App each time. When this option is enabled, users can log into the printer and are then able to launch the app without the need to provide additional credentials.

Xerox Extensible Interface Platform® /eSF

During standard usage of the Xerox® App, calls to the device web services are used to initiate and monitor scan functions and to pull relevant details related to device properties and capabilities.

COMPONENTS

MFD with Xerox® Connect App for Google Drive™ – ConnectKey App

This is an EIP/eSF capable device that can print, scan and execute ConnectKey Apps installed from the Xerox App Gallery. In this case, the device has the Xerox® Connect App for Google Drive™ installed.

The MFD communicates with the App Service, Middleware Service, App Gallery Service, Google Online Identity Service, and optionally a customer's AD FS cluster if App SSO using Kerberos is enabled.

Xerox® Connect App for Google Drive™ – App Service

The App Service component is a web service hosted on the Microsoft Azure Cloud System. This component is responsible for hosting the web pages that display on the UI of the Xerox® /Lexmark Device. Additionally, this component provides the business logic service.

The App Service accepts requests from the MFD and communicates with Xerox Cloud Repository Middleware and File Conversion Services.

Cloud Repository Middleware

The Cloud Repository Middleware component is a service hosted on the Microsoft Azure Cloud System. The primary function of this middleware is to serve as the cloud storage interface adapter for current and future products and services.

The Cloud Repository Middleware accepts requests from the MFD and the App Service and communicates with the Google Oauth2 Service and Google REST.

The Cloud Repository Middleware also interfaces with the Document Conversion Engine from Xerox, which converts non-printable document formats into printable document formats.

Document Conversion Engine

The Document Conversion Engine component is a service hosted on the Microsoft Azure Cloud System. The Document Conversion Engine converts a variety of document formats to a format that is printable by Xerox® /Lexmark Devices.

Xerox App Gallery

The App Gallery component is a web application, with services, hosted on the Microsoft Azure Cloud System. The App Gallery is accessed to ensure the Application is entitled to run. The application can only be run when a “Trial” license has not expired OR a “Purchased” license has not expired.

After an entitled weblet is installed on an agency device, App initialization will contact App Gallery:

- to ensure the Application is entitled to run on the device
- to retrieve App Gallery App Configuration parameter values set by an App Gallery user.

File Conversion Service

The File Conversion API component is a VM hosted on the Microsoft Azure Cloud System. This component converts a variety of original or scan document formats into formats supported by the App. It is primarily used for cloud-based OCR workloads when converting a scanned document into one of the following Microsoft® Office document formats: Word (DOCX), Excel (XLSX), PowerPoint (PPTX).

The File Conversion Service accepts requests from the App Service.

Twilio SendGrid API

The Twilio SendGrid API is a 3rd Party, cloud hosted service. The Twilio SendGrid API is used to email scanned documents as attachments.

Xerox Mobile Login Service

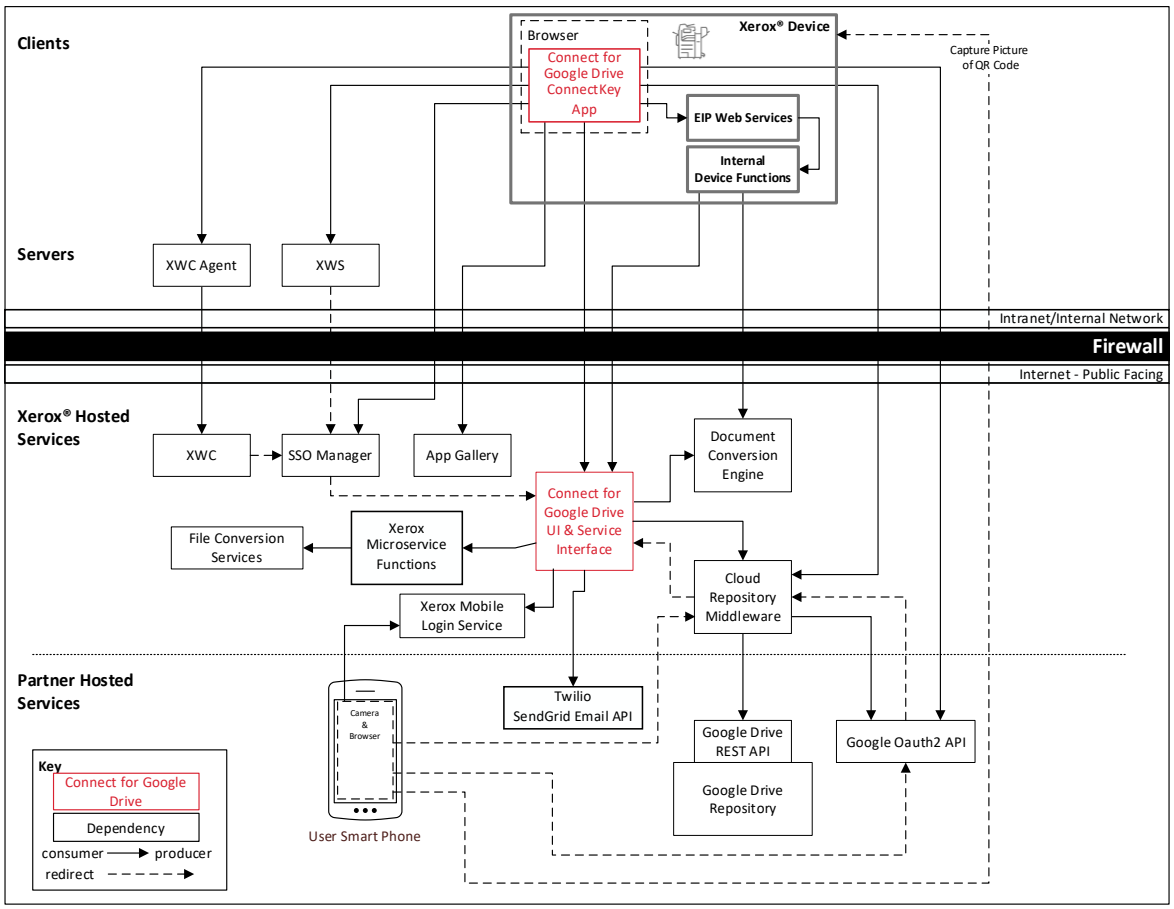
The Mobile Login component is a service hosted on the Microsoft Azure Cloud System. It is responsible for interfacing with the Connect App API and the User’s mobile phone browser. It provides a path for user login at the MFD utilizing the authentication dialog provided by Google, displayed on the user’s mobile phone.

User’s mobile phone browser

A QR Code displayed on the MFD’s screen will retrieve and display the login URL from the Xerox Mobile Login service, The user’s browser displays the Google authentication dialog and interfaces with the Google OAuth2 API, providing the login result redirect.

DATA FLOW DIAGRAM

Xerox® Workplace Suite & Workplace Cloud Single Sign On Architecture



Workflows

Authentication Workflow – Local Authentication

Step 1: User selects local authentication.

Step 2: User authenticates to the Google Drive repository directly on the device.

Authentication Workflow – Mobile Login

Step 1: User selects Mobile Login.

Step 2: QR Code is displayed on the device.

Step 3: User scans QR Code with mobile phone.

Step 4: User completes Google Drive authentication process on their mobile phone.

App Printing Workflow

Step 1: User launches the App on the Xerox® /Lexmark Device.

Step 2: User authenticates to the Google Drive repository using either Local Authentication or Mobile Login workflow. (If first login, user can agree to save credentials (OAuth access tokens and refresh tokens) to Xerox® Workplace Suite/Cloud storage for future use. On subsequent logins, credentials are automatically retrieved and applied.)

Step 3: User navigates the folder structure to locate the file to be printed.

Step 4: User optionally selects to Preview the document to be printed.

Step 5: User selects a file and modifies the print options (i.e. single-sided, etc.).

Step 6: Users select the Print button to print their file at the device.

App Scanning Workflow

Step 1: User launches the App on the Xerox® /Lexmark Device.

Step 2: User authenticates to the Google Drive repository using either Local Authentication or Mobile login workflow. (If first login, user can agree to save credentials(OAuth access

tokens and refresh tokens) to Xerox® Workplace Suite/Cloud storage for future use. On subsequent logins, credentials are automatically retrieved and applied.)

Step 3: User navigates to and selects the destination folder for the scanned document.

Step 4: User modifies the scanning options (ie; single-sided, resolution, output format, preview, email, etc.).

Step 5: User selects the Scan button to scan the document to the selected folder.

Step 6: If the Preview option was selected in Step 4, the user views the scanned document before deciding to allow the document to be saved to the selected destination folder.

Step 7: If the Email option was selected in Step 4, the scanned document is emailed to the specified recipients.

Step 8: The document is saved to the selected destination folder.

Build Job Workflow

Step 1: User launches the App on the Xerox® Device.

Step 2: User authenticates to the Google Drive repository using either Local Authentication or Mobile Login workflow. (If first login, user can agree to save credentials(OAuth access tokens and refresh tokens) to Xerox® Workplace Suite/Cloud storage for future use. On subsequent logins, credentials are automatically retrieved and applied.)

Step 3: User navigates to and selects the destination folder for the scanned document.

Step 4: User modifies the scanning options (i.e., single-sided, resolution, output format, preview, email, etc.).

Step 5: User selects the Scan button to scan the document to the selected folder.

Step 6: If the Build Job option was selected in Step 4, the user may choose to scan another batch, process all batches as a single file, or cancel the build job and start over.

Step 7: After processing all batches, the document is saved to the selected destination folder.

User Data Protection

AUTHENTICATION AND CLOUD REPOSITORY ACCESS

For the Xerox® App to access data stored in the cloud repository, the user is required to authenticate with their Microsoft Online login credentials. The protocol used to authenticate is OAuth 2.0. The authentication process is hosted and controlled by Microsoft. An authentication dialog provided by Microsoft, requests the username and password. Additional data may be required if 2-Factor authentication is enabled.

It's also possible for a customer to choose to configure their MSOL tenant so that the Microsoft identity authority delegates to a customer's federated identity provider. In either case, the customer tenant's identity authority requests the username and password needed to access Goodle Drive content.

Upon successful login, an authentication code is returned to the device browser, via an HTTP redirect to the Cloud Repository Middleware. The Cloud Repository Middleware then uses the authentication code to obtain an Access and Refresh Token from Microsoft. The Access and Refresh Tokens are returned to the device browser via an HTTP redirect to the Xerox® App. The Cloud Repository Middleware utilizes the Microsoft® Graph API with a valid Access token to access the user's data in the Microsoft repository.

The account credentials provided by the user are accessible to only Microsoft. The App script operating within the EIP browser does not store usernames and passwords. Usernames and passwords are secured using Microsoft's implementation of the OAuth2 protocol. That data is protected during transmission to Microsoft servers using the TLS 1.2 network security protocol.

Once the user completes the authorization challenge, the MSOL identity service returns Graph API access security tokens to the device. Those tokens are then delivered to the App Service and used when accessing the user's files via the Microsoft® Graph API.

Access and refresh tokens are encrypted at rest using Azure platform encryption and are retained only for the duration of the active session. Tokens are automatically purged following session expiration or logout.

APPLICATION DATA STORED IN THE XEROX CLOUD

User data related to the categories below are stored in cloud persistent storage until a delete event occurs.

- Login to Goodle Drive account
- Scanned image preview
- Print preview image
- Scan documents converted to MS Office formats

The following activities will trigger a delete event, for digital document files that meet the associated criteria.

- A delete occurs when the system detects intermediate processing files existing after a job has been completed.
- A delete occurs when the system detects that a document conversion job has completed, and the converted document has been downloaded.
- Documents are deleted immediately upon successful job completion and verified download, with automatic cleanup timer ensuring the data which are 45 minutes old will be removed in every 1.5 hour.

The balance of data stored in the cloud, that is unrelated to user Personally Identifiable Information, may be stored indefinitely for event reporting purposes.

User documents that have been requested to be converted to a Microsoft® Office format are stored in cloud persistent storage until a delete event occurs.

The following activities will trigger a delete event, for the original digital document files and the converted document file.

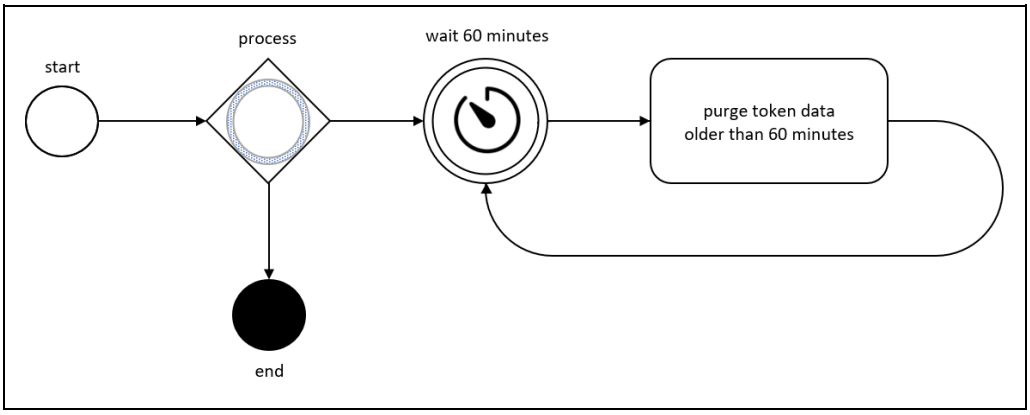
- A delete occurs when the system detects that the document conversion job has completed, and the converted document has been downloaded.

DELETE EVENTS

Delete events are triggered by background timer jobs running in the Xerox cloud.

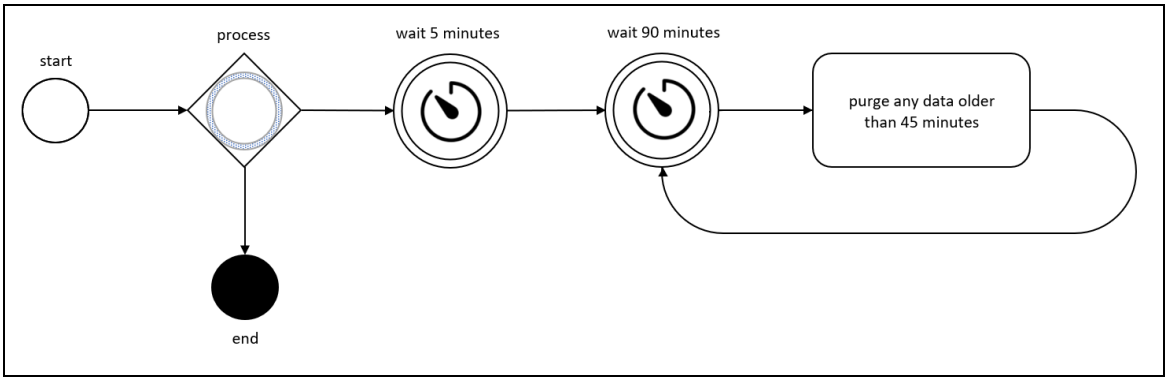
Purge tokens timer job

The timer host is an Azure Function App trigger. The trigger event fires shortly after the Function App host is instantiated and subsequent trigger events stop when the timer host process terminates. The purge logic executes in-process.



Purge documents timer job

The timer host is an Azure App Service process. The timer event fires shortly after the Connector App Service host is instantiated and subsequent timer events stop when the timer host process terminates. The purge logic executes in-process.



LOCAL ENVIRONMENT

Application data transmitted

Application data related to the categories below are transmitted to/from the Xerox® /Lexmark Device.

- Account data
- Session data
- Job data

Application data stored on the Xerox® Device

The following app data is stored on the device, in persistent storage, until the App is uninstalled from the device.

- Device's SNMP V2 public community string

HTTP Cookies

The Xerox® Connect App for Google Drive™ does not store any cookies on the device.

3. Network Information

Protocol, Ports and URLs

The following table lists the protocol, ports and URLs used by the Xerox® Connect App for Google Drive™ when executing within a customer's private network. All connections are outbound to Cloud hosted components.

Protocol	Transport and Port Value	Use	Component	URL
HTTPS using TLS	TCP 443	App UI, Folder Navigation, Document Scanning	ConnectKey App to Connect for Google Drive UI & Services Interface	c2a-o365-web.services.xerox.com
HTTPS using TLS	TCP 443	App Configuration	ConnectKey App to App Gallery	appgallery.services.xerox.com
HTTPS using TLS	TCP 443	Subscription Entitlement	ConnectKey App to App Gallery	entitlements-appgallery.services.xerox.com
HTTPS using TLS	TCP 443	Facilitate Authentication Flow	ConnectKey App to Cloud Repository Middleware	cloudmiddleware.services.xerox.com
HTTPS using TLS	TCP 443	OAuth 2.0 Login Flow	ConnectKey App to Microsoft OAuth2 API	login.microsoftonline.com
HTTPS using TLS	TCP 443	Single Sign On (SSO)	ConnectKey App to SSO Manager	ssomanager.services.xerox.com
HTTPS using TLS	TCP 443	Printing Converted Documents	Xerox® Device to Document Conversion Engine	xmpcws.services.xerox.com

Protocol	Transport and Port Value	Use	Component	URL
SNMP		Device capability discovery Public read Internal pathway use only Complies with the SNMP v2 data model	ConnectKey App initialization	localhost

Use of SNMP when operating the App

SNMP network connectivity is not required for normal application operation and may be disabled if not required by other services.

IMPORTANT: The App does interrogate MFD SNMP OIDs over an internal channel. That internal channel is independent and unrelated to the SNMP network connectivity protocol setting. Consequently, the SNMP V1/V2 Community READ String must be set.

The default SNMP V1/V2 Community READ String value is “public”.

The internal SNMP channel is enabled when the EIP SNMP Web Service setting is enabled. This setting must be enabled to operate the App as it was designed. The V1/V2 READ string setting is still required by the EIP SNMP Web Service even when the V1/V2 protocols are disabled by the MFD administrator.

Presuming the EIP SNMP Web Service setting is enabled, and the SNMP V1/V2 Community READ Name matches the App’s SNMP V1/V2 Community Name, then the SNMP queries executed by the App over the internal channel will be successful.

Use of SNMP when installing the App

App Gallery and potentially other deployment tools may use the SNMP protocol when discovering MFDs on the network during device discovery. If SNMP dependent tools are not used when deploying the App across a fleet, then it is not required to enable any version of the SNMP protocol after the MFD administrator sets the V1/V2 READ string using supported device configuration methods.

4. General Security Protection

User Data Protection within the products

DOCUMENT AND FILE SECURITY

File content is protected during transmission by standard secure network protocols at the channel level. Since document source content may contain Personally Identifiable Information (PII) or other sensitive content, it is the responsibility of the user to handle the digital information in accordance with information protection best practices.

HOSTING - MICROSOFT AZURE

The cloud services are hosted on the Microsoft Azure Network. The Microsoft Azure Cloud Computing Platform operates in the Microsoft® Global Foundation Services (GFS) infrastructure. Azure safeguards customer data in the cloud and provides support for companies that are bound by extensive regulations regarding the use, transmission, and storage of customer data.

The Apps hosted in the cloud are scalable so that multiple instances may be spun up/down as needed to handle user demand. The service is hosted in Microsoft Azure data centers located in the US and Ireland. Users will be automatically routed to the closest server based on their geographical location.

For full details on Microsoft Azure's standards and certifications, please follow this link:

https://docs.microsoft.com/en-us/azure/compliance/

CLOUD STORAGE – MICROSOFT AZURE

All Azure Storage data is secured when at rest using AES-256 encryption. Any documents, held temporarily, are contained in an Azure Storage account hosted in Microsoft Azure data centers located in Ireland and the United States. For users located in North America, Central America and the Caribbean the documents are temporarily held in the storage account hosted in the United States. For users located in the rest of the world, the documents are temporarily held in the storage account hosted in Ireland.

For a full description, please follow these links:

Azure Storage

https://docs.microsoft.com/en-us/azure/storage/common/storage-service-encryption
https://azure.microsoft.com/en-us/blog/announcing-default-encryption-for-azure-blobs-files-table-and-queue-storage/

XEROX® WORKPLACE SUITE/CLOUD AND SINGLE SIGN-ON SERVICES

The Xerox® ConnectKey App Single Sign-On feature integrates with the Xerox® Workplace Suite/Cloud authentication solution to store user access information for SSO-compatible Xerox Gallery Apps. After the user enters their storage service credentials the first time, the Xerox® Workplace Suite/Cloud solution acts a storage vault where the login information is securely stored.

All content to be stored in the vault is encrypted with AES 256 by the SSO Manager server before being given to the SSO vault that resides on the Xerox® Workplace Suite/Cloud solution. This

ensures that the SSO vault can never view or use the contents being stored in the vault. Only the SSO Manager infrastructure knows how to decrypt the content stored in the vault and only the App knows how to use it.

The SSO Manager service manages the encryption key exchange required for secure communications and encrypts/decrypts the content saved in the vault.

For a full description, please review the Xerox® Workplace Suite/Cloud Information Assurance Disclosure: https://security.business.xerox.com/en-us/products/xerox-workplace-suite/

User Data in transit

SECURE NETWORK COMMUNICATIONS

The web pages and app services that constitute the Xerox® Solutions are deployed to Microsoft Azure App Services. All web pages are accessed via HTTPS from a web browser. All communications are over HTTPS. Data is transmitted securely and is protected by TLS security for both upload and download. Communications are protected using TLS 1.2 or later.

The Xerox® App requires the user to provide proper/valid credentials in order to gain access to the application's features. Authenticated users are allowed to access the features and data using HTTPS.

At launch, the apps must get an authentication/session token through the solution's authentication process. The access token acquired is used for that session of the app.

When using the Xerox® Connect App for Google Drive™ installed on a Xerox® /Lexmark Device, if the customer environment includes an Authentication solution (e.g., Xerox® Workplace Suite/Cloud) with Single Sign-On functionality enabled, the user can agree to have their user credentials securely stored and automatically applied during subsequent app launches.

All communication is done via HTTPS and the data is transmitted securely and communications are protected using TLS 1.2 or later. Xerox App Gallery supplies a link to a Certificate Authority root certificate for validation with the cloud web service. It is the responsibility of the customer to install the certificate on their devices and to enable server certificate validation on the devices.

For more information related to Azure network security, please follow the link: https://docs.microsoft.com/en-us/azure/security/azure-network-security

XEROX WORKPLACE SUITE/CLOUD AND SINGLE SIGN-ON SERVICES

The Xerox® Workplace Suite/Cloud server accepts credential storage requests from the App via the SSO Manager service (the Xerox® App retrieves a vault key from the SSO Manager and uses it to retrieve login credentials from the Xerox® Workplace Suite/Cloud service). All communication is via HTTPS and the data is transmitted securely and is protected by TLS security and communications are protected using TLS 1.2 or later.

5. Additional Information & Resources

Security @ Xerox

Xerox maintains an evergreen public web page that contains the latest security information pertaining to its products. Please see https://www.xerox.com/security.

Responses to Known Vulnerabilities

Xerox has created a document which details the Xerox Vulnerability Management and Disclosure Policy used in discovery and remediation of vulnerabilities in Xerox software and hardware. It can be downloaded from this page: https://www.xerox.com/information-security/information-security-articles-whitepapers/enus.html.

Additional Resources

Security Resource	URL
Frequently Asked Security Questions	https://www.xerox.com/en-us/information-security/frequently-asked-questions
Bulletins, Advisories, and Security Updates	https://www.xerox.com/security
Security News Archive	https://security.business.xerox.com/en-us/news/
Xerox Trust Center	https://trust.corp.xerox.com/

Table 2 Additional Resources