

Xerox Device Agent (XDA) Lite Security and Evaluation Guide



©2013 Xerox Corporation. All rights reserved.

Xerox® and Xerox and Design®, WorkCentre®, and Phaser® are trademarks of Xerox Corporation in the United States and/or other countries.

Microsoft®, Windows®, Windows Vista®, SQL Server®, Microsoft®.NET, Windows Server®, Internet Explorer®, Access®, and Windows NT® are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Linux® is a registered trademark of Linus Torvalds.

Macintosh® is a registered trademark of Apple Inc.

Hewlett-Packard, JetDirect™, and HP LaserJet are trademarks of Hewlett-Packard Development Company, L.P.

UNIX® is a registered trademark of The Open Group.

Firefox® is a mark Mozilla Foundation.

VMware® is a registered trademark of VMware, Inc. in the United States and/or other jurisdictions.

Changes are periodically made to this document. Changes, technical inaccuracies, and typographic errors will be corrected in subsequent editions

Table of Contents

1	Overview and How to Use this Guide.....	1
	Goals and Objectives	1
	Intended Audience	1
	Using this Guide	1
	Limits to this Guide	2
2	Introduction to XDA for Remote Print Services.....	3
	Product Overview.....	3
	XDA Lite Deployment Requirements	3
	XDA Lite System Component Architecture	4
	Recommended Hardware and Operating System Requirements.....	4
	Unsupported Configurations.....	5
	Database Requirements	5
	Printer Requirements	6
	Network Printer Discovery/Monitoring Requirements.....	6
3	Security	7
	Application	7
	Install.....	7
	Licensing	7
	Post Install Normal Operation.....	7
	Network Printer.....	8
	SNMP v1-v2 Security.....	8
	Xerox Back Office Integration.....	8
	Device Information Communicated to XSM	9
	XDA Lite Site Information Sent to XSM.....	10
4	Network Impact.....	11
	Discovery	11
	Device Discovery Method Employed by XDA Lite	12
	Managing Discovery	13
	Discovery Network Data Calculations.....	13
	Manufacturer Applicability	14
	Xerox Services Manager Integration.....	15
	Registration	15
	Device List Import.....	15
	Site Settings Export	15

Site Status Export.....	16
Device Information Export	16
Auto Update	16
Information Exchanged with Auto Update Server.....	16
Version Check	16
Update Download	16

Tables and Figures

Figure 1: Typical XDA Lite Deployment.....4

Table 1: Printer Data Communicated to XSM9

Table 2: XDA Lite Site Information Sent to XSM.....10

Table 3: XDA Lite Ports11

Table 4: Data Sizes13

Table 5: Data Gathering Frequencies13

Overview and How to Use this Guide

Goals and Objectives

Network and data security are one of the many challenges that businesses face on a daily basis. Recognizing this, Xerox continues to engineer and design all of its products to ensure the highest level of security possible.

This document provides additional background on XDA Lite software capabilities, and specifically focuses on the software's security aspects. This document will help you better understand how XDA Lite functions and help you feel confident that XDA Lite transmits device data in a secure and accurate manner. This guide will help you certify, evaluate, and approve the deployment of XDA Lite in support of your contract. It includes information on XDA Lite's potential impact on security and network infrastructure as well as calculations of theoretical network traffic.

Xerox recommends that you read this document in its entirety and take appropriate actions consistent with your information technology security policies and practices. You have many issues to consider in developing and deploying a security policy within your organization. Since these requirements will vary from customer to customer, you have the final responsibility for all implementations, re-installations, and testing of security configurations, patches, and modifications.

Intended Audience

It is expected that this guide will be used by your network administrator before installing XDA Lite. In order to get the most from this guide, you should have an understanding of:

- the network environment where you will install XDA Lite,
- any restrictions placed on applications that are deployed on that network, and
- the Microsoft Windows® operating system

Using this Guide

There are two main scenarios for using this guide: if you are a customer who does not have acceptance and evaluation procedures for this type of software or if you are a customer who has defined guidelines. In both cases, the three identified areas of concern are security, impact to the network infrastructure, and other resources that might be required to install, use, and support XDA Lite.

Use this guide to gather information about these areas and determine if you need to investigate XDA Lite further. This document is divided into these areas:

- This overview

- An introduction to XDA Lite
- Potential security-related impacts to a typical customer environment including:
 - Security information, implications, and recommendations
 - Roles and permission requirements of XDA Lite users
- Information about features that affect the network, which may include estimates of generated traffic, changes to the network infrastructure, or other required resources.

Limits to this Guide

This guide is meant to help you evaluate XDA Lite, but it cannot be a complete information source for all potential customers. This guide proposes a hypothetical customer printer environment; if your network environment differs from the hypothetical environment, your network administration team and Xerox Support Representative must understand the differences and decide on any certification modifications and/or future steps. Additionally:

- This guide only describes those features within XDA Lite that have some discernable impact to the overall customer network environment, whether it be the overall network, security, or other customer resources.
- The guide's information is related to the current XDA Lite release. Although much of this information will remain constant through the software's life cycle, some of the data is revision-specific, and will be revised periodically. IT organizations should check with the Xerox Support Representative to obtain the appropriate version.

Introduction to XDA for Remote Print Services

Product Overview

XDA Lite discovers and monitors network printing devices, specifically office printers and multi-function devices.

The application features a built-in alert detection system and has the capability to send an e-mail message to an appropriate user when certain conditions exist in the monitored devices. It also provides clear and concise status of all networked printers.

You can do the following from XDA Lite:

- Discover network-connected printers
- Monitor printers for status and alert conditions
- Notify users via e-mail when faults occur

The application supports industry-SNMP MIBs for network printers, however, the amount and type of management that it can provide is dependent on the printer's level of conformance to those standards. The following features conform to these standards:

- Printer identity (i.e., model, serial number, manufacturer, etc.)
- Printer properties (i.e., input trays, output bins, serial number, etc.)
- Printer status including overall state, detailed status, UI messages, etc.
- Consumables and levels (toner, fuser, print cartridge and device unique parts)
- Supported print protocols (LPD, HTTP, Port 9100)
- TCP/IP protocol suite (SNMP, TCP, UDP, IP, NIC details)

Note: XDA Lite supports a maximum of 2,000 networked devices.

XDA Lite Deployment Requirements

To deploy XDA Lite, install it on a desktop computer or server that shares the network with those printers that you want to monitor.

Note: The scheduled events for meter reads and alert activity may be affected by the software's connectivity.

XDA Lite System Component Architecture

This diagram shows a typical configuration that a customer may deploy within their network. In this example, XDA Lite runs on a networked computer that can access the printers through the local network.

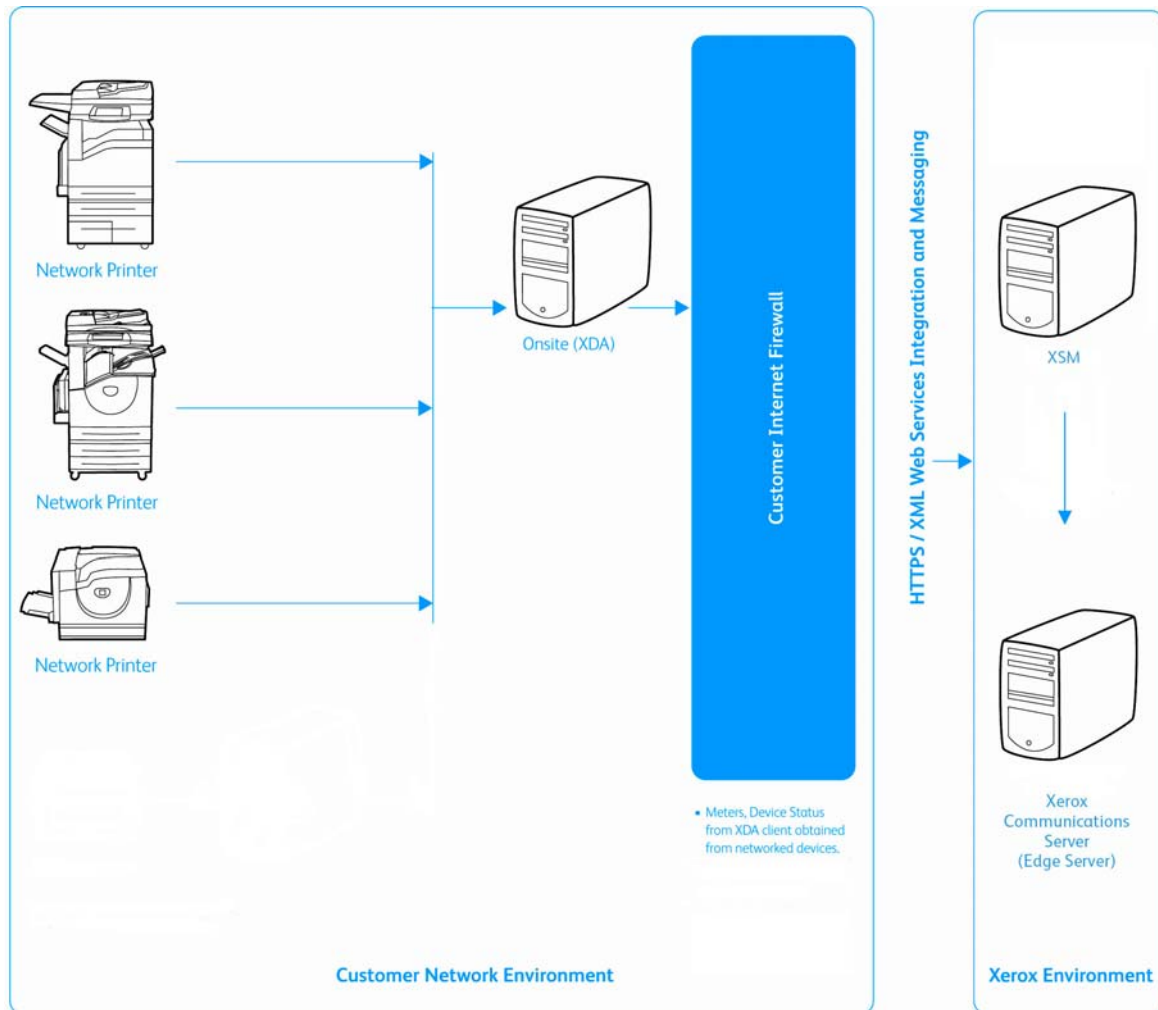


Figure 1: Typical XDA Lite Deployment

Recommended Hardware and Operating System Requirements

Operating System (32-bit and 64-bit)

- Windows® XP Professional with Service Pack 3
- Windows Server® 2003 with Service Pack 2
- Windows Server® 2008 with Service Pack 1 and 2008 R2 with Service Pack 1
- Windows Server® 2012
- Windows® 8, Windows® 8 Pro, Windows® 8 Enterprise
- Windows® 7 Professional, Enterprise, and Ultimate
- Windows Vista® Service Pack 2 Ultimate, Business, and Enterprise

Memory

- Minimum 512 MB RAM (1 GB RAM Recommended) for Windows® XP and Windows Server® 2003
- Minimum 1 GB RAM (1.5 GB RAM Recommended) for Windows Vista®, Windows® 7, Windows® 8, and Windows Server® 2008 and 2008 R2, 2012

Processor: 1.7 GHz processor or better

Microsoft®.NET framework 3.5 Service Pack 1 installed

Hard Disk: minimum free space is approximately 100 MB for the application and up to 500 MB for the Microsoft®.NET framework, if not previously installed.

Minimum Resolution: 1024x768

Permissions: You must install the software on the client machine using the administrative account or an account with administrative privileges.

Internet connection: Required

Notes:

- We recommend that you update your host computers with the latest critical patches and service releases from Microsoft Corporation.
- The Network Transmission Control Protocol/Internet Protocol (TCP/IP) must be loaded and operational.
- Requires SNMP-enabled devices and the ability to route SNMP over the network. It is not required to enable SNMP on the computer where XDA Lite will be installed or any other network computers.
- You must install Microsoft®.NET 3.5 SP1 before you install the application.
- The application should not be installed on a PC where other SNMP-based applications or other Xerox printer management tools are installed, since they may interfere with each other's operation.

Unsupported Configurations

- Installation of the application on a computer with another Xerox device management application, such as Xerox Device Manager (XDM).
- Any version of Macintosh® operating system, Unix® operating systems, Windows NT® 4.0, Windows® Media Center, and Windows® 2000.
- This application has only been tested on VMware® Lab Manager™/Workstation/vSphere Hypervisor™ environments. This application may work on other virtual environments; however, these environments have not been tested.

Database Requirements

XDA Lite installs Microsoft SQL Server® 2005 Compact Edition (SQL CE) database engine and database files that store printer data and application settings within the installation directory. No database licensing is necessary for the application.

Printer Requirements

Network Printer Discovery/Monitoring Requirements

For successful management by the application, all SNMP-based printer devices should support the mandatory MIB elements and groups as defined by the following standards:

- RFC 1157 (SNMP Version 1)
- RFC 1213 (MIB-II for TCP/IP-based Internet)
- RFC 2790 (Host Resources MIB v1/v2)
- RFC 1759 (Printer MIB v 1)
- RFC 3805 (Printer MIB v 2)
- RFC 3806 (Printer Finishing MIB)

Security

Since security is an important consideration when evaluating tools of this class, this section provides information about the security methods used by XDA Lite.

Application

XDA Lite is compatible with the security features built into the Windows® operating systems. It relies on a background Windows® service running under the local system account credentials to enable proactive monitoring of printers, gathering of data, and submission to XSM. The user interface that displays the gathered data is accessible only to the power users and administrators who have login access to the Windows® operating system.

Install

The installer requires administrator privileges. A single Windows® service, “Xerox Device Agent Smart eSolutions Service” is installed and configured to run under the local system Windows® account. No special system level configuration change is required or made by the installer. XDA Lite is compatible with the security features built into the Windows® operating system including:

- User authentication and authorization
- Secure terminal services support
- Group policy deployment and management
- Internet Connection Firewall (ICF) including:
 - Security logging settings
 - ICMP settings

Note: Make sure that the PC or server that is running XDA Lite is continuously powered on during core business hours to prevent interruption of automatic communications between XDA Lite and XSM, which supports alerting.

Licensing

XDA Lite does not require any license for installation or for its SQL Server® 2005 Compact Edition database.

Post Install Normal Operation

The XDA Lite Windows® service runs as a background process even when no user is logged in. This enables the application to monitor the devices on the network and generate alerts proactively. If you are a power user or an administrator authenticated by Windows® and you log in to the system, then you have access to the XDA Lite’s user interface. You can monitor the printers, view printer data, and change settings. The XDA Lite user interface verifies that you are a power user or you have administrative privilege as you attempt to run the application. If you are not an administrator, XDA Lite will display a message that states you need administrative privileges in order to run the application.

Network Printer

The Simple Network Management Protocol (SNMP) is the most widely-used-network-management tool for communication between network management systems and the networked printers. XDA Lite utilizes SNMP during discovery operations to retrieve detailed data from output devices detected on the network. After discovery, SNMP is used to monitor printers for faults, changes in status, configuration changes, and to support printer troubleshooting. XDA Lite supports SNMP version 1 and version 2 protocols. The following application properties will help you better understand the impact of XDA Lite on printer security:

- it does not modify the settings on the printer; it only reads them.
- it does not register for SNMP traps.
- it does allow the printer to be reset (this requires that devices support printer reset via SNMP).

SNMP v1-v2 Security

In its current form, SNMP's security is limited to three methods of access: read-only, write-only, and read-write. Access from XDA Lite to the devices is granted by the use of community name strings. Although usually referred to as the password, for SNMP operations, the community name provides a very simple level of authentication for all PDU operations. Theoretically, you can assign community names to every subnet on a network. Every printer on a local subnet will have the same community name. You can assign printers on a different subnet to a different community name. By default, XDA Lite uses the community name string of public, which is the printer manufacturer's default setting. You can elect to change this setting on the printers and you have the ability to change the community name string that XDA Lite uses to match the settings for the configured printers.

XDA Lite does not support SNMP v3 only configured devices. In order to communicate with printers that have SNMP v3 enabled, the printers must also have SNMP v2 enabled for XDA Lite to communicate with them.

Xerox Back Office Integration

The application communicates with XSM and our billing systems on a periodic basis. It is important to recognize that XSM is hosted in an ISO 27001-compliant facility. The data exchanged during such communications is compressed and encrypted. The security of this communication is protected by several mechanisms.

- The Xerox Device Agent Lite to Xerox Service Manager Web service and billing service communication method is further secured by the use of the HTTPS protocol (with 128-bit encryption). HTTPS is HTTP using a Secure Socket Layer (SSL).
- XDA Lite initiates all contact with XSM and no special firewall configuration on the site is required to enable communication.
- XDA Lite will require a valid proxy if one is required for Internet communication.
- The XSM data server and our billing system sit behind a secure firewall and are not accessible from the Internet.
- XSM user interface access requires authentication. XDA Lite information is stored in an account specific to the customer site. Access to that account data in XSM is restricted to the XSM account managers.
- Here is the list of top-level items exchanged during periodic communication with XSM and its frequency:
 - Printer Data Export: Default once per day. User configurable via Synchronize settings.
 - List Import: Default once per day. User configurable via Synchronize settings.
 - Site Status Export: Default once per day. User configurable via Synchronize settings.
 - Site Settings Import: Default once per day. User configurable via Synchronize settings.

- Here is the list of top-level items exchanged on an as-needed basis:
 - Site Settings Export: Every time the XDA Lite settings are changed.
 - Export of printers.
- All XSM communication instances are logged and can be viewed either in the Settings>Log screen or in the PC's Xerox DM (Device Management event log in Xerox Device Agent Smart eSolutions).

Device Information Communicated to XSM

The data that is sent to XSM is printer-specific, which is mostly billing counters, supply levels, and printer alerts. Here is the list of printer fields sent to XSM:

Printer Data			
2-Sided Percentage	Advanced Finishing Supported	Advanced Status Update Date	Analog Fax Capable
Alerts	Comment	Port	Workstation
Analog Fax Description	Analog Fax Modem Installed	Analog Fax Phone Number	Black Rated PPM
Can Manage	Color Capable	Color Rated PPM	Compliance Level
Console Country	Console Language	Customer Asset Number	Device Time Zone
IP Default Gateway	Description	Device Language	DNS Name
Discovery Date	Discovery Method	Discovery Type	Hard Disk Present
Duplex Capable	Fax Status	Finishing Options	Firmware Level
Hard Disk Size MB	IP Address Changed	IP Address (Device)	Icon
Last Known IP Address	Last Status Attempt	Location	MAC Address (Device)
Machine Up Time	Status	Managed State	Manufacturer (Device)
Marking Technology (Device)	Marking Technology	Manage Request Date	MIB Country
Model	Physical Memory Total MB	Queue Name	Scan to File Capable
Scan to Internet Fax Capable	Scan to Server Fax Capable	Scan to E-Mail Capable	Scanner Description
Scanner Installed	Scanner Status	Serial Number (Device)	Serial Number Scrubbed
Services Supported	Status Date	Subnet Address	Subnet Mask
Supplies (Paper Trays, Output Bins, Finisher, Imaging)	System Contact	System Name	Traps Supported
Target Volume	Traps Enabled	Type	Update Date
Utilization Percentage	Xerox Asset Number	Usage Counters	

Table 1: Printer Data Communicated to XSM

XDA Lite Site Information Sent to XSM

Personal identifiable information is not sent to XSM. XDA Lite does send the IP address, the MAC address, and the host name of the machine on which XDA Lite is installed to XSM. Here is the list of XDA Lite install machine-related information that is sent to XSM:

Site Information			
XDA Lite machine DNS name	XDA Lite machine IP address	XDA Lite database size (in MB)	XDA Lite software build version
Number of In scope printers	Operating system type (32-bit or 64-bit)	Processor	XDA Lite discovery database size (in MB)
Operating system name	Time Zone	Discovered Device Count	Hard disk size / free space
Memory Size / available	XDA Lite site name	Discovery Version	

Table 2: XDA Lite Site Information Sent to XSM

Network Impact

Company network guidelines will typically enable or disable specific network ports on routers and/or servers. Your IT department will mostly be concerned with the ports used by XDA Lite for outgoing traffic. Disablement of specific ports may impact the functionality of XDA Lite. Refer to the table below for specific ports used by XDA processes. If the application is required to scan across multiple network segments or subnets, routers must allow the protocols associated with these port numbers.

Port Number	Port Name	In/Outbound
161	SNMP	Out ¹
25	SMTP	Out ³
443	HTTPS	Out ²
515, 9100, 2000, 2105	TCP/IP	Out ¹
n/a	ICMP (ping)	Out ¹
53	DNS	Out ¹

Table 3: XDA Lite Ports

1 Communication within the XDA Lite installed local network.

2 Communication outside the XDA Lite installed local network.

3 Communication location depends on configuration.

For example, if the ping requests cannot be routed through the environment between the XDA Lite machine and the printers managed by XDA Lite, the following XDA Lite features will not function or will show significant performance degradation:

- Troubleshoot Printers
- Network Printer Discovery

Discovery

The discovery function allows XDA Lite to search for network printers on a customer's intranet. Printer discovery is a crucial part of the XDA Lite application because it is the main method to identify networked-connected devices and store them in the local database. It involves the generation and querying of network addresses (via SNMP) for printer type and general configuration information. Since this operation uses the network resources, you should consider what you want to detect and then configure the discovery to achieve this goal with a minimum of network contention.

Device Discovery Method Employed by XDA Lite

After you install the application onto a networked computer, you can select what subnet(s) to scan and the application will begin to automatically discover network printers according to these settings. Depending upon network configuration, this initial discovery could identify all of the network printers within the customer's environment. A method known as IP Sweep is used to perform this local subnet network printer discovery. XDA Lite also allows the network administrator to perform the discovery beyond the local subnet. For this purpose, the network administrator can specify individual IP addresses or DNS addresses of the printers, a range of addresses, or subnets that will be searched.

Note: As a rule of thumb, each discovered printer might generate as much as 50 KB (maximum) of network message traffic including device capabilities, usage counters, and an alert table.

IP Sweep Operation

IP Sweep Discovery method is the preferred method of accurately discovering printers on a network. A packet is sent to every IP address in the user-defined address or address range list. The address list should be known and provided before running the discovery.

Specifically:

- A single packet is sent to each IP address contained within each subnet or address range defined within the current IP address for the current IP Sweep. In this packet, XDA Lite requests a value for a single SNMP-based RFC 1213 Object Identifier (OID).
- For each device that responds to the RFC 1213 OID, XDA Lite will add the IP address of the response packet into its list of live IP addresses.
- XDA Lite then queries those devices with live IP addresses for two more OIDs: one RFC 1213 OID and one RFC 3805 OID. This enables XDA Lite to identify printing devices from non-printing devices. Both groups of devices are stored within the XDA Lite database, however, only printing devices are exposed via the XDA Lite UI.
 - For those printer devices that respond to the RFC 3805 OID query, XDA Lite flags them as printers.
 - For those devices that do not respond to the RFC 3805 OID query, XDA Lite then checks an RFC 1213 OID value against database values to determine if the device is in fact a known printer. This is necessary because some printing devices (i.e. printers using external print server boxes, older printers, etc.) do not support RFC 3805 – the Printer MIB.
 - The database contains RFC 1213 values for several known supported and unsupported printers.
- XDA Lite then queries all live IP addresses for three RFC 1213 OIDs and one RFC 2790 OID.
- For those devices identified as printers, XDA Lite queries three more RFC 2790 OIDs and four more RFC 3805 OIDs to obtain some basic attributes of the printer.
- Based upon the identity of each printing device, XDA Lite then queries the appropriate vendor-specific OID and an OID from the Printer MIB in order to obtain the printer's serial number.
- XDA Lite then queries 3 RFC 3805 OIDs in order to display the printing device's rated speed in pages per minute (PPM).
- Based upon the identity of each printing device, XDA Lite then queries the appropriate OID(s) to obtain the printing device's software/firmware level.

Network Impact

The amount of network traffic generated by a sweep-based discovery is minimized because the requests are directed to specific IP addresses.

Accuracy

The IP Sweep method produces a controlled and orderly flow of data between the printers and the server, reducing network packet collisions that can introduce errors in the printer information.

Managing Discovery

The discovery process can be managed in a number of ways.

- The discovery schedule is configurable. The IP addresses, DNS addresses, and subnets are configurable.
- It can be controlled by the use of SNMP community name strings to query certain network printers over others.
- The discovery will provide active status on its progress.
- Device timeout and retry parameters are pre-defined with a setting of five seconds for attempt timeout and one retry allowed to get print information from slower network subnets on a customer's network. You can modify this information on the Advanced Settings screen.

Discovery Network Data Calculations

As mentioned earlier, each discovered printer could create as much as 50KB of discovery-based traffic. IP Sweep discovery sweeps all of the addresses in the ranges supplied.

Device Discovery Data Set Magnitudes on Typical Printers

The amount of data transferred during an operation, such as discovery or status polling, is a function of the device's capabilities. Measurements made on typical devices show the variability of these parameters. It is highly unlikely that any one network would be populated with only one device type. Instead, the typical case is a variety of devices that are dependent upon the particular needs of individuals or groups on the network. Here are three printer examples to demonstrate the variability in both the amount of collected data and the data transfer rate for typical devices.

Machine Model	Discovery	Status Polling
Xerox WorkCentre® Pro 245	49.2 KB	19 KB
Xerox Phaser® 8560 DN	15.3 KB	14 KB
HP LaserJet 4345 MFP	29.1 KB	6 KB
Average	31 KB	13 KB

Table 4: Data Sizes

You also need to consider the frequency at which you will perform these operations. For purposes of this document, the following schedule for device data retrieval and their data set size will be assumed to be:

Operation Type	Frequency	Average Data Set Size
Discovery	Weekly	31 KB
Status Polling	Hourly	13 KB

Table 5: Data Gathering Frequencies

Assuming that XDA Lite will discover and monitor a thousand network devices on the network and each device discovery data set size is 31 KB and its status polling data set size is approximately 13 KB, this set of devices is expected to retrieve the following printer-based discovery data over the network each month

- 4 discovery cycles/month x 1,000 printers x 31 KB/printer (Discovery data set size) is approximately 124 MB/month

Network Impact Considerations of Status Polling

XDA Lite communicates with the printers under management regularly. Each transaction consists of a series of SNMP queries with the device, first checking for a response, and then progressively asking for more information until the transaction purpose is complete.

Status polling assumptions:

- Status polling traffic averages 13 KB per transmission
- Status polling occurs every day, once per hour (24x7)
- 1,000 printers are being monitored

The expected amount of data to be retrieved from this set of devices over the network for printer-based discovery over one month is:

- 1,000 printers x 24 hours x 30 days x 13 KB is approximately **9.4 GB** per month

Total XDA Lite Data Transfer Calculations

The next traffic calculation example shows totals for an exaggerated network data transfer size during a one-month period. The total includes the use of regularly scheduled discovery and status polling.

The calculation is inflated to show an above-the-limits traffic estimate. It assumes that every network printer discovery requires:

- 50 KB of traffic to complete (except non-printer discovery),
- 19 KB for status, and
- The organization is active 30 days per month in order to demonstrate the extreme upper limits for a network with 1,000 print devices being monitored monthly.

Discovery Total

4 cycles/month x 1,000 printers x 50 KB/printer = 200,000 KB ≈ 0.19 GB/month

Discovery Traffic to Non-print Devices during a Sweep

4 cycles/month x 65,534 IP Address x 1 KB/printer = 262,136 KB ≈ 0.25 GB/month

Status Polling Total

30 days x 24 polls/day x 1,000 printers x 19 KB/printer = 13,680,000 KB/month ≈ 13 GB/month

Overall (Exaggerated) Total

0.19 GB + 0.25 GB + 13 GB ≈ 13.44 GB/month

Manufacturer Applicability

You can configure XDA Lite to support only Xerox network printers (Xerox and Fuji Xerox) or all printers (any discoverable Xerox or non-Xerox network printer) that communicate via SNMP. This configuration is governed

by policies configured in XSM. This setting affects non-Xerox printers in three ways: discovery, export of discovered printers to XSM server, and scheduled export of meters for found printers. When you select All Network Printers for the manufacturer applicability, the scheduled device discovery will attempt to find all Xerox and non-Xerox network printers and will send printer information and meters to the XSM server.

Additionally, the policies configured in XSM may also allow you to change this value within XDA Lite. If XDA Lite is configured to allow for this setting change, XDA Lite may be set to restrict discovery of non-Xerox printers. To do so, manufacturer applicability must be set to Only Xerox Network Printers.

Xerox Services Manager Integration

XDA Lite communicates directly to XSM through the Internet, transferring associated printer and device information through a secure Web services transfer mechanism automatically (Refer to the Security section for more information.). XSM uses this device information to update device status and meter reads. The data exchange between XDA Lite and XSM is compressed to conserve bandwidth.

The interaction with XSM can be broken down into the following categories:

- Data exchange as part of the Startup Wizard
 - Registration
 - Site status export
 - Site settings export
 - Device list import
 - Export devices that have been newly discovered
- Daily synchronization operation (the frequency is user-configurable)
 - Device list import
 - Export of devices
 - Site status export
 - Site Settings import

Registration

XDA Lite is required to register with XSM. This involves a Web service-based transaction in which XDA Lite sends a unique XDA Lite install/site identifier and the XSM registration key. This data packet is negligible (< 2 KB) and is performed only when the Startup Wizard is run to register XDA Lite with XSM.

Device List Import

At the end of the Startup Wizard and during the synchronize operation, XDA Lite imports the list of printers from XSM. The data packet is approximately <5 KB for 100 devices.

Site Settings Export

XDA Lite sends its settings to XSM at the end of the Startup Wizard and every time the settings are changed by the user. This includes the discovery settings, synchronization and other schedules, SNMP timeout/retry settings, and SNMP community names. The data size is dependent of the discovery setting, i.e. the number of IP addresses and subnets. This settings packet can be up to 5KB or more in size.

Site Status Export

XDA Lite sends the site status information to XSM to indicate its health. This includes the XDA Lite database size, the count of devices. The data size is approximately 3 KB.

Device Information Export

XDA Lite exports device information to XSM the via Web services. The device information includes device identity information, status information, and usage information. The data packet size is roughly 35 KB per 100 devices.

Auto Update

XDA Lite supports automatic update. When a newer version of XDA Lite is released, it is loaded on the Auto Update Server available for XDA Lite to connect to.

There are two actions that utilize network resources to accomplish the XDA Lite Auto Update function. The two actions include:

- Checking to determine if a newer version of XDA Lite is available for download.
- Downloading a newer version of XDA Lite for installation.

XDA Lite makes changes only on the PC on which it is installed; it does not require network resources like SQL server during the update.

Information Exchanged with Auto Update Server

The data that is sent to the server includes:

- Encrypted Application Type (XDA Lite) and current version

The data received from the server includes:

- Error Information
- Download ID for the update file (if available)
- Minimum version

Version Check

When XDA Lite queries the Auto Upgrade Server to determine if a newer version of XDA Lite is available for download, ~2.1 K of network traffic is generated. This check is performed once a week at the day and time configured in XDA Lite.

Summary: Monthly total network impact: ~ 8.4K. Add 2.1K for every time update check is initiated manually.

Update Download

When a newer version of XDA Lite is available for download, a composite package of download manager, application installer, and supporting files totaling ~ 30 MB is downloaded to the client machine where the

application is currently installed. This single download occurs only if the user elects to upgrade the installation to the newer version of XDA Lite or if the system is set to always auto upgrade. Once the download is complete, all installation work is done on the client, and no additional network traffic is generated.