



# HP Device Connect - Software Lite

## Technical Quick Specs

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- Software Version number, which indicates the software version.
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## About this document

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This document describes:

- Details of HP Device Connect - Software Lite

Document updates may be issued between editions to correct errors or to document product/process changes. To ensure that you receive the updated or new editions, contact your local HP Device Connect Contact for more information.

## Intended Audience

This document is intended for administrators responsible for installing and managing HP Device Connect - Software Lite. This document is also intended for Operators working on the “Print Fleet Management”. Administrators and Operators are expected to have knowledge of operating systems, networking concepts, and their data center.

This document is also intended for customers who may be interested in understanding the security aspects of HP Device Connect - Software Lite.

## Related Documentation

The following documents provide related information:

- HP JetAdvantage Management documentation

To obtain a copy of the above documents contact your local HP Managed Services account representative.

# 1 Introduction: HP Device Connect - Software Lite

## 1.1 Overview

The HP Device Connect - Software Lite (HP DC-SL) is an integrated management platform containing a suite of capabilities that provide a secure and scalable platform for enabling efficient management of an enterprise's printing ecosystem. HP DC-SL will be installed on a customer provided system. Various components will be installed and configured enabling HP to provide previously agreed to services.

The following diagram depicts the HP DC-SL system overview:

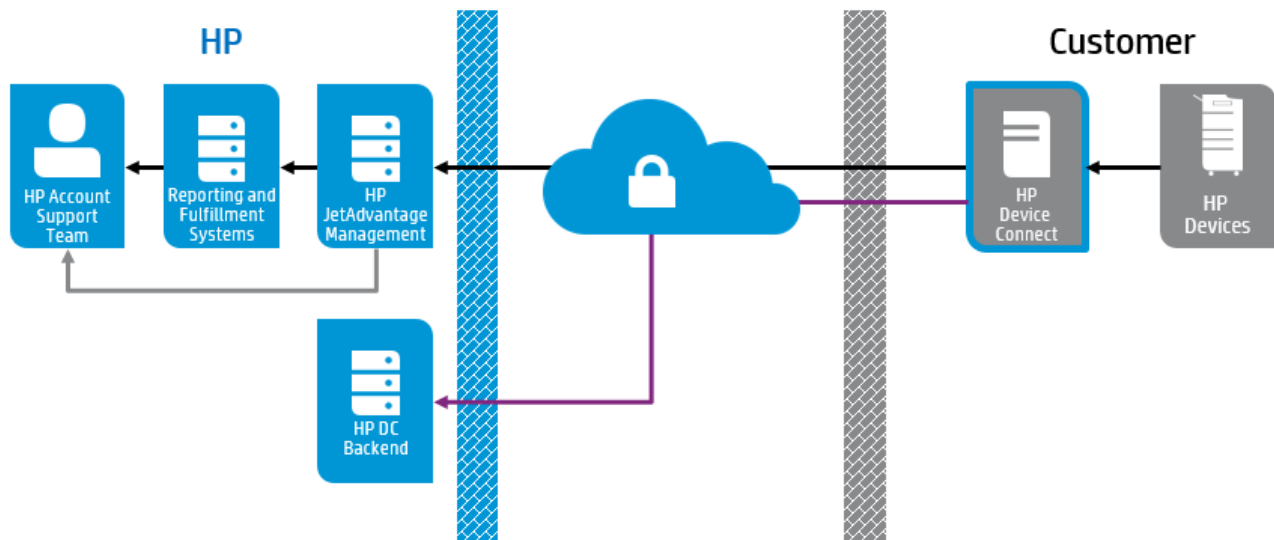


Fig.1: HP DC-SL System Concept

HP DC-SL provides Remote Monitoring and Remote Management functionalities as described below:

1. **Remote Monitoring:** HP DC-SL enables remote monitoring as a secure means for collecting and reporting usage and device data for consumables replenishment and support.
2. **Remote Management:** HP DC-SL enables remote management of devices in order to facilitate event troubleshooting, managing limited device configurations, and non-reporting device remediation.

## 1.2 HP DC-SL Components

The table below outlines the components which make up HP DC-SL.



Function	Enabling Software Component(s)	Version	Description
Remote Monitoring and Management	HP JetAdvantage Management Connector	V1.x	Provides a scalable and highly available platform for device entitlement, remote monitoring of usage and supplies, and management of network connected HP devices.
System Maintenance	HP DC Updater Client	N/A	Update utility for components which do not have built-in update capabilities

### 1.3 Deployment Models

HP DC-SL is delivered as an installable .exe file that can be installed on a customer provided physical or virtual machine running one of the following operating systems:

- Windows Server 2008 R2 Service Pack 1
- Windows Server 2012
- Windows Server 2012 R2
- Windows 7 (32 and 64 bit versions)
- Windows 8.1 (32 and 64 bit versions)
- Windows 10 (32 and 64 bit versions)



## 2 Installation Details

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This chapter describes the installation pre-requisites required for HP DC-SL.

### Contents

- Host system prerequisites
- Networking configuration information

### 2.1 General Requirements

Customer will need to provide the following:

- Host system setup and configured on which HP DC-SL can be installed
- Anti-virus or other security software configured to allow DC-SL installation and operation
- Network and firewall configurations to allow communications between HP DC-SL and all imaging and printing devices under contract, as well as between HP DC-SL and HP;
- Customer IT resource to assist HP in resolving network issues that would impact HP DC-SL solution functionality;
- TCP\IP network; and
- Validate that there are no SNMP traffic blocks for the “Gets” (get commands).



## 2.2 Host System Requirements

Prerequisites (minimum)	Supported Environments	Operating System	Other Requirements	Max # of Supported devices / Server
<ul style="list-style-type: none"><li>• Processor: Dual Core, 2.0 GHz</li><li>• RAM: 4 GB</li><li>• Free Disk Space: 10 GB on C:\ - system drive Recommended</li><li>• .NET: 4.5.50709 or above</li></ul>	<ul style="list-style-type: none"><li>• Physical</li><li>• Virtual</li></ul>	<ul style="list-style-type: none"><li>• Windows Server 2008 R2 SP 1</li><li>• Windows Server 2012</li><li>• Windows Server 2012 R2</li><li>• Windows 7</li><li>• Windows 8.1</li><li>• Windows 10</li></ul>	<ul style="list-style-type: none"><li>• .NET 3.5 and .NET 4.5 installed</li><li>• PowerShell script execution allowed</li><li>• Three users types – Administrator, Service Account and Operator (details in below section)</li><li>• UAC disabled</li><li>• Anti-virus or other security software configured to allow DC-SL installation and operation</li><li>• Recommended screen resolution 1024x768</li></ul>	<ul style="list-style-type: none"><li>• 2000</li></ul>

## 2.3 Users and Roles

One user role needs to be configured on the DC; Administrator, or a user with Administrator rights.

### 2.3.1 Administrator

This is a user with Administrator group privileges.

Administrator users are responsible for installing, updating, configuring and maintaining the various tools on HP DC. Configuration tasks include tool configuration, administration, and regular maintenance.

Administrator users are required to guarantee the continuous operation of the management environment and ensure timely adaptation of management systems to the latest versions.

### 2.3.2 DC-SL Auto-Update Client Service Account

This is a service user with Administrator group privileges.





The DC-SL auto-updater client (HPDeviceConnectExecuterService) is responsible for keeping the DC-SL software up-to-date by automatically updating the software as and when newer versions become available and if configured to do so – similar to “Windows Update” - which keeps the Windows OS up-to-date.

In order to automatically update the system, the DC-SL auto-update client service needs to run as user with elevated privileges to properly perform the following functions:

- Install software (with permissions to create/update registry, create/update folders under C:\Program Files\ etc.)
- Stop/Start services
- Reboot server

**Note:** It is required that this user’s credentials (passwords) be kept up-to-date so as to enable the DC-SL auto-updater client service to run uninterrupted. It is recommended that the password for this user be kept as “Never Expires”.

### 2.3.3 Roles, Responsibilities and HP DC Tools

The following table provides details about the users’ roles along with the privileges granted to perform their respective functions.

User	Functions	MS Tools
Administrator	<ul style="list-style-type: none"><li>• Perform routine maintenance tasks</li><li>• Configuration of all pre-configured DC-SL applications</li><li>• Diagnosis, troubleshooting and break-fix of DC-SL</li><li>• DC-SL tools administrator role</li><li>• Have access to all capabilities and manage/maintain the different tools installed in DC-SL</li></ul>	<ul style="list-style-type: none"><li>• HP DC-SL pre-installed tools for tool administration<ul style="list-style-type: none"><li>○ HP JetAdvantage Management Connector</li><li>○ HP DC-SL Updater Client</li></ul></li></ul>
Administrator (service account)	<ul style="list-style-type: none"><li>• Service account for DC-SL auto-updater client (HPDeviceConnectExecuterService)</li><li>• Installation and upgrade of DC-SL software</li><li>• Stop/Start services</li><li>• Reboot server</li></ul>	<ul style="list-style-type: none"><li>• HP DC-SL Updater Client</li></ul>



## 2.4 Network Requirements

Networking information which will allow HP to configure HP DC-SL:

- **Web Proxy Name:** If the customer requires the use of a Proxy to get outside their intranet. If so, the following will be required:
  - Web Proxy Port Number
  - Web Proxy User Name
  - Web Proxy Password
- **HP DC-SL auto-update schedule:** Schedule (days/time) when the HP DC system can perform download and installation of DC updates and patches.
- **Passwords and credentials to:**
  - HP DC-SL host system for remote access; and
  - Devices under contract.
- **Ports:** Access to the following ports is required:

### Internal / External Port Configuration and Firewall Rules

Remote Port	TCP/UDP	Internal/External	Inbound/Outbound	Source	Destination	Description
80/443	TCP	Internal	Outbound	DC-SL	Printer (WS)	HTTP Get
7627	TCP & UDP	Internal	Outbound	DC-SL	Printer (WS)	HTTP-Get
3910/3911	TCP	Internal	Outbound	DC-SL	Printer (WS)	HTTP
3702	TCP & UDP	Internal	Outbound	DC-SL	Printer	HTTP
8080	TCP	Internal	Outbound	DC-SL	Printer	HTTP-Alt
161	UDP	Internal	Outbound	DC-SL	Printer	SNMP Get/Set
9100	TCP	Internal	Outbound	DC-SL	Printer	JetDirect (PDL Data Stream)
53	TCP & UDP	Internal	Outbound	DC-SL	DNS Servers	DNS
427	TCP	Internal	Outbound	DC-SL	Printer	SLP
21	TCP	External	Outbound	DC-SL	<a href="ftp://15.73.40.56">ftp.usa.hp.com</a> (15.73.40.56, 15.73.244.52)	HP FTP site for downloading patches.



Remote Port	TCP/UDP	Internal/External	Inbound/Outbound	Source	Destination	Description
80	TCP	External	Outbound	DC-SL	<a href="http://svrsecure-g3-crl.verisign.com">http://svrsecure-g3-crl.verisign.com</a>	JetAdvantage Management Connector to retrieve certificate revocation list (CRL) for the initial registration process
					<a href="http://ss.symcb.com/ss.crl">http://ss.symcb.com/ss.crl</a>	DC-SL Service retrieves a certificate revocation list (CRL) from the URL: <a href="http://ss.symcb.com/ss.crl">http://ss.symcb.com/ss.crl</a> which is embedded in the HTTP certificate downloaded from HP DC Backend. The certificate name and the associated IP address are not HP controlled attributes.



Remote Port	TCP/UDP	Internal/External	Inbound/Outbound	Source	Destination	Description
443	TCP	External	Outbound	DC-SL	<a href="http://www.hpjac.com">www.hpjac.com</a> (15.48.64.209, 15.50.64.106)	HP JetAdvantage Management backend for device usage, consumable, telemetry, and event log collection.  NOTE: JetAdvantage Management XMPP service requires a persistent TCP/IP connection from JetAdvantage Management Connector software. IP ports - 5222, 5223, 443 or 80 - are used to establish this connection directly to HP's XMPP service or, in the case where HTTP proxy is used, JetAdvantage Management connector sends an HTTP CONNECT request. Once established, the connection communicates using TLS protocol and becomes the JetAdvantage Management control communication channel.
					<a href="http://www.xmpp-hpjac.com">www.xmpp-hpjac.com</a> (15.48.64.208, 15.50.64.105)	
					<a href="https://mqtsmcservice.hp.com">https://mqtsmcservice.hp.com</a> (15.48.65.22)	HP DC backend for automatic system updates
3389	TCP	Internal	Inbound	Internal Desktop network		

**Note:** ICMP Echo response from printer needs to be allowed to reach DC-SL.

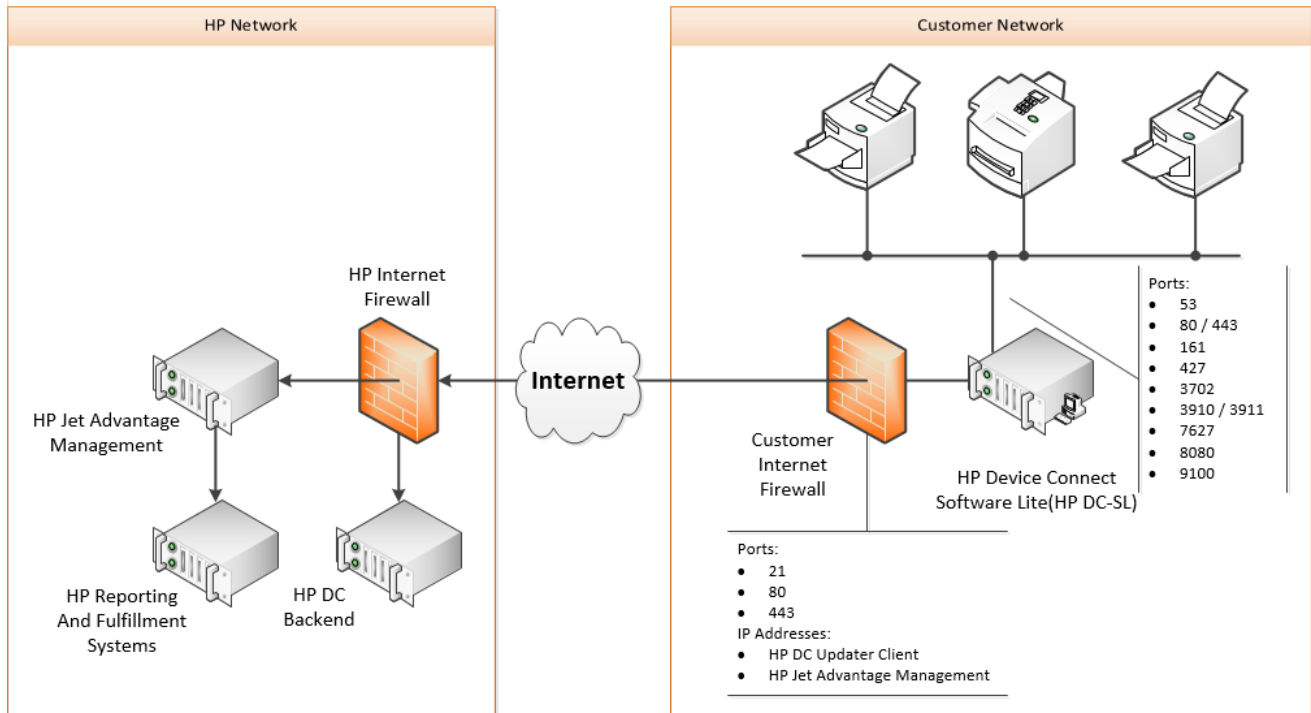
## 2.4.1 HP JetAdvantage Device Connection Requirements

HP JetAdvantage Management does not currently support devices not connected to the network. Devices connected to PC's will need to be connected to the network in order to be managed.

All managed devices within a customer's fleet must have distinct IP addresses irrespective of location or network setup.

## 2.4.2 DC-SL Illustration

A depiction of the HP DC-SL sitting on a customer's internal network is shown below.



## 2.5 Network Traffic

Traffic numbers are available in the documents of the individual application components

Sample average SNMP traffic for 2000 devices

- (HP JetAdvantage Management) \* 2000
- (65KB) \* 2,000 = 130,000 KB = ~130 MB



Component	Traffic
HP JetAdvantage Management	<p>Data is encrypted and compressed when transmitted</p> <ul style="list-style-type: none"><li>• Device Discovery<ul style="list-style-type: none"><li>○ Specified address discovery<ul style="list-style-type: none"><li>▪ SNMP query/response from printer = 38 packets, 6.1 Kbytes over 1.1 Sec</li></ul></li></ul></li><li>• Data Collection<ul style="list-style-type: none"><li>○ FW/Solutions Data Collection FutureSmart Single Device = 18K Bytes</li><li>○ FW/Solutions Data Collection non-FutureSmart Single Device = 10K Bytes</li><li>○ Telemetry Data Collection FutureSmart Single Device = 24K Bytes</li><li>○ Telemetry Data Collection non-FutureSmart Single Device = 37K Bytes</li></ul></li></ul> <p>The average daily traffic generated per device in the fleet to do a data collection and send the information to HP is:</p> <ul style="list-style-type: none"><li>○ Business InkJet printers: 34KB of internal (SNMP) and 41KB of external (HTTPS)</li><li>○ Monochrome LaserJet printers: 33KB of internal (SNMP) and 39KB of external (HTTPS)</li><li>○ Monochrome multifunction printer: 33KB of internal (SNMP) and 40KB of external (HTTPS)</li><li>○ All-in-one printers: 4KB of internal (SNMP) and 4KB of external (HTTPS)</li><li>○ Color LaserJet printers: 65KB of internal (SNMP) and 78KB of external (HTTPS)</li><li>○ Color multifunction printer: 91KB of internal (SNMP) and 109KB of external (HTTPS)</li><li>○ Edgeline Technology devices: 126KB of internal (SNMP) and 142KB of external (HTTPS)</li><li>○ Personal monochrome LaserJet printers: 2KB of internal (SNMP) and 2KB of external (HTTPS)</li><li>○ HTTP printers: approximately 80KB of internal (HTTP) and approximately 90KB of external (HTTPS)</li></ul>
HP DC Updater Client	<p>Data is encrypted and compressed when transmitted. The data transmission (HTTP request) is usually below 100 KB.</p> <p>Heartbeat data, by default, is scheduled to be transmitted every 60 min. to the HP DC backend.</p> <p>Task schedule request occurs based on the schedule configured in HP DC Portal for the DC Server. On the response it will bring back the configuration data (less than 100KB) and then it will download the 'DC update bundle', if there is any, using BITS technology.</p>



## Disclaimer

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