Virtual Configuration Center

Version 1.1

Administrator's Guide

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Contents

Change history..... 3

Overview..... 4

Benefits of using VCC..... 4

Working with VCC..... 5

Modifying a VCC file..... 7

Configuring VCC files..... 7

Working with bundles..... 10

Importing a bundle..... 10

Importing a license file..... 11

Exporting a bundle..... 11

Understanding Webservices API methods and their functions..... 12

Understanding services interface..... 13

FAQ..... 22

Notices..... 29

Index..... 41

Change history

July 2022

- Fixed syntax errors for working with VCC section.
- Removed alternative bundle import methods that are no longer applicable.

May 2022

- Initial document release.

Overview

Lexmark™ Virtual Configuration Center (VCC) is a firmware feature designed to configure devices at a customer's site or at the manufacturing site rather than at a customization center. VCC ensures the use of one tool rather than multiple tools to configure a device.

VCC is built into a printer firmware starting with the family of products released in 2012. It is designed to be a simple method to create and distribute device configurations as ZIP files to one or more printers. VCC can install eSF applications, configure eSF settings, manage user settings, apply manufacturing configurations, install licenses, and manage security settings and saved shortcuts.

Anything processed by VCC is sent to the printer through a bundle ZIP file.

VCC bundles can also be exported from the Embedded Web Server (EWS), in the Export Configuration menu. Configuration files can be imported to or exported from a printer. You can export the settings only and not the applications and licenses.

Benefits of using VCC

Benefits of using VCC

VCC has the following general benefits:

- **Simplification of deployment**—VCC streamlines the device configuration process in many ways. First, it can be deployed through multiple channels (such as a host flash drive or a web page). It unifies all the prior configuration mechanisms, such as NPA, into a single mechanism which is the bundle. Also, VCC can report the success or failure of all configuration transactions.
- **Customized, flexible security envelope**—The licensing structure and node-locking capabilities in VCC ensure security for every device. Also, this structure enables customers to securely purchase and install Lexmark-certified add-ons on their own time and without Lexmark intervention.
- **Start-to-finish tracking**—VCC lets Lexmark implement more rigorous safeguards in the manufacturing process to ensure that the correct hardware and software components are used. After manufacturing, Lexmark retains a record of every configuration transaction that a customer’s device has received. This information assists both the Customer Support Center and service engineers in diagnosing and solving device issues.

Working with VCC

Best practices

VCC is used by the operations teams to deploy devices across all sites through purchased applications. It can also be used by customers to add applications across retail stores through purchased applications. The following are some of the best practices for using VCC files efficiently. These practices create a method for deploying files. These practices reduce the VCC files to a manageable size and outline the most common key commands. It also allows customizations required in customers' environments.

- **<bundleInfo><description>**—Adding the model and company information allows the bundle to be reused for new devices or customers. Adding a time stamp and the credentials adds ownership and approval from the customer.

```
<bundleInfo><description>:
<?xml version="1.0" encoding="UTF-8"?>
<bundle>
<bundleInfo>
<name> CX923 COMPANY NAME CONFIGURATION </name>
<description>
Settings for Fax 3.0 09/17/2020
v3.0--Firmware CXTMH.072.222
v3.0--Adding LDAP Authentication
v3.0--Enabled mfp.fax.primarySMTPServer
  </description>
```

- **<deviceSettings>**—Makes the bundle.xml look more professional and allows other Customer Support Center and service engineers to use the VCC. It helps in creating a template within the device setting, which makes VCC more efficient to use and modify. The simple schema makes VCC easily understandable. This format helps identify key commands to specific functions within the EWS. As a result, files can be used by multiple customers, and viewing and training for customers is easier.

```
<!--
    Paper tray
-->
    <setting name="paperSource">Tray 5</setting>
    <setting name="tray1.paperType">Custom Type <1/setting>
    <setting name="tray1.paperSize">11x17</setting>
    <setting name="tray2.autoSize"><Auto/setting>
    <setting name="tray2.paperType">Custom Type 2</setting>
<!--
    Network Settings
-->
<setting name="network.SNMPV3ENABLED">1</setting>
<setting name="network.SNMPV12CENABLE">1</setting>
<setting name="network.IPNETMASK">255.255.255.0</setting>
<setting name="network.MACSPEED">Auto</setting>
<setting name="network.DDNSENABLE">1</setting>
<setting name="network.IPDOMAIN">domain.com</setting>
<!--
NTP Time Server
-->
    <setting name="timemgr.ntpserver">100.100.1.100</setting>
    <setting name="timemgr.timezone">USA/Canada EST</setting>
    <setting name="network.ALLOW_DHCP_TO_UPDATE_TIMESERVER">1</setting>
<!--
    Access Ports
-->
    <setting name="network.GUIPORTENABLE" index="1">0/setting>
    <setting name="network.GUIPORTENABLE" index="2">0/setting>
    <setting name="network.GUIPORTENABLE" index="3">0/setting>
<!--
General Settings
-->
    <setting name="mfp.general.country">United States</setting>
    <setting name="language">English</setting>
```

```
    <setting name="mfp.general.dateFormat">MM-DD-YYYY</setting>
    <setting name="mfp.general.showHeldJobsIcon">0</setting>
    <setting name="mfp.general.showUSBDrive">0</setting>
    <setting name="mfp.general.showProfiles">0</setting>
<!--
Power Saver
-->
    <setting name="nvHibernateTimeout">Disabled</setting>
    <setting name="nvHibernateTimeoutOverride">Do Not Hibernate</setting>
    <setting name="jobTimeout">Disabled</setting>
    <setting name="noNoDisplayStandbyMode">20</setting>
    <setting name="powerSaver">120</setting>
<!--
```

- **<!--REMmed--> Areas**—Helps in storing of unused key commands for a specific topic. Storing of the most common commands makes modifications quicker and eliminates the need to revisit or pull more VCC files. XML supports REM command labels but does not support nested Remark (REM) comments.

```
Example 1:
<!--
      TCPip/Port Access
     <setting name="network.GUIPORTENABLE" index="1">0</setting>
 -->
Example 2:
<setting name="network.GUIPORTENABLE" index="1">0</setting> <!--TCP 21 ( FTP )-->
```

- **<security_settings.xml>**—Create and modify security settings through the EWS and then export the new settings. You must use the <clear> command for <adddressbook clear="true"> and <clear/>. Edit security_settings as follows:
  - Use ContactMGR and Security XML together.
  - Rename Group names.
  - Change Group membership.
  - Modify permissions.
  - Change Kerberos parameters and Kerberos File content.
  - Change LDAP configuration.
  - Modify the login methods order.

  Note: Do not change Unique Identification Numbers (UIDs) and passwords.

```
<kerberos_file>
[realms]
TN1.MOB.TN.GOV = {
kdc = TNAV013DC1.TN1.MOB.TN.GOV:88
kdc = TNAV013DC2.TN1.MOB.TN.GOV:88
pkinit_eku_checking = kpServerAuth
}
[domain_realm]
TN.GOV = TN1.MOB.TN.GOV
.TN.GOV = TN1.MOB.TN.GOV
tn.gov = TN1.MOB.TN.GOV
.tn.gov = TN1.MOB.TN.GOV
]]>
  </kerberos_file>
<public_permissions>
    <name>cancel jobs</name>
    <name>change languages</name>
    <name>color dropout</name>
    <name>copy</name>
    <name>create bookmarks</name>
    <name>create profiles</name>
    <name>device menu</name>
<contact guid="guid">
            <firstname>Name</firstname>
        </contact>
  <group>
    <name>Name</name>
    is_all_users_group>0</is_all_users_group>
```

```
  </group>
<password_or_pin>password</password_or_pin>
```

Notes:

- The device must be updated to the latest firmware before working on the VCC bundle.
- The factory default configurations must be exported first when working with a new model. This data serves as a baseline and helps to determine what has been modified.
- The security_settings.xml must not be modified to avoid errors during deployment. Apply the changes on the device, then export the configuration files, and then extract and use the new security_settings.xml for deployment.

Modifying a VCC file

Modifying a VCC file

1. Click **Export Configuration** to export the file from the device.

   Notes:

   - The exported file is always in the format exported.zip.
   - Passwords, licenses, and applications are not exported.
   - New export options, such as Shortcuts and Home Screen Icons, are added.

2. Download and extract the exported.zip file.
3. Modify the files using Notepad++.

   Note: From the bundle.xml file, modify the **<name>** and **<description>** elements, and then save the file.

4. Zip the files again.
5. Click **Import Configuration** to import the files into targeted devices and make the validated changes.

Notes:

- Configuration files can be imported using a flash drive, Markvision Enterprise (MVE), Device Deployment Utility (DDU), Cloud Fleet Management (CFM), or the Service Restore Tool.
- The importing of configuration files is logged.

Configuring VCC files

Configuring VCC files

Each device maintains a list of settings that can be configured through a bundle. Each setting is given a user-friendly name. If the setting has a discrete value list, such as letter and legal, then those values are also given user-friendly names. If a setting does not have a user-friendly name, then it has to go through pass-through mode. There are also protected settings where non-Lexmark settings cannot be configured without authorization.

There are some settings that cause a reset. Settings that fall into one of these categories must be in administrator mode before allowing any configuration. Multiple clients can enter this mode. The device maintains a reference count and exits the mode only when the last client exists the administrator. Then, the device resets itself if required, based on the configuration of a setting that requires a power-on reset.

Sample of a VCC with acceptable setting names and values

```
<setting name="language">English</setting>
<setting name="Language">English</setting>
<setting name="LANGUAGE">English</setting>
```

Changing a setting using VCC

- To change esf settings, modify the esf_settings.xml file in the .zip file.

  ```
  <esfSettings>
    <esfSetting src="esf_settings.xml" />
  </esfSettings>
  ```

  Note: The bundle.xml file must refer to all the files that can be applied.

Configuring the eSF applications and eSF application settings

The eSF application is an FLS file included in the bundle ZIP file.

Notes:

- The printer does not require a reboot for installing an eSF application.
- The esf_settings.xml is exportable.

Each eSF application and eSF application setting installed with a bundle is referenced in the bundle.xml file, and must be included in the ZIP file.

Sample of esF application

```
<esfApplications>
   <esfApplication src="esfApp1.fls" />
   <esfApplication src="esfApp2.fls" />
</esfApplications>
```

Sample of esF application settings

```
<esfSettings>
<esfSetting src="esf_settings.xml" />
</esfSettings>
```

Configuring the security settings

Security settings are managed in separate files for VCC. They use the XML format. Not all settings are necessarily exported. Password settings are hashed during export. Also, bundles that have protected settings (in the bundle.xml file) require a unique Lexmark signature or bundle.signature.

Sample of security settings using XML format

```
<securitySettings>
    <securitySetting src="security_settings.xml" />
</securitySettings>
```

Configuring a license

A license is used to protect a feature or capability of the device.

It contains the following information:

- **feature name**—A name that uniquely identifies a feature or capability
- **feature data**—Data associated with a feature that can customize the behavior of the feature
- **feature version**—The version of the feature to be enabled
- **type**—Factory, standard, or trial
- **term**—The start and end dates
- **count**—The number of instances that a feature can be enabled based on the license
- **notice**—A legal notice to be shown to the user
- **id**—An unique identifier for the license
- **issued**—When the license was issued

A factory license is used for protecting some supplies related to configuration and typically set on the manufacturing line. It uses data associated with a feature to act as a sort of secure NVRAM to contain the supplies configuration. The factory license is node-locked to the device serial number.

There can only be one factory license present on any given device and it cannot be removed by the customer. The factory license is signed, and valid for 50 years from the manufacture date. If the date or time is lost and set to an earlier date than the manufacturing date, then the factory license becomes invalid. If, for whatever reason, the factory license is missing or invalid, then the printer operates in a very limited, basic mode. Licenses for eSF applications and for other features like PrintCryption and factory licenses can be installed using VCC bundles.

Sample of licenses referenced in the bundle.xml as follows:

```
<licenses>
  <license src='license1.lic' />
  <license src='license2.lic' />
</licenses>
```

Configuring shortcuts

Shortcuts are a way for users to save customized settings or values. These settings and values make it easier to do certain jobs, like copying data and sending e-mails. For example, a user who frequently copies documents can create a shortcut to save the values for number of copies, paper size, and content type. So the user does not need to set those values again for the next copy job. Shortcuts are supported for copy, e-mail, fax, and FTP jobs.

Sample of shortcuts are referenced in bundle.xml as follows:

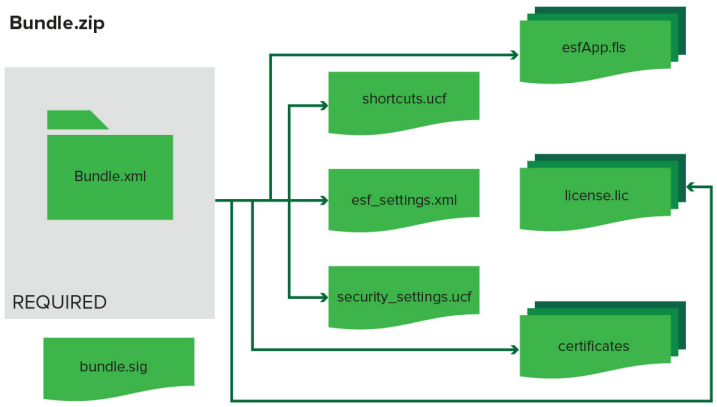
```
<shortcuts>
   <shortcutFile src="shortcuts.ucf" />
</shortcuts>
```

Configuring address books

Address books are used to store contact information on the printer. They can be used as links to external pluggable clients or for security purposes. You can export details for address books.

Working with bundles

A bundle file is a ZIP file that contains the bundle.xml file. The bundle.xml file contains various element tags containing information, or a reference to another file in the ZIP file. The bundle.zip file also contains other files that represent either bulk data or other data containing a format other than XML. The bundle.xml file is the only file required by VCC when processing bundle.zip. It is a text file with XML formatting that contains all user-facing settings except for eSF application settings and security settings. Any additional files in the bundle.zip are referenced in the bundle.xml file.



Importing a bundle

Importing a bundle

Using the EWS

1. Open a web browser, and then type the printer IP address in the address field.
2. Click **Import Configuration**, or click **Settings** > **Configuration Files** > **Import**.

Using the command prompt (requires cURL)

1. At the command prompt, type **`curl --data-binary @bundle_file.zip http://<device_ip> /webservices/vcc/bundles`**.
2. Run the command.

You can also import a bundle using the following way:

- **USB Flash drive in the printer**—Bundle files appear in the flash drive file list as ZIP files. When a user selects a ZIP file, the file is verified to be valid.

Notes:

- Unlike VCC or bundles import, VCC or importSettings requires only the XML file which contains the device settings to be imported.
- Only the settings inside the **`<deviceSettings>`** tag are processed.

- The file name of the input XML file must follow the standard bundle.xml used in VCC or the bundles import web service.

Importing a license file

Importing a license file

Using the EWS

1. Open a web browser, and then type the printer IP address in the address field.
2. Click **Import Configuration**, or click **Settings** > **Configuration Files** >**Licenses** > **Install**.

Using the command prompt (requires cURL)

1. At the command prompt, type **`curl --data-binary @bundle_file.zip http://<device_ip> /webservices/vcc/licenses`**.
2. Run the command.

Supporting a license file

Get supported license through EWS 5 or later

1. Open a web browser, and then type the printer IP address in the address field.
2. Click **Settings** > **Configuration Files** > **Licenses**, or click **Settings** > **Configuration History**.

Get supported license through terminal (cURL command)

1. At the command prompt,type the command: **`curl [target device's IP address]/webservices/vcc/licenses`**.
2. Run the command.

Exporting a bundle

Exporting a bundle

Using the EWS

1. Open a web browser, and then type the printer IP address in the address field.
2. Click **Export Configuration**, or click **Settings** > **Configuration Files** > **Export**.

Using the VCC URL

- Open a web browser, and then type the printer IP address in the address field, followed by **`/webservices/vcc/bundles`**.

Using the command prompt

1. At the command prompt, type **`curl --data-binary @bundle_file.zip http://<device_ip> /webservices/vcc/bundles -o bundle_file.zip`**.
2. Run the command.

Notes:

- You can also export a bundle using a flash drive.
- Exported VCC bundles include the firmware version, which can be found in the bundle description.

Understanding Webservices API methods and their functions

Service provider host name

For software or firmware running on the printer, a reserved host name is used to locate the web server host address. This host name is **`internal.http.server`**. All web services that request URLs use this host name to ensure that the correct host:port combination opens to perform the operation. The URL for the VCC web service is ***`http://internal.http.server/webservices/vcc`***.

HTTP methods

The intent is to use each HTTP method in a consistent manner across all resources. The following describes the semantics that must be inferred from each operation:

- **GET**—This command retrieves a resource. A single GET is the same as 50 GET operations.
- **DELETE**—This command removes a resource.
- **POST**—This command is used in two different ways.
  - **Factory method**—This method helps to pass in some values to create a new resource. This is the most typical use of POST.
  - **RPC invocation**—When necessary, POST is used to indicate that a remote method is being invoked, and the result is contained in the HTTP response. When used in this manner, no resources are created or removed by the POST operation and an atypical use of POST.

HTTP responses

Standard HTTP response codes are used wherever possible. The following rules apply generally to all operations:

- Any request on a resource that does not exist (never created or was deleted) responds with a **`404 Not Found`**. It returns the log file that contains more detailed information about the error.
- Valid requests are typically responded to with **`200 OK`** message.

Request and response body

XML is used for both request and response data and is performed of XML's ubiquity.

Resources

The top-level interface URI for VCC is: **`/webservices/vcc`**. This URI represents the base of the service and contains the "static" methods a version and bundles. This URI cannot be created or removed.

Understanding services interface

Understanding services interface

URI (Resource)	Method	Description
/webservices/vcc/bundles	POST	Return the service status.
/webservices/vcc/bundles	GET	Export the bundle from development.
/webservices/vcc/apiversion	GET	Return the service API version.
/webservices/vcc/identity	GET	Return the device Granite ID and serial number.
/webservices/vcc/licenses	GET	Return the devices licenses.
/webservices/vcc/licenses	Delete	Delete a license from a device.
/webservices/vcc/importSettings	POST	Install bundle (settings only) and return the service status. This resource requires an XML file as input instead of ZIP file.
/webservices/vcc/exportSettings	POST	Export the selected settings only. This resource requires an XML file containing the list of settings as input and returns XML file containing the same set of settings with values as the output.

Detailed interface description

POST /webservices/vcc/bundles

This resource let's you to install one bundle on a device. The bundle.zip file can contain one or more licenses, widgets, and other features. But it can contain only one bundle.xml file.

The status return value is an XML document with the following structure:

Interface	Description
Request (configuration address Package FAC inactive)	curl --data-binary [path to and name of ZIP file to be imported].zip http://[target device IP address] /webservices/vcc/bundles
Request (configuration Package FAC activated)	curl -b "username=[username]; password=[password] --get [target device IP address]/webservices/vcc/bundles -o bundle.zip

Success (bundle processor invoked)	HTTP/1.1 200 OK
	Content-Type: text/xml; charset=utf-8
	`<?xml version='1.0' encoding='UTF-8">`
	`[log file]`

Interface	Description
Failure (insufficient memory)	HTTP/1.1 500 INTERNAL_SERVER_ERROR Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>500 Internal Service Error</title> <head/> <body> Internal Service Error <!--one of the following messages appears in the body--> Could not go offline [reason]. Error processing request No memory for request </body> </html>
Failure (HTTP request timeout)	HTTP/1.1 408 REQUEST_TIMEOUT Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>500 Internal Service Error</title> <head/> <body> Request timed out <!--one of the following messages appears in the body--> Could not go offline [reason]. Error processing request No memory for request </body> </html>
Failure (malformed command)	HTTP/1.1 404 Not Found <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>404 Not Found</title> <head/> <body> Not Found The requested URL was not found on this server. </body> </html> </xml>
Failure (unauthorized)	HTTP/1.1 200 OK Content-Type: text/xml; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head><head/> <body> User ID not authorized for access </body> </html> </xml>

GET /webservices/vcc/bundles

This resource lets you export the bundle.zip file of the device.

The status return value is an XML document with the following structure:

Interface	Description
Request (configuration address Package FAC inactive)	curl –-get [target device IP address]/webservices/vcc/bundles -o bundle.zip
Request (configuration Package FAC activated)	curl -b "username=[username]; password=[password] --get [target device IP address]/webservices/vcc/bundles -o bundle.zip
Success (bundle processor invoked)	HTTP/1.1 200 OK Content-Type: text/xml; charset=utf-8 <?xml version='1.0' encoding='UTF-8"> [log file]
Failure (insufficient memory)	HTTP/1.1 500 INTERNAL_SERVER_ERROR Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>500 Internal Service Error</title> <head/> <body> Internal Service Error <!--one of the following messages appears in the body--> Could not go offline [reason]. Error processing request No memory for request </body> </html>
Failure (HTTP request timeout)	HTTP/1.1 408 REQUEST_TIMEOUT Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>408 Request Timeout</title> 1<head/> <body> Request timed out </body> </html>
Failure (malformed command)	HTTP/1.1 404 Not Found <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>404 Not Found</title> <head/> <body> Not Found The requested URL was not found on this server. </body> </html> </xml>

Interface	Description
Failure (unauthorized)	HTTP/1.1 200 OK Content-Type: text/xml; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head><head/> <body> User ID not authorized for access </body> </html> </xml>

GET /webservices/vcc/apiversion

- The resource returns the API version for this service. The return value is an XML document with the following structure:
  - **apiversion**—Root tag with a single attribute value that contains a positive floating point number of the format int.int describing the version of this api. Versions are backward compatible.

The status return value is an XML document with the following structure:

Interface	Description
Failure (malformed command)	HTTP/1.1 404 Not Found <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>404 Not Found</title> <head/> <body> Not Found The requested URL was not found on this server. </body> </html> </xml>
Failure (HTTP request timeout)	HTTP/1.1 408 REQUEST_TIMEOUT Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>408 Request Timeout</title> 1<head/> <body> Request timed out </body> </html>

GET /webservices/vcc/identity

This resource returns the target device Granite ID and serial number.

The status return value is an XML document with the following structure:

Interface	Description
Request	curl [target device IP address]/webservices/vcc/identity
Success (bundle processor invoked)	HTTP/1.1 200 OK Content-Type: text/xml; charset=utf-8 <?xml version='1.0' encoding='UTF-8"> [log file]
Failure (insufficient memory)	HTTP/1.1 500 INTERNAL_SERVER_ERROR Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.orq/TR/xhtmll/DTD/xhtmll-strict.dtd"> <html xmlns="http://www.w3.orq/1999/xhtml> <head> <title>500 Internal Service Error</title> <head/> <body> <hl>Internal Service Error</hl> <!--one of the following messages appears in the body--> Could not go offline [reason]. Error processing request No memory for request </body> </html>
Failure (HTTP request timeout)	HTTP/1.1 408 REQUEST_TIMEOUT Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.orq/TR/xhtmll/DTD/xhtmll-strict.dtd"> <html xmlns="http://www.w3.orq/1999/xhtml> <head> <title>408 Request Timeout</title> </body> </html>
Failure (malformed command)	HTTP/1.1 404 Not Found <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.orq/TR/xhtmll/DTD/xhtmll-strict.dtd"> <html xmlns="http://www.w3.orq/1999/xhtml> <head> <title>404 Not Found</title> <head/> <body> <hl>Not Found</hl> The requested URL was not found on this server. </body> </html> </xml>

GET /webservices/vcc/licenses

This resource returns a list of all licenses (signed, unsigned, valid, invalid) that exist on the device.

The status return value is an XML document with the following structure:

Interface	Description
Request	curl [target device IP address]/webservices/vcc/licenses
Success (bundle processor invoked)	HTTP/1.1 200 OK Content-Type: text/xml; charset=utf-8 <?xml version='1.0' encoding='UTF-8"> [log file]
Failure (insufficient memory)	HTTP/1.1 500 INTERNAL_SERVER_ERROR Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.orq/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.orq/1999/xhtml> <head> <title>500 Internal Service Error</title> <head/> <body> <hl>Internal Service Error</hl> <!--one of the following messages appears in the body--> Could not go offline [reason]. Error processing request No memory for request </body> </html>
Failure (HTTP request timeout)	HTTP/1.1 408 REQUEST_TIMEOUT Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.orq/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.orq/1999/xhtml> <head> <title>408 Request Timeout</title> 1<head/> <body> <hl>Request timed out</hl> </body> </html>

GET /webservices/vcc/importSettings

This resource lets you to install a bundle (settings only) and return service status. This resource requires an XML file as input instead of a ZIP file.

The status return value is an XML document with the following structure:

Interface	Description
Request (configuration address Package FAC inactive)	curl -X POST --data-binary @[path to and name of .xmlfile to be imported].xml http://[target device IP address]/webservices/vcc/importSettings
Request (configuration Package FAC activated)	Curl -b "username=[username]; password=[password] -X POST --data-binary @[path to and name of .xmlfile to be imported].xml http://[target device IP address]/webservices/vcc/importSettings

Interface	Description
Success (bundle processor invoked)	HTTP/1.1 200 OK Content-Type: text/xml; charset=utf-8 <?xml version='1.0' encoding='UTF-8"> [log file]
Failure (insufficient memory)	HTTP/1.1 500 INTERNAL_SERVER_ERROR Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>500 Internal Service Error</title> <head/> <body> Internal Service Error <!--one of the following messages appears in the body--> Could not go offline [reason]. Error processing request No memory for request </body> </html>
Failure (HTTP request timeout)	HTTP/1.1 408 REQUEST_TIMEOUT Content-Type: text/plain; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>408 Request Timeout</title> 1<head/> <body> Request timed out </body> </html>
Failure (malformed command)	HTTP/1.1 404 Not Found <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head> <title>404 Not Found</title> <head/> <body> Not Found The requested URL was not found on this server. </body> </html> </xml>
Failure (unauthorized)	HTTP/1.1 200 OK Content-Type: text/xml; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"> <html xmlns="http://www.w3.org/1999/xhtml> <head><head/> <body> User ID not authorized for access </body> </html> </xml>

GET /webservices/vcc/exportSettings

This resource lets you to export selected settings only. It requires xml file containing the list of settings as input. It returns XML file containing the same set of settings with values as output.

The status return value is an XML document with the following structure:

Interface	Description
Request (configuration address Package FAC inactive)	curl -X POST --data-binary @[path to and name of .xmlfile to be exported].xml http://[target device's IP address]/webservices/vcc/exportSettings –o bundle.xml
Request (configuration Package FAC activated)	curl -b "username=[username]; password=[password] -X POST --data-binary @[path to and name of .xmlfile to be exported].xml http://[target device IP address]/webservices/vcc/exportSettings –o bundle.xml

Success (bundle processor invoked)	HTTP/1.1 200 OK
	Content-Type: text/xml; charset=utf-8
	`<?xml version='1.0' encoding='UTF-8">`
	`[log file]`

Failure (insufficient memory)	HTTP/1.1 500 INTERNAL_SERVER_ERROR
	Content-Type: text/plain; charset=utf-8
	`<?xml version='1.0' encoding='UTF-8'?>`
	`<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"`
	`"http://www.w3.orq/TR/xhtmll/DTD/xhtmll-strict.dtd">`
	`<html xmlns="http://www.w3.orq/1999/xhtml>`
	`<head>`
	`<title>500 Internal Service Error</title>`
	`<head/>`
	`<body>`
	`<hl>Internal Service Error</hl>`
	`<!--one of the following messages appears in the body-->`
	`<p>Could not go offline [reason].</p>`
	`<p>Error processing request</p>`
	`<p>No memory for request</p>`
	`</body>`
	`</html>`

Failure (HTTP request timeout)	HTTP/1.1 408 REQUEST_TIMEOUT
	Content-Type: text/plain; charset=utf-8
	`<?xml version='1.0' encoding='UTF-8'?>`
	`<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"`
	`"http://www.w3.orq/TR/xhtmll/DTD/xhtmll-strict.dtd">`
	`<html xmlns="http://www.w3.orq/1999/xhtml>`
	`<head>`
	`<title>408 Request Timeout</title>`
	`1<head/>`
	`<body>`
	`<hl>Request timed out</hl>`
	`</body>`
	`</html>`

Interface	Description
Failure (malformed command)	HTTP/1.1 404 Not Found <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.orq/TR/xhtmll/DTD/xhtmll-strict.dtd"> <html xmlns="http://www.w3.orq/1999/xhtml> <head> <title>404 Not Found</title> <head/> <body> <hl>Not Found</hl> The requested URL was not found on this server. </body> </html> </xml>
Failure (unauthorized)	HTTP/1.1 200 OK Content-Type: text/xml; charset=utf-8 <?xml version='1.0' encoding='UTF-8'?> <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" "http://www.w3.orq/TR/xhtmll/DTD/xhtmll-strict.dtd"> <html xmlns="http://www.w3.orq/1999/xhtml> <head><head/> <body> <hl>User ID not authorized for access</hl> </body> </html> </xml>

FAQ

How do I verify that a bundle worked?

An error message appears if there is a problem in the installation

Can I modify a bundle without unzipping the file?

Yes, with certain text editors (such as Vim). But if the bundle is signed, then the bundle becomes invalid when edited.

Is there a time limit for sending a bundle?

The bundle session will time out after five minutes of inactivity.

Is there a maximum bundle size?

Yes, but it varies based on the available system resource. The bundle size is not limited by the firmware. Some transport methods, such as NPA-wrapped USB, may impose file-size limits.

How do I know that a bundle is successfully imported?

If a bundle is imported successfully, then a **`200 OK`** message appears. The bundle information is in **`/var/fs/shared/vcc/bundleinfo`**.

Note: A maximum of 100 logs are kept in this directory. If this number is exceeded, the oldest logs are deleted.

How do I know that a bundle is partially successful while importing?

If a bundle is not imported successfully, then a **`206 Partial Content`** message appears, with the information about the missing settings.

Note: The same message appears if a bundle contains an unknown VCC key. In strict mode, a **`400 Bad Request`** message appears.

How do I know that a bundle failed while importing?

If a bundle is not imported successfully, then a **`206 Partial Content`** message appears, with the information about the missing settings. The same message appears if a bundle contains an unknown VCC key. In strict mode, a **`400 Bad Request`** message appears.

The following is the format of the status log:

```
Info
"Info" : {
        "Install Date" : "16-Jan-2015",
        "Name" : "Bundle Export",
        "Description" : "Settings exported on Thu Jan 8 03:39:52 2015 : FW version
201501161010",
        "ID" : "5845f1c29ad4743cdc118516cc217c49d527d623"
}
```

Parameter	Description
Install Date	The date when the processing of this bundle started in DD-MMM-YYYY format (e.g., 01-JAN-2010). **Note:** There must be a leading zero.
Name	The value of bundle.bundleInfo.name in bundle.xml.
Description	The value of bundle.bundleInfo.description in bundle.xml
ID	The value of bundle.bundleInfo.id in bundle.xml. **Note:** If the bundle ID does not exist, then the value of the generated GUID is used.

Process entries

The following process entries appear in the Fail section of the JSON-formatted reply.

The generic process entry is defined as follows:

```
"<bundle tag>" : {
"<name>" : {
        "<function>" : {
            "code" : "<failure code>",
            "explanation" : "<explanation of failure>"
          }
}
}
```

Parameter	Description
Bundle Tag	The VCC tags in bundle.xml, such as deviceSettings, schedules, licenses, securitySettings, certificates, esfApplications, esfSettings, shortcuts, contactmanager, demoPage, configFile, and clearCounters.
Function	The action being attempted. There can be more than one function per setting name.
Name	The name or file name to which the action is being done. This name can be a setting name or an eSF application file name.
Code	The numeric code identifying the failure. This code is displayed if the status is a failure.
Explanation	The text that describes the problem so that a resolution can be found. This text is displayed if the status is a failure.

deviceSettings entry

```
 "deviceSettings" : {
     "<setting name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
           ...
     },
     ...
}
```

Codes and explanations of failures

Code	Explanation
1	General error.
2	Unknown name.

Code	Explanation
3	The setting must be an integer.
4	The setting must be a float.
5	The setting type is unknown.
6	The setting requires administrator mode.
7	Invalid value.
8	Unable to set value.
9	The attempt to unlock settings failed.
14	Various strings all indicating that the license is invalid.
15	The setting requires a valid signature.
16	Conflicted setting **<setting name>**.
17	**<general eSF error message>**.

customFactoryDefaults entry

```
"customFactoryDefaults" : {
     "<setting name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
           ...
     },
     ...
}
```

Codes and explanations of failures

Code	Explanation
1	General error.
2	Unknown name.
3	The setting must be an integer.
4	The setting must be a float.
5	The setting type is unknown.
6	The setting requires administrator mode.
7	Invalid value.
8	Unable to set value.
9	The attempt to unlock settings failed.
14	Various strings all indicating that the license is invalid.
15	The setting requires a valid signature.
16	Conflicted setting **<setting name>**
17	Restoring to factory default settings is not allowed.

securitySettings entry

```
"securitySettings" : {
     "<setting name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
           ...
     },
     ...
}
```

Codes and explanations of failures

Code	Explanation
Note: Check **lf/auth/include/Auth.h** for the complete list of error codes. The most common errors are 1002 or 1017.	
1002	Error
1006	Arguments
1009	Duplicate.
1010	Busy
1011	Does not exist
1012	Unprotected
1013	Disabled
1017	Invalid
1018	Dependency
1019	Too many
1024	Name too long

esfApplications entry

```
"esfApplications" : {
     "<esf application name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
           ...
     },
     ...
}
```

Codes and explanations of failures

Code	Explanation
Notes: • These codes are populated from esf/src/java/bundles/install/src/com/lexmark/prtapp/install/InstallException.java. • For all the other codes, the following message appears: **An internal error occurred:(error code)**.	
-1	A network error occurred during installation.
-2	Unable to install because the file sent is not a valid flash file.
-3	The installation timed out before finishing.
-4	The printer was not at the ready state. It may have an active intervention, or somebody else may be in the process of flashing or printing.
-5	There is not enough space to install the applications in this flash file.
1, -6	Not enough memory to process the flash.
-7	The bundle cannot be installed because another version of the bundle is already installed with different version information value.
-8	The application or one of its components failed to start because of an unknown reason.
-9	The application installed successfully, but requires a license to run.
-10	This application depends on another bundle that does not exist or has been uninstalled.
-11	This application depends on another bundle that fails to start.
-200	Application installation is disabled on this printer.
7	The flash file is invalid: a bundle was specified with an invalid location.
12	This application is not authorized to run on this printer.
17	This application is not supported on this type of printer.

esfSettings entry

```
"esfSettings" : {
     "<setting name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
           ...
     },
     ...
}
```

Codes and explanations of failures

Code	Explanation
In addition to the standard setting codes in the deviceSettings section above, eSF setting operations can also return these values.	
20	The collection of settings did not validate.

Code	Explanation
21	The application setting version is invalid.
22	This application must be started to apply settings.
23	Application does not exist.

schedules entry

```
"schedules" : {
     "<schedule name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
           ...
     },
     ...
}
```

licenses entry

```
"licenses" : {
     "<license name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
           ...
     },
     ...
}
```

certificates entry

```
"certificates" : {
     "<certificate name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
           ...
     },
     ...
}
```

shortcuts entry

```
"shortcuts" : {
     "<shortcut name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
           ...
     },
     ...
}
```

contactmanager entry

```
"contactmanager" : {
     "<contact manager name>" : {
          "<function>" : {
              "code" : "<failure code>",
                "explanation" : "<explanation of failure>"
          },
```

```
            ...
      },
      ...
}
```

demoPage entry

```
"demoPage" : {
      "<demo page name>" : {
            "<function>" : {
                "code" : "<failure code>",
                  "explanation" : "<explanation of failure>"
            },
             ...
      },
      ...
}
```

configFile entry

```
"configFile" : {
      "<config file name>" : {
            "<function>" : {
                "code" : "<failure code>",
                  "explanation" : "<explanation of failure>"
            },
             ...
      },
      ...
}
```

clearCounters entry

```
"clearCounters" : {
        "code" : "<failure code>",
             "explanation" : "<explanation of failure>"
 }
```

Pass and Result

- **Pass**—The following process entry appears in the Pass section of the JSON-formatted reply. The generic process entry is defined as follows:

  ```
  "<bundle tag>" : "<setting name>, <setting name>, …",
  "<bundle tag>" : "<setting name>, <setting name>, …",
  …
  ```

- **Result**—The final result of the bundle installation appears after all the entries. The result is either a success or failure.

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Index

B

benefits
  using VCC 4
benefits of using VCC 4
best practices 5
bundle structure
  understanding 10
bundles
  exporting 11
  importing 10

C

change history 3
configuring VCC files 7

E

exporting a bundle 11

F

FAQ 22
frequently asked questions 22

H

host name 12
http 12

I

importing a bundle 10
importing a license file 11

L

license file
  importing 11

M

methods 12
modifying a VCC file 7

O

overview 4

S

service provider 12
services interface 13

U

understanding 13

V

VCC files
  configuring 7
  modifying 7