

NComputing vSpace Pro

Version 10.3

Printer Management

March 30, 2017

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1. Introduction

1.1. Purpose of the document

The purpose of this document is to provide information about functionality and usage of the Printer Management feature introduced in vSpace Pro version 10.3.

1.2. Intended audience

NComputing vSpace Pro administrators, help desk personnel, technical support engineers, system engineers.

1.3. Document history

Document version	Release date
1.0.0 (VSS10000300PRM01)	March 30, 2017

1.3.1. Change log

Document version 1.0.0

Initial version of the document.

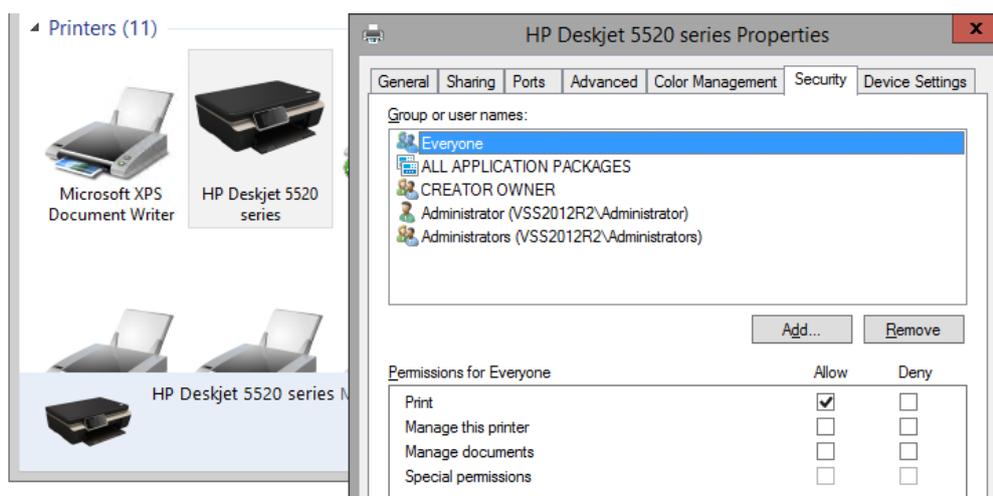
2. General information about USB redirection in vSpace Servers

2.1. USB peripheral devices handling in vSpace Server

vSpace Server allows transparent access to USB devices physically connected to NComputing thin-clients. Users working on vSpace Servers can access the USB peripheral devices from their terminal sessions. For most peripheral devices the redirection first of all takes place at the USB protocol level¹. If the 'USB Redirection' feature is enabled on the Peripheral Devices page of vSpace Console then vSpace Server assigns to each user session a separate instance of 'NComputing Virtual USB 2.0 Host Controller'. When an NComputing thin-client starts a vSpace Server session the physical USB 2.0 ports of the client virtually become the USB ports of the assigned 'NComputing Virtual USB 2.0 Host Controller'. When this host controller detects a device connected to client's USB port the operating system loads the necessary device driver and makes the device available for the users. When this process finishes the peripheral device appears in Windows Device Manager and all users logged on to vSpace Server can potentially see and use the device. Additional mechanisms available in vSpace Server make sure that only the user logged on from the thin-client where the USB device is physically connected can see and access the peripheral device. Such mechanisms exist now (in version 10.3) for mass storage devices, audio devices, webcams, smart card readers, COM ports and printers.

2.2. USB printers in vSpace Server versions up to vSpace Pro 10.2

All vSpace Server versions up to vSpace Pro 10.2 did not include any special mechanisms for handling client USB printers. Printers physically connected to NComputing thin-clients were redirected to vSpace Server, but the underlying Windows operating system was treating them in the same way as printers directly connected to the USB ports of vSpace Server host machine. This standard behavior includes creating printer object with standard name (hardcoded in printer driver) and standard user access control list (ACL). Standard ACL for printer objects includes the Allow Print permission for the Everyone user group.



¹ Some USB device classes like HID or Audio (in certain configurations) do not get redirected as USB devices, but use dedicated protocol slots.

The above resulted in following disadvantages:

- All system users, no matter from what clients they were connected, were able to see all client printers and also print on them.
- In environments with multiple thin-clients with locally connected printers each users was able to see dozens of printers redirected from different thin-clients.
- In case of multiple printers of the same model the system was creating the printers with the same name and adding the Copy 1, Copy 2, ... suffixes to differentiate the printers. User could potentially get every day a different copy of the printer assigned to his session.
- Printers from disconnected or logged off NComputing thin-client sessions were still visible as offline printers.
- Administrators and support personnel didn't have any easy way to determine which printer belongs to what user or thin-client.

3. Printer Management in vSpace Pro version 10.3

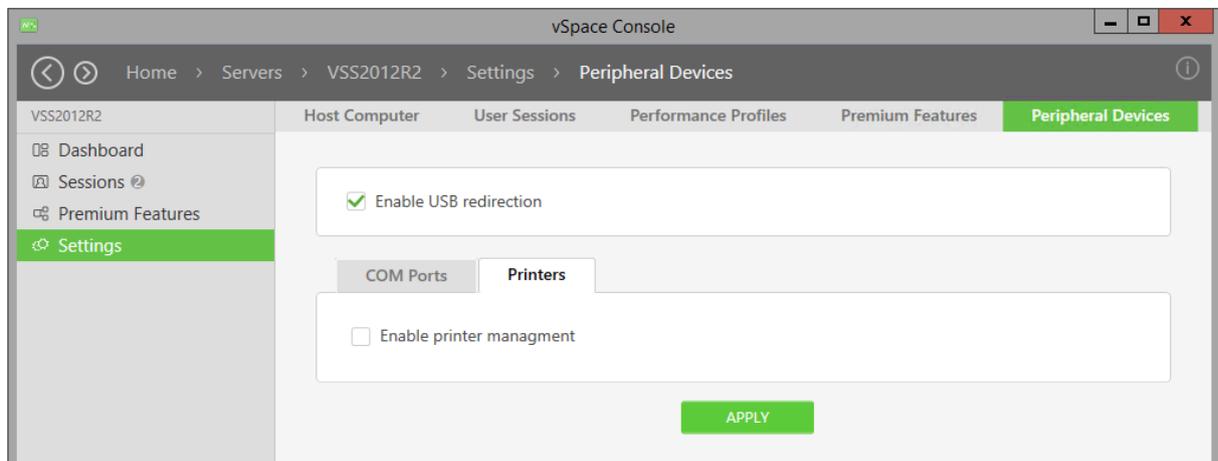
3.1. Printer Management features

The new Printer Management feature introduced in vSpace Pro version 10.3 allows the following:

- Configuring the right user access control lists on the redirected NComputing thin-client printer objects to make sure that only the user running the session on the thin-client where the printer is physically connected will be able to see and use the printer. Printers connected to other users' clients are not visible and not accessible.
- Dynamically changing printer names changing to reflect the session ID, name of the logged on user and the device name of the thin-client device. This allows the administrators and support personnel to quickly and easily identify the printers.
- Mapping printer driver names. Users can see shorter and more friendly names for some printers.
- Automatically removing the offline printers.
- Using configurable rules for printer renaming, removal and becoming the default one.

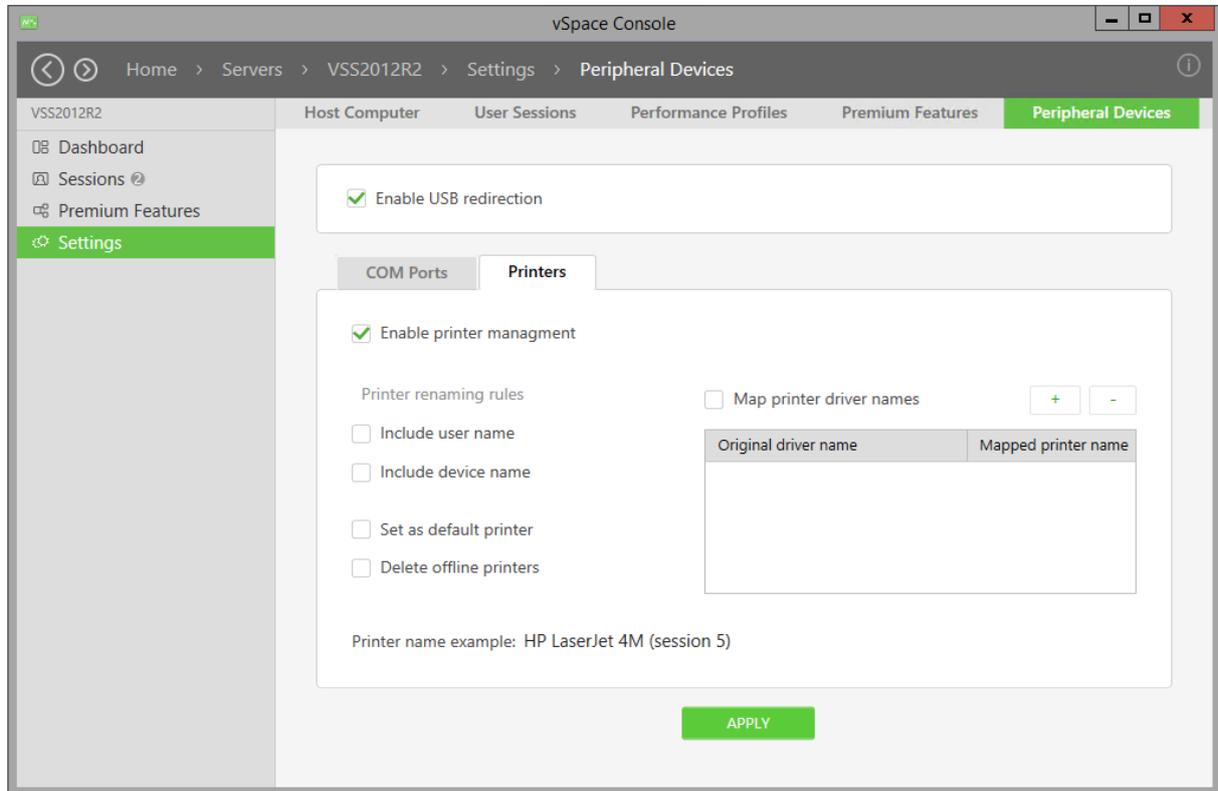
3.2. Printer Management settings in vSpace Console

The Printer Management settings are available in vSpace Console for each vSpace Server on the 'Home > Servers > *ServerName* > Settings > Peripheral Devices' page. The Printer Management functionality depends on the 'USB Redirection' feature, so the 'USB Redirection' must be enabled for the 'Printer Management' features to become available:



3.2.1. Enabling Printer Management

Printer Management is disabled by default. With Printer Management disabled vSpace Pro version 10.3 handles the printers in the same standard way as all earlier versions of vSpace Server, up to version Pro 10.2, did. To enable Printer Management the 'Enable printer management' check-box must be selected. Otherwise the Printer Management settings will have no effect.



3.2.2. Configuring printer renaming rules

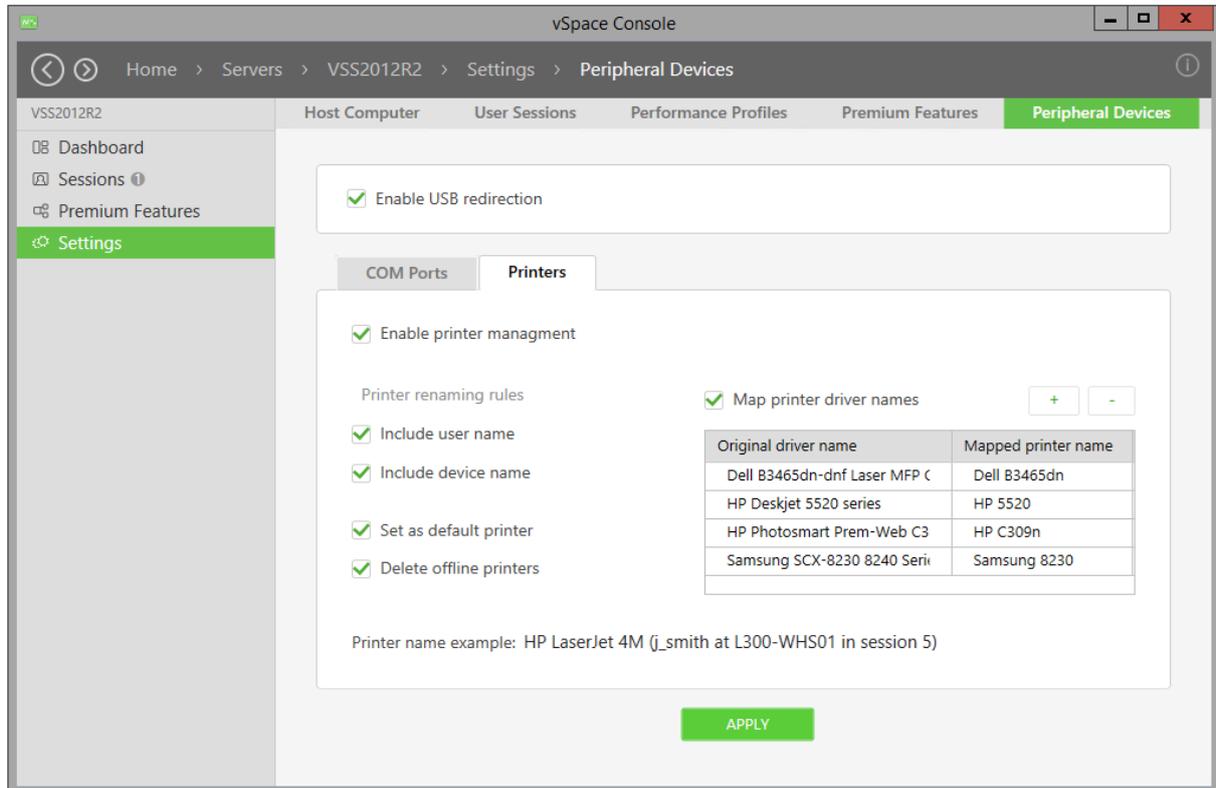
Printers handled by Printer Management will always be renamed to include the ID of the vSpace Server session to which the printer belongs. For example, if the ID of a user session where an HP LaserJet 4M printer is connected is 5, then the new printer name will become 'HP LaserJet 4M (session 5)'. Following settings can be configured to additionally include user and device name when renaming the printer:

Setting	Function
Include user name	The user name will be additionally included in new printer name. Printer name will become for example: 'HP LaserJet 4M (j_smith in session 5).
Include device name	The thin-client's device name will be additionally included in new printer name. Printer name will become for example: 'HP LaserJet 4M (from L300-WHS01 in session 5).

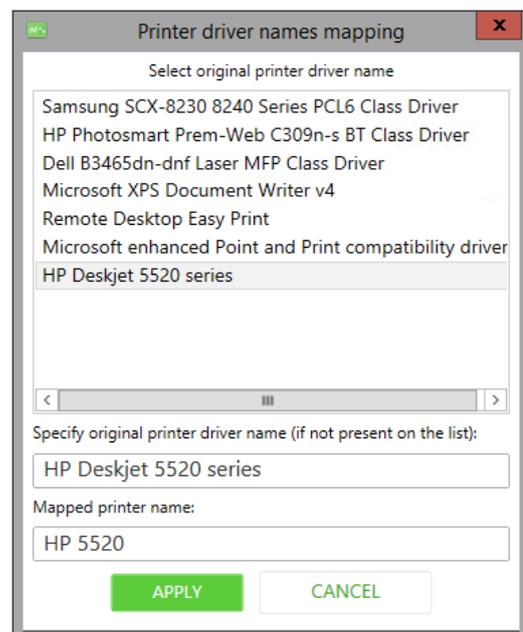
When both check-boxes will be selected then the user name and device name will be included in new printer name, which will be similar to: 'HP LaserJet 4M (j_smith at L300-WHS01 in session 5).

3.2.3. Configuring printer driver mappings

The original names of some printers created by Windows are long and sometimes contain redundant details. Printer driver mappings can be used to let the system use shorter or more user friendly printer names for USB printers redirected from NComputing thin-clients. To enable printer driver mapping the 'Map printer driver names' check-box must be selected. The [+] and [-] buttons located above the mapping list allow adding and removing printer driver mappings:



When adding a printer driver mapping the original driver name list shows all printer drivers installed on the managed vSpace Server. Windows uses this name when creating a new printer. When printer driver mapping will be enabled the vSpace Server, instead of using the original name, will rename the printer using the name specified as 'Mapped printer name'. For printer drivers not present on the list the original driver name can be specified manually.



3.2.4. Other printer management options

There are two other Printer Management options, which can be additionally configured:

Setting	Function
Set as default printer	With this option enabled the printer redirected from NComputing thin-client will automatically become the default printer in the user session.
Delete offline printers	Enabling this option lets system remove the printer when it will become offline. With this option enabled the printers will be automatically deleted when the NComputing thin-client user will log off or disconnect the session.

3.3. Printer Management example

Here is a real life example of what Printer Management from vSpace Pro version 10.3 can do:

User session ID: 2

User name: demo1

Device name: L350-test

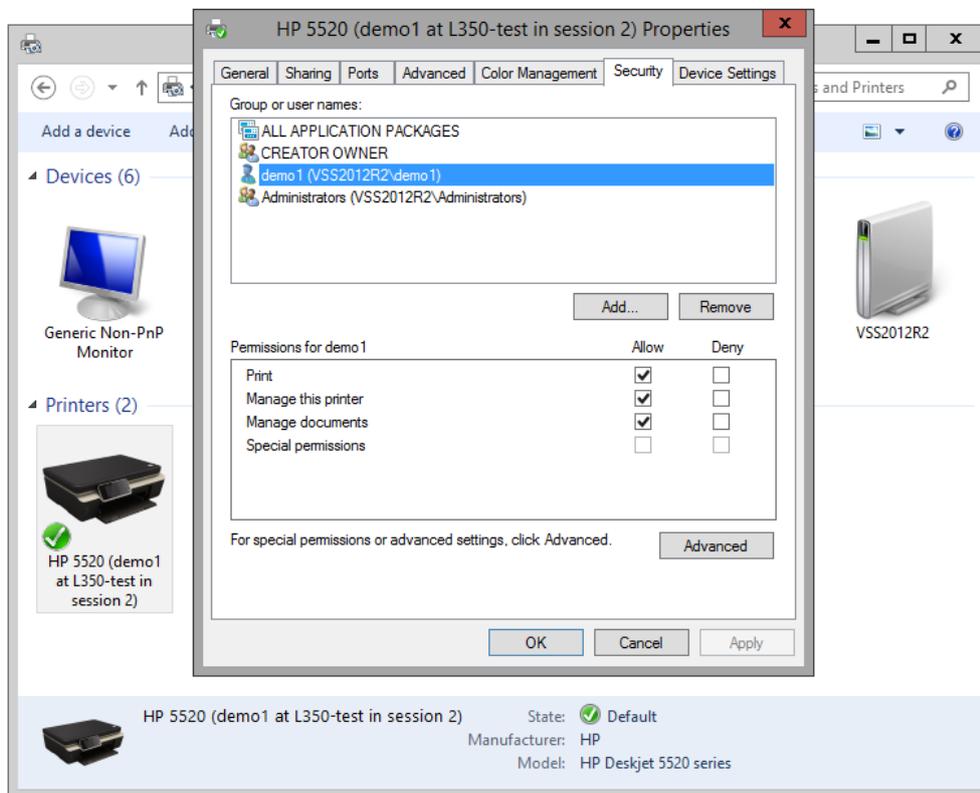
Include user name: enabled

Include device name: enabled

Printer driver name mapping: enabled

Mapping for the 'HP Deskjet 5520 series' printer driver: HP 5520

With all the above mentioned options set the access control list of a sample printer may become like the following:



The 'demo1' user logged on from the L350-test thin-client, not the Everyone group, has the Print permission on this printer. Members of the Administrators group will always see and will be able to manage all printers. The printer has been renamed to 'HP 5520 (demo1 at L350-test in session 2)' according to configured printer renaming rules and printer driver name mapping.