NIRVA virtual printer - technical

Documentation for the Nirva virtual printer configuration

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Overview

The virtual printer (VP) is a Nirva connector that retrieves files issued from desktop applications to send them on a Nirva server to be processed.

The virtual printer is seen as a printer on the user's workstation.

This document describes the technical aspects of the virtual printer. This connector is generally packaged with a configuration file in an end user installation program.

The VP includes four files:

- nvc.dll (or libnvc.so or libnvc.dylib). Nirva client.
- nvvpsp.dll (or nvvpsp). Standard Nirva print monitor or backend (mac/linux).
- nvp.exe (or nvp). Executable that allows installation and deinstallation, VP configuration and printed files processing.
- config.txt. Configuration file used only during the initial installation phase. This file can be deleted once installation is complete.

In addition, there can be up to five bitmap files used to customise the information window of the VP and some technical files. On linux the Generic.ppd file contains the cups generic postscript driver.

The virtual printer is available for win32 and x64 windows platforms, for mac OSX (64 bits) and for linux (64 bits). The version corresponding to the target platform must be installed.

The mac OS version is delivered as a nvp.app file.

Installation

The technical part of the installation is included in the nvp executable. This allows the installation of all technical components: monitor or backend, port (windows only), driver, printer, and configuration.

If a higher level installation procedure is developed it needs to invoke the technical installation once all files have been installed in the target directory passed as a parameter. It is generally advisable to use a higher level installation program (e.g. InstallShield) that will control any part of the installation not managed by the technical installation (registering the software at windows level for example). Under Mac OSX, one can use the PackageMaker application in order to deliver a and user installation program, copying the nv.app file into the application directory is not enough.

The user who installs the virtual printer must have enough rights to do it (administrator). On vista and windows 7 platform, even if the user has administrator rights, the Unified Access Control (UAC) may not give the administrator rights. So you must type "cmd" in the start run box and press Ctrl+Shift+Enter. On Mac, you must open a console an go to the Contents/MacOS directory of the .app file. On Linux, login as root, copy the files to the target directory and run the technical installation.

Command line for the technical installation:

nvp -m install -c configfile -d installdir [-r] [-s] [-g] [-l LogFile]

Where:

- configfile is the complete or relative path for the configuration file (config.txt). This file must be UTF8 encoded without BOM character.
- installdir is the installation path for the VP files.
- The –r option can be used to delete the configuration file once installation is complete (the complete config file content is copied into the windows registry during install and on preferences files on Mac).
- The –s option is the silent mode. No error message is displayed.
- The –g option can be used to suppress the successful installation message.
- The –I option produces a log file usefull for support.

Nvp returns 0 in case of a successful installation.

Next chapter describes the configuration file contents.

The VP copies and optionally renames (following instructions in the configuration file) the nvc.dll (windows only) and nvp.exe (or nvp on Mac and Linux) files in the installation directory and nvvpsp.dll (nvvpsp on Mac

and Linux) file in the system directory (or /usr/libexec/cups/backend on Mac, /usr/lib/cups/backend on Linux). The optional bitmap files are not copied by the VP during installation so this must be done externally before calling the VP technical installer. This is generally made by the higher level installation program. On Mac, the destination directory must be the directory of the nvp file (generally /Applications/nvp.app/Contents/MacOS). The same on Linux (ex /opt/nirva/nirvaprint).

Under windows, during installation, the program creates some registry entries in the windows registry. These entries are:

- HKEY_LOCAL_MACHINE/Software/Nirva Systems/Nvp/Printers/PrinterName where PrinterName is the printer name defined in the configuration file (Printer section, Name entry)
- HKEY_LOCAL_MACHINE/Software/Company/PrinterSoftware where Company is the company name defined in the configuration file (Software section, Company entry) and PrinterSoftware is the software name defined in the configuration file (Software section, Name entry)
- HKEY_CURRENT_USER/Software/Company/PrinterSoftware where Company is the company name defined in the configuration file (Software section, Company entry) and PrinterSoftware is the software name defined in the configuration file (Software section, Name entry)

Under Mac, there are some similar entries but they are stored in the preferences files. Under Linux the entries are written in ini files.



On windows, the virtual printer requires a postscript printer driver that is not a Class driver. The name of the driver is given inside the configuration file (see personalisation chapter). For windows 8.1 and more there isn't any postcript driver delivered in standard that is not a Class driver. So such driver must be installed previously and separately. For example, one can install the HP Universal Print Driver product.

Personalisation

The VP is personalised with the configuration file. The format of the file is .ini. This file must be UTF8 encoded without BOM character. All entry values must be enclosed in double quotes. If a value contains a double quote this one must be escaped with the '\' character.

Please find below a description of the various sections.

Software section

Global application parameters.

Entry	Description
Name	Software name. Used as Windows registry key identifier or preference file name on Mac or ini file on linux. Default value is 'NirvaPrint'.
Company	Company name Used as Windows registry key identifier.
Copyright.	Copyright. Not used at present. Default value is 'Copyright Nirva Systems 2006-2013'.
Version	Version number. The version number is composed of three values separated by a full stop: major.minor.build. This number is used to compare the current version with a newer version. To do this, the VP removes the full stops and converts it in a integer to compare it with a directory entry containing the latest version. Default value is '1.00.000'.

Entry	Description
Language.	Language.
	Not used at present.
	Default value is 'English'.

Printer section

Printer related parameters

Entry	Description
Title	Title. Window title when displaying messages. Default value is 'Nirva Printer'.
Name	Printer name. Printer name as it appears in the printer list. Default value is 'Nirva'.
Port	Printer port name. Printer port name as specified during installation. Default value is 'NIRVA:'. Used only on Windows.
Monitor	Monitor for windows or CUPS backend name for Mac an Linux. Print monitor or CUPS backend name as specified during installation. Default value is 'Nirva'.
Driver	 Print driver. Print driver name used for this printer. It is mandatory to use a Windows standard print driver. Several values can be given, separated by a ';' character. The installation will choose the first available one. Default value is 'HP C LaserJet 4500-PS'. NVP install the print driver in the Windows environment. The printer driver installation files must be available on the local machine. Choosing a printer delivered in standard with windows is the best choice. For Mac an Linux, this entry must be set to 'Generic.ppd'.

Entry	Description
Processor	Print processor Print processor name to be used with this printer. The only acceptable value at present is 'WinPrint'. Default value is 'WinPrint'. Used only on Windows.
Prgm	Name of the executable triggered by the monitor. Usually nvp.exe (or nvp on Mac an Linux) but the name can also be personalised. nvp.exe can be renamed by the installation process. This name must refer to an executable available in the installation directory. Default value is 'nvp.exe'.
Help	Online help URL. This is called by nvp –m help Default value is 'http://www.nirva-systems.com'.
Filter	Name and parameters of the executable file that can be called before sending the file to the server. This must be the name without path of an existing executable delivered in the install directory of the virtual printer. The parameter must contain at least the string "%in" that will be replaced by the input file name at execution time. It may also contain a "%out" parameter that will be replaced by the output file name at execution time. Example: Filter="ps2pdf" \"%in\" \"%out\"" (the double quote characters are escaped).
FilterCheckCode	Check filter return code. Can take values "YES" or "NO". The default is "NO". When set to "YES" the virtual printer reports an error if the filter return code is not 0 and stops the process. If the value is "NO" and the filter is in error, the virtual printer sends the original file to the server.
FilterTimeOut	Optional time out in seconds for the filter. If set to -1 (default), there is no time out.
SecuPrgm	Name and parameters of the executable file that will be called to check external security. This must be the name without path of an existing executable delivered in the install directory of the virtual printer. The last parameter of this program must be the name of a file given by the virtual printer at run time. The security program must write a security token into this file.
SecuPrgmTimeOut	Optional time out in seconds for the external security program. If set to -1 (default), there is no time out.

ServerDirectories section

This contains the address directory servers. Entries are in the form of Sdir1, Sdir2...

Multiple directories are supported. Nirva will try them in sequence and the first successful connection becomes the current directory.

Entry	Description
Sdir1	Directory address.
	The address is in the following format:
	Server:port;application;entry
	Where Server is the address directory server, port is the
	HTTPS port, application is the name of the Nirva application
	supporting the directory and entry is the directory entry.

Setup section

Installation and deinstallation parameters

Entry	Description
IntroInstall	Installation confirmation message.
	Default value is 'Do you want to install the Nirva printer ?'.
InstallOk	Successful installation message.
	Default value is 'Installation successful.'.
IntroUninstall	Deinstallation confirmation message.
	Default value is 'Do you want to remove the Nirva printer ?'.
UninstallOk	Successful deinstallation message.
	Default value is 'The Nirva printer has been removed.'
MonitorSrcDII	Name of the source dll to be used as a monitor or the
	backend program for Mac or Linux.
	Default value is 'nvvpsp.dll'.
	On Mac an Linux this value must be set to 'nvvpsp'.
MonitorDII	Name of the dll to be used as a monitor or the backend program for Mac or Linux.
	This entry can be used to rename (using copy) the dll used
	as a monitor. This can also be used to personalise the name of the dll.
	Default value is 'nvvpsp.dll'.
	On Mac or Linux, the MonitorDII entry must be set to the same value than the Monitor entry of the Printer section.

Entry	Description
PrgmSrc	Name of the program used for processing the files (called
	by the monitor).
	Please do not modify.
	This is the nvp.exe program.
	The Prgm entry in the Printer section allows a rename (by
	copy) of this program.
	Default value is 'nvp.exe'.
	On Mac or Linux set this value to 'nvp'.
UninstallPrgmOptions	Deinstallation options.
	Not used at present.
	Must be '-m uninstall'.
	Default value is '-m uninstall'.

SetupErrors section

Error messages when installing or deinstalling. All error messages may contain a '%s' string that can be replaced by additional information when displaying the error message.

Entry	Description
AlreadyInstalled	Not used as it is possible to reinstall on top of a previous installation.
PrinterInUse	The printer is in use and cannot be accessed by either the installation or deinstallation program.
NoSysDir	The system cannot find the system directory.
EnumMonitorsFailed	Error during the enumeration of the print monitors.
AddMonitorFailed	Error when adding a print monitor.
AddPortFailed	Error when adding a port.
AddPrinterFailed	Error when adding a printer.
GetPrinterInfoFailed	Error when retrieving printer information.
DeletePrinterFailed	Error when deleting a printer.
DeletePortFailed	Error when deleting a port.
DeleteMonitorFailed	Error when deleting a print monitor.
ErrorCopyFile	Error when copying a file.
ErrorDeleteMonitorDII	Error when deleting the monitor dll (may indicate that it is being used by another printer).
RegCreateKeyFailed	Error when creating a registry key.
RegOpenKeyFailed	Error when accessing a registry key.

Entry	Description
RegSetValueFailed	Error when setting a registry key.

Errors section

Error messages when processing a print file.

Entrée	Description
NoPrinterName	No printer name passed as a parameter (–p option).
NoFileName	No file name passed as a parameter.
BadFile	The received file does not exist or is empty.
ErrorSendingFile	Error when sending the file to the server.
ErrorProcessingFile	Error when processing the file on the server.
ErrorNoFileIdent	Impossible to retrieve the file identifier supplied by the server.
PrinterNotInstalled	The printer is not installed or is not installed correctly.
CannotConnectServer	Impossible to connect the directory or upload server.
CannotGetDirectoryParameters	Impossible to retrieve directory parameters.
CannotGetDefaultBrowser	Cannot find the default browser.
CannotGetUserContext	Not used.
CannotRunBrowser	Cannot start the browser.
NotAuthorized	Not authorised to perform this action. Cause: the user profile does not contain any possible working option (tunnel, asynchronous or standard modes).
NoTunnelServiceProfile	Tunnel mode is selected but user profile has no service name or service profile for this mode.
InvalidFileFormat	The file format is invalid. This message is a translation of the POD:INPUT:101 error message issued by the server.
BadUser	Unknown user.
BadPassword	Invalid password.
OperationCanceled	Operation cancelled by the user.
ErrorRunningFilter	Cannot run filter.
ErrorInFilter	Error in filter.
AuthenticationFailed	Authentication by external program failed.

MessageWindow section

VP information window personalisation.

Entry	Description
Title	Window title. The title is not displayed if the caption entry is set to 'no'.
	Default value is 'Nirva print on demand'.
BackgroundColor	Background colour set in RGB values.
	Default value is '255,255,255'.
Position	Window position relative to the upper left hand corner of the screen.
	Default value is '50,50'.
Width	Window width in points.
	Default value is '450'.
	Takes into account the caption entry.
Height	Window height in points.
	Default value is '70'.
Bitmap1File	Name of a bitmap file (relative to the executable directory). Can be empty. A bitmap is any image in bmp, jpeg or png format.
Bitmap1Position	Display position of the Bitmap1 file relative to the upper left hand corner of the window.
	Default value is empty.
Bitmap2File	Name of a bitmap file (relative to the executable directory). Can be empty. A bitmap is any image in bmp, jpeg or png format.
	Default value is empty.
Bitmap2Position	Display position of the Bitmap2 file relative to the upper left hand corner of the window.
	Default value is empty.
Bitmap3File	Name of a bitmap file (relative to the executable directory). Can be empty. A bitmap is any image in bmp, jpeg or png format.
	Default value is empty.
Bitmap3Position	Display position of the Bitmap3 file relative to the upper left hand corner of the window.

Entry	Description
BitmapCancelFile	Name of a bitmap file (relative to the executable directory). Can be empty. A bitmap is any image in bmp, jpeg or png format. Default value is empty. This bitmap, if given, is used in a cancel button allowing the user to stop the operation
BitmapCancelSFile	Name of a bitmap file (relative to the executable directory). Can be empty. A bitmap is any image in bmp, jpeg or png format. Default value is empty. This bitmap, if given, is used instead of the cancel button (see BitmapCancelFile above) when a cancel has been received by the VP. This confirms to the user that the
	cancel action has been taken into account. The bitmap file must have the same dimensions as the BitmapCancelFile.
BitmapCancelPosition	Display position of the BitmapCancel file relative to the upper left hand corner of the window.
	Default value is empty.
TextPosition	Display position of the text line composing the message. Default value is '10,10'.
TextColor	Text colour in RGB values.
	Default value is '0,0,0'.
TextBackgroundColor	Text background colour in RGB values.
	Default value is '255,255,255'.
Font	Font name used for text display.
	Default value is 'Arial'.
FontSize	Font size used for text display.
	Default value is '20'.
Bold	Indicates whether the font is in bold print or not
	Default value is 'No'.
Border	Indicates whether the window contains a border or not.
	Default value is 'Yes'.
Caption	Indicates whether the window contains a title or not.
	Default value is 'Yes'.

Messages section

Messages displayed in the window.

Entry	Description
ConnectingDirectory	Connecting the directory.
GetDirectoryParam	Getting directory parameters.
ConnectingServer	Connecting the server.
CheckingSecurity	Checking security.
CompressingFile	Compressing file.
DecompressingFile	Decompressing file.
SendingFile	Sending file. This message may contain a '%d' string that will be replaced by completed percentage when sending the file. Example: "Sending file %d%"
ProcessingFile	Processing file.
OpeningBrowser	Opening browser.

Digident section

Credentials requirement window personalisation.

Nirva print - identifier
Identifier:
Password:
Keep password for next connection
Cancel Help OK

Entrée	Description
Title	Window title.
	Default value is 'Nirva print – identifier'.
IdentText	Text for identifier type-in field.
	Default value is 'Identifier:'.
PasswordText	Text for password type-in field.
	Default value is 'Password:'.

Entrée	Description
KeepIdentText	Text for remembering credentials.
	Default value is 'Keep password for next connection'. If this text ends with the string "(disable)", the keep password functionality is disabled.
OkText	Text for Ok button.
	Default value is 'Ok'.
HelpText	Text for Help button.
	Default value is 'Help'.
CancelText	Text for Cancel button.
	Default value is 'Cancel'.
Position	Position of window relative to upper left hand corner of the
	Default value is '20,20'.

DIgProxy section

Proxy parameters window personalisation.

Nirva print - Proxy identifier
User:
Password:
Keep password for next connection
Cancel Help OK

Entrée	Description
Title	Window title.
	Default value is 'Nirva print – Proxy identifier'.
UserText	Text for identifier type-in field.
	Default value is 'Proxy User:'.

Entrée	Description
PasswordText	Text for password type-in field.
	Default value is 'Proxy Password:'.
KeepPasswordText	Text for remembering credentials.
	Default value is 'Keep password for next connection'.
OkText	Text for Ok button.
	Default value is 'Ok'.
HelpText	Text for Help button.
	Default value is 'Help'.
CancelText	Text for Cancel button.
	Default value is 'Cancel'.
Position	Position of window relative to upper left hand corner of the
	screen.
	Default value is '20,20'.

DIgUpdate section

Update window personalisation.

Nirva print - update	
A new version of the printer h Do you want to upgrade it no	has been detected. w ?
Cancel	No

Entrée	Description
Title	Window title.
	Default value is 'Nirva print – update'.
MessageText	Text for update message.
	Default value is 'A new version of the printer has been
	detected.\nDo you want to upgrade it now ?'.
YesText	Text for Yes button.
	Default value is 'Yes'.

Entrée	Description
NoText	Text for No button.
	Default value is 'No'.
CancelText	Text for Cancel button.
	Default value is 'Cancel'.
Position	Position of window relative to upper left hand corner of the
	screen.
	Default value is '20,20'.

DIgPrintMode section

Print mode window personalisation.

Nirva print - mode	
Please choose the print mode:	
© Standard	Sends your file to the server and then opens your browser to adjust parameters.
Asynchronous	Sends your file to the server and let you manually open your browser to adjust parameters.
🔘 Tunnel	Sends your file to the server. The parameters are then automatically adjusted by the server.
Oynamic	Sends your file to the server. Then The server may ask you to adjust parameters following your profile.
Cancel	Ok

Entry	Description
Title	Window title.
	Default value is 'Nirva print – mode'.
ChooseText	Text inviting user's choice.
	Default value is 'Please chose the print mode:'.
Standard	Text for standard mode.
	Default value is 'Standard'.

Entry	Description
StandardText	Text for description of standard mode.
	Default value is 'Sends your file to the server and then
	opens your browser to adjust parameters.
Async	Text for asynchronous mode.
	Default value is 'Asynchronous'.
AsyncText	Text for description of asynchronous mode.
	Default value is 'Sends your file to the server and let you manually open your browser to adjust parameters.'
Tunnel	Text for tunnel mode.
	Default value is 'Tunnel»'.
TunnelText	Text for description of tunnel mode.
	Default value is 'Sends your file to the server. The
	parameters are then automatically adjusted by the server.'
Dynamic	Text for dynamic mode.
	Default value is 'Dynamic»'.
DynamicText	Text for description of dynamic mode.
	Default value is 'Sends your file to the server. Then The
	server may ask you to adjust parameters following your
	profile.'
OkText	Text for Ok button.
	Default value is 'Ok'.
HelpText	Text for Help button.
	Default value is 'Help'.
CancelText	Text for Cancel button.
	Default value is 'Cancel'.
Position	Position of window relative to upper left hand corner of the
	screen.
	Default value is '20,20'.

DIgService section

Service choice window personalisation.

Please choose the service:	
•	
Help	

Entry	Description
Title	Window title.
	Default value is 'Nirva print – service'.
ChooseText	Text inviting user's choice.
	Default value is 'Please choose the service:'
OkText	Text for Ok button.
	Default value is 'Ok'.
HelpText	Text for Help button.
	Default value is 'Help'.
CancelText	Text for Cancel button.
	Default value is 'Cancel'.
Position	Position of window relative to upper left hand corner of the
	screen.
	Default value is '20,20'.

DIgConfig section

Configuration window personalisation.

Nirva print - configuration		
Directory service:		
Proxy server:	Port:	
Enable version checking		
Unsave password		
Unsave proxy password		
Version: 1.00.000		
Cancel	Help OK	

Entrée	Description
Title	Window title.
	Default value is 'Nirva print – configuration'.
DirectoryText	Text inviting directory service type-in.
	Default value is 'Directory service:'.
ProxyServerText	Text for proxy server type-in field.
	Default value is 'Proxy server:'.
ProxyPortText	Text for proxy server port type-in field.
	Default value is 'Port:'.
CheckVersionText	Text for version checking type-in field.
	Default value is 'Enable version checking'.
UnsavePasswordText	Text for erasing stored user credentials.
	Default value is 'Unsave identifier and password'.
UnsaveProxyPasswordText	Text for erasing stored proxy credentials.
	Default value is 'Unsave proxy user and password'.
VersionText	Text for displaying current version.
	Default value is 'Version:'.
OkText	Text for Ok button.
	Default value is 'Ok'.
HelpText	Text for Help button.
	Default value is 'Help'.

Entrée	Description
CancelText	Text for Cancel button.
	Default value is 'Cancel'.
Position	Position of window relative to upper left hand corner of the
	screen.
	Default value is '20,20'.

Help section

Definition of URLs for Help. These URLs are default values that can be modified from the directory server.

Entrée	Description
Main	URL for global help file available via the 'nvp -m help' command.
	Default value is empty.
Dlgldent	URL for specific help with user credentials.
	Default value is empty.
DlgProxy	URL for specific help with proxy credentials.
	Default value is empty.
DlgPrintMode	URL for specific help with sending modes.
	Default value is empty.
DlgConfig	URL for specific help with configuration.
	Default value is empty.
DlgService	URL for specific help with service choice.
	Default value is empty.

Deinstallation

The nvp executable includes the deinstallation option. This will deinstall all technical components: monitor, port, driver, printer and configuration.

If a higher level deinstall program is develop, it need to call the supplied deinstall program before deleting installation files.

The user who installs the virtual printer must have enough rights to do it (administrator). On vista and windows 7 platform, even if the user has administrator rights, the Unified Access Control (UAC) may not give the administrator rights. So you must type "cmd" in the start run box and press Ctrl+Shift+Enter

Deinstall can be invoked with the following command line:

nvp -m uninstall -p PrinterName [-s] [-g]

Where:

- PrinterName is the printer name as defined in the configuration file during the installation (Name entry in the Printer section).
- The -s option is silent mode. No error message is displayed.
- The –g option suppresses the deinstallation confirmation message.

Deinstalling does not delete files. This can be done by a higher level deinstall procedure.

Nvp returns 0 when successful and other values in case of errors.

During deinstallation the program removes the registry entries that were set by the installation in the HKEY_LOCAL_MACHINE section. The registry information in the HKEY_CURRENT_USER section is not removed because it is user specific information and the program cannot know which users used the printer.



Configuration

The VP configuration is supported by the nvp executable.

Invoking the configuration:

nvp -m configure -p PrinterName

Where:

- PrinterName is the printer name as defined in the configuration file during the installation (Name entry in the Printer section).
- The -s option is silent mode. No error message is displayed.

The configuration displays a dialog box.

Help

Global help for the VP is a simple call to a URL defined in the configuration file (see Main entry in the Help section).

This help can be accessed with the following command:

nvp -m help -p PrinterName

Where

 PrinterName is the printer name as defined in the configuration file during the installation (Name entry in the Printer section).

Nvp will launch the browser with the URL as specified in the VP configuration file.

nirva

Version

The VP internal version number can be displayed with the following command:

nvp -m version

This displays an internal version number that is independent from any VP version created for end users.

Processing

Processing a print file is automatic once a document is printed. However, when testing, it is possible to invoke nvp via command line to process a file (sending it to the server and launching the browser if necessary).

The command line is as follows:

```
nvp -m send -p PrinterName -f FileName [-d DocTitle] [-u WinUser] [-c MachineName] [-s]
[-v] [-l LogFile]
```

Where:

- PrinterName is the printer name as defined in the configuration file during the installation (Name entry in the Printer section).
- Filename is the path of the file to be processed (this file is removed after processing).
- DocTitle is the title of the document to be processed (optional).
- WinUser is the name of the user (optional).
- MachineName is the name of the workstation used (optional).
- The -s is silent mode. No error message is displayed.
- The –v option is verbose mode (incompatible with –s).
- The –I option produces a log file usefull for support. 2 log files can be defined, separated by a semicolon. The first one is the virtual printer log file and the second one is the socket log file.



The virtual printer provides a test mode that can be used to send a file to the upload server.

In order to activate the test mode, please replace the "-m send" option with "-m test" option. This will perform in exactly the same way as per normal mode except that the portal session is not opened, the procedure to process the file is not called and the file is not removed. Therefore, this is usually used to test the connection and nothing else.

During the processing, the program writes information to the windows registry in the entry HKEY_CURRENT_USER/Software/*Company*/*PrinterSoftware* where *Company* is the company name defined in the configuration file (Software section, Company entry) and *PrinterSoftware* is the software name defined in the configuration file (Software section, Name entry)

Since this is user specific information, this registry entry is not removed by the deinstallation.