



Pulse Quickstart Guide

Stephane Pointu
Yvan Manon

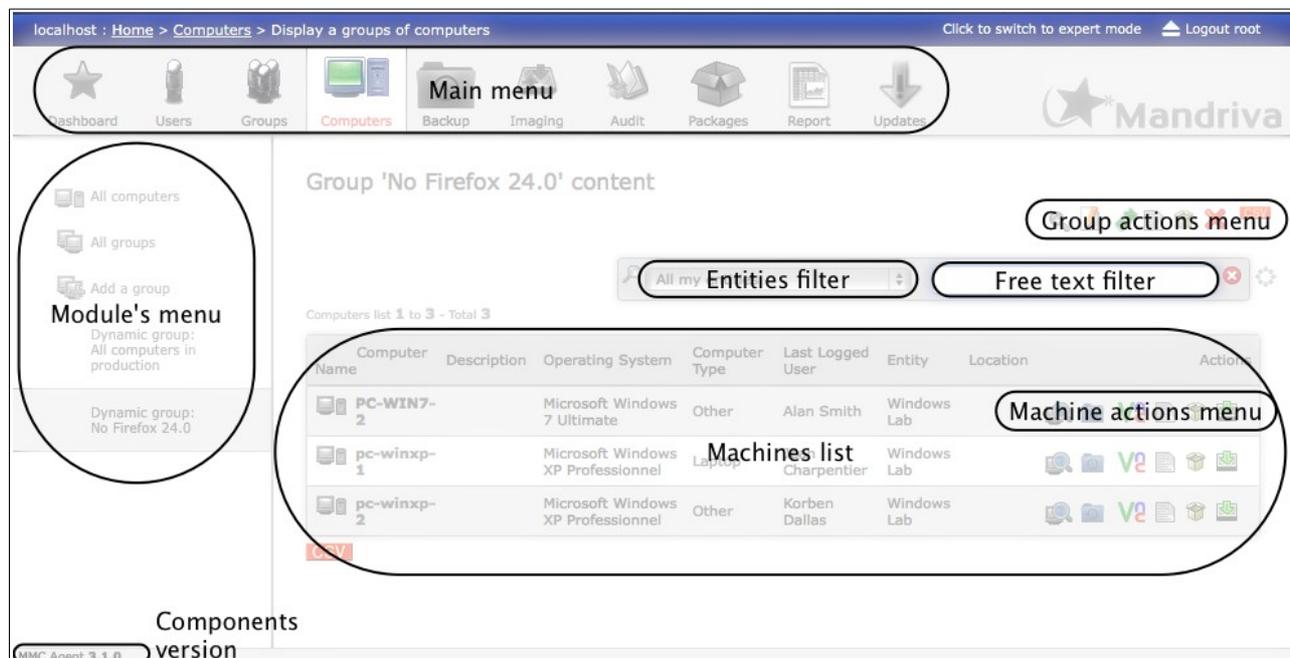
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1. Pulse Interface

a. The interface zones



The screenshot displays the Mandriva Pulse interface with several key zones highlighted:

- Main menu:** A horizontal bar at the top containing icons for Dashboard, Users, Groups, Computers (active), Backup, Imaging, Audit, Packages, Report, and Updates.
- Module's menu:** A vertical sidebar on the left with options for All computers, All groups, Add a group, and a dynamic group for 'No Firefox 24.0'.
- Group actions menu:** A menu icon in the top right corner of the main content area.
- Entities filter:** A dropdown menu set to 'All my'.
- Free text filter:** An input field for searching within the entities.
- Machines list:** A table listing computers with columns for Name, Description, Operating System, Computer Type, Last Logged User, Entity, Location, and Actions.
- Machine actions menu:** A menu icon located to the right of the machines list.
- Components version:** A status bar at the bottom left showing 'MMC Agent 3.1.0'.

b. Actions

Icon	Feature name	Action
	Inventory	View the inventory of a machine
	Backup	Configure or browse the backup of a machine
	Remote assistance	Take remote control of the machine via VNC
	Log	View the tasks of a machine
	Package deployment	Deploy a package or run a quick action on a machine
	Imaging	Configure the network boot settings of a machine and manage its disk images
	Delete	Remove a machine from Pulse

2. The agents

Pulse requires a set of 3 agents :

- an inventory agent
- a ssh agent
- a VNC agent

a. Windows

The set of agents for Windows is generated during the setup of Pulse. However if at some point they need to be regenerated, a script is supplied :

```
/var/lib/pulse2/clients/win32/generate-agent-pack.sh
```

The agent pack is generated in the following folder :

```
/var/lib/pulse2/clients/win32/
```

And is also available at the following URL when clicking on « Agent pack for Windows » :

```
http://<your_servers_address>/pulse2-homepage/
```

If needs be, the inventory agent can be generated with a tag. This is useful if you want to base your entities on tags instead of network addresses.

```
/var/lib/pulse2/clients/win32/generate-agent-pack.sh <tag_name>
```

b. Linux

For Linux, the agents are available in most Linux distributions. The following must be installed using the distribution's usual package manager :

- ssh server
- rsync
- perl-net-ip
- fusioninventory-agent
- vnc server

SSH configuration

The server's public key */root/.ssh/id_rsa.pub* must be copied to the clients *authorized_keys* file:

```
/root/.ssh/authorized_keys
```

Alternatively, the following command can be used to add the server's public key to a

client :

```
ssh-copy-id -i /root/.ssh/id_rsa.pub root@<client's_address>
```

Inventory agent configuration

Run the following command to configure the inventory agent :

```
fusioninventory_agent_config
```

The server URL to be used is :

```
http://<your_servers_address>:9999
```

Answer Yes to all the other questions.

Find the path to FusionInventory perl file:

```
find /usr/lib/perl/ -name FusionInventory
```

And add it to `/etc/fusioninventory/agent.cfg` :

```
share-dir = <path_to_FusionInventory_perl_file_found_above>
```

VNC configuration

Install *vinagre* and restart the user session

c. MacOS

For MacOS, SSH and VNC are already present in the system. FusionInventory needs to be downloaded and installed.

SSH configuration

Enable SSH from *System Preferences >> Sharing >> Remote Login*

Allow access for : Only these users : Administrators

The server's public key `/root/.ssh/id_rsa.pub` must be copied to the clients `authorized_keys` file:

```
/root/.ssh/authorized_keys
```

Alternatively, the following command can be used to add the server's public key to a client :

```
ssh-copy-id -i /root/.ssh/id_rsa.pub <admin_account>@<client's_address>
```

Inventory agent installation and configuration

Follow the following :

<http://www.fusioninventory.org/documentation/agent/installation/macosex/>

In the configuration part where you are asked to add a server directive, you must insert the following :

server=http://<your_servers_address>:9999

VNC configuration

Enable VNC from *System Preferences >> Sharing >> Screen Sharing*

Allow access for : Only these users : Administrators

3. Registering a machine

A client can be registered in Pulse either via the network boot or by installing Pulse agents.

a. Using PXE network boot

The machine just needs to be booted on the network. When the network boot menu is shown, select *Register as Pulse Client* and follow the instructions

b. Using the agents

Installing the agents will automatically register a machine in Pulse as soon as the inventory is done.

4. Inventory

Pulse relies on the inventory to carry out operations on the IT infrastructure.

a. Manual inventory

Inventories are automatically done, but if needed, a manual inventory can be triggered via the Quick Actions. This can be done either on a single computer or on a group.

For a single computer, in the computers list, select the *Package deployment* icon (cf. Pulse Interface) and in the Quick Actions list, select *Run Inventory*.

For a group of machines, in the groups list, select the *Package deployment* icon (cf. Pulse Interface) and in the Quick Actions list, select *Run Inventory*. This can also be done when viewing the contents of a group, from the actions icons in the top right-hand corner.

b. Entities

The machines are organized in entities. This is done in GLPI at

http://<your_servers_address>/glpi/

In *Administration >> Entities*, add the new entity as a child of your main entity.

Then in *Administration >> Rules >> FusionInventory INVENTORY - Entity rules*, add a new rule. Enter a name and description and don't forget to set Active to Yes.

In the next step, define a criteria (eg. IP address or Tag), and an action. The action would be Entity >> Assign and assign to the new entity created above.

In Pulse computers list view, the list can be filtered by entity. This is done in the entities filter zone (cf Pulse Interface)

c. Edition of inventory values

A few inventory values (eg. Name, Description, Inventory number) can be edited by clicking on them directly inside Pulse interface.

5. Groups management

To facilitate the operations on the IT infrastructure, groups can be created. This allows operations to be carried out in one batch on a group of machines.

Groups are created in the *Computers* section of the main menu, then from the module's menu, select *Add a group*.

a. Static groups

In a static group, machines are added manually and without user intervention, the group will not vary.

In the *Static group creation* section, select the machines to be added to the group and use the arrow to make them members of the group.

The shortcut will allow you to have direct access to the group from the *Computers* module menu.

Give a name to your group and save.

b. Dynamic groups

In a dynamic group, machines are automatically added based on queries on inventory values.

Step 1 :

You have a choice of two modules to query. You can mix both modules to create a complex query :

Gipi : If you want to base your query on inventory values

A set of pre-defined fields are available. Select the field that you want to use and enter a value. Autocompletion is done based on values in the inventory database as soon as 3 characters are typed.

Dyngroup : If you want to base your query on an existing group

Simply enter the name of the existing group you want to use.

You can add more criteria by repeating the operations above.

Once you have defined your criteria, validate and go to the next step

Step 2 :

In this step, you will define how you want to mix the criteria defined above. Boolean operators are used to mix the queries.

Boolean operators available are :

- *NOT* : To return the reverse of the value of the query

- *AND* : To satisfy two or more defined criteria
- *OR* : To combine the results of two or more criteria

The boolean operators can be combined to create a complex query.

For example if you had 3 queries and you want to satisfy the first two criteria and the reverse of the 3rd, the expression would be : `AND(1,2,NOT(3))`

You have two modes to save the group in :

Query : This is a truly dynamic mode. The query is evaluated each time the group is used.

Result : The query is evaluated on creation of the group and the results will then be static.

Give a name to your group and save.

6. Package deployment

A package can hold any type of data. It can consist of applications, files, settings, scripts, etc.

a. Deployment modes

Two modes can be used to deploy a package:

- **Push mode:** This is Pulse standard way. The clients must be in the same network or at least a network Pulse can connect to.
- **Pull mode:** This mode requires the installation of a specific agent: *Pulse-Pull-Client*. This can be found in the Packages section. In this mode, the client will contact Pulse, as opposed to the Push mode where Pulse contacts the clients. This mode is used for mobile users. The installation of the pull agent will automatically trigger the pull mode for the machine.

b. Package creation

To create a package, go to *Packages* in the main menu and from the Packages module menu, select *Add a package*.

A package creation wizard will assist you in the creation of the package.

You can either create a package which only contains commands. In that case, you need to *make an empty package* and enter in the *Command* text box, all commands you wish to execute on the client machine.

If you need to send files to the client machine, There are 2 ways for adding files to a package:

- From a file share on the server:

From a file explorer, browse to `\\<your_servers_address>\packages\`

Create a new folder and copy the files you need to that folder

From Pulse, select *Already uploaded on the server* and choose the folder you created in the drop-down list.

The package creation wizard will attempt to find the proper command for installing the files silently. You can customize this to your needs, as well as all the other fields.

- Uploaded from Pulse:

From Pulse, select *Upload from this web page* and browse to the file(s) you wish to send.

The package creation wizard will attempt to find the proper command for installing the files silently. You can customize this to your needs, as well as all the other fields.

Inventory association

If you want to manage your licenses or use software convergence, you will need to match the package created with inventory records. Before being able to do that, you need to install your package on a test machine and run an inventory.

Check *Associate Inventory* and enter *Vendor*, *Software* and *Version* information. *Software* field is mandatory, and the * sign is used as wildcard. Typing the first few letters will perform a search in the inventory and return the matching values.

You can also indicate the *Number of licenses* you have bought for that software.

A few additional resources worth reading:

Innosetup options:

<http://www.jrsoftware.org/ishelp/index.php?topic=setupcmdline>

NSIS options:

<http://nsis.sourceforge.net/Docs/Chapter3.html>

<http://nsis.sourceforge.net/Docs/Chapter4.html#4.12>

MSI options:

<http://support.microsoft.com/kb/227091>

<http://www.advancedinstaller.com/user-guide/msiexec.html>

Help on packaging applications:

<http://www.itninja.com/>

<http://wpkg.org/>

c. Deployment on a single machine

Go to the *Computers* section of the main menu, and find the computer on which you want to deploy using the *Entities filter* and/or *Free text filter*. (cf. Pulse Interface)

From the Machine actions menu select the *Package deployment* icon. You will be presented with a list of packages available for deployment.

The section below is common with “Deployment on a group of machines”

Select the *Play* icon to run the deployment immediately without further customization.

If you wish to customize the way the deployment is done, select the *Transmission* icon. A few parameters worth mentioning are:

- Wake-on-LAN: If the machines are turned off and you wish to turn them on before running the deployments, select this option. Please note that this option needs all the network equipments to allow Wake-on-LAN (WoL) queries, and the client machines BIOS configured appropriately.
- Deployment start and stop times: This is the validity times of a deployment. The

deployment will not start before the defined time and will end at most at the defined time.

- Deployment interval: In addition to the deployment times, the deployment interval will allow you to restrict the times at which you want a deployment to be done.
- Max bandwidth: Pulse will try to run a deployment in the least amount of time possible. If you need to run a deployment on a link where the bandwidth is low, you can define a maximum bandwidth Pulse can use. This will allow you to prevent the saturation of a link if you run a deployment at daytime.

d. Deployment on a group of machines

First create a machines group using the procedure described in section “Groups Management” of this manual.

Once the group is created, go to *All groups* in the Computers module menu (cf. Pulse Interface).

In the groups list, select the *Package deployment* icon for the group on which you want to run a deployment. This can also be done when viewing the contents of a group, from the actions icons in the top right-hand corner.

You will be presented with a list of packages available for deployment.

Follow the common procedure described in the “Deployment on a single machine” section above.

e. Follow-up of the deployments

Go to the Audit section of the main menu.

You will be presented with Current tasks and Expired tasks. Expired tasks are those which end date is already passed.

To view the details of a deployment, select the deployment.

- If a deployment is done on a single machine, you will see the detailed operations carried out on the machine.
- If the deployment is done on a group of machines, a summary will be shown. If you need to see the details of a deployment on a specific machine, select the Lens icon corresponding to the machine.

A deployment which is not yet completed can be stopped or forced to restart using the Stop and Play buttons.

7. Software convergence

A software convergence is the process of automating software deployments.

It consist of a list of applications that must be always installed on the members of a group.

a. Group creation

First of all you need to create a group on which you want to automate the software delivery by following the procedure described in section [Create a group](#).

b. Convergence activation

Next to active it follow the procedure described in section [Deployment on a group of machines](#). And instead of using Package deployment icon, use the infinite icon to enable the software you want.

In the Convergence column different status are available:

- Not available: the software is not ready to be used with the *Software Convergence*, to active it follow the procedure described in section [Inventory association](#)
- Available: the software is ready to be used
- Active: the software is part of a *Software Convergence*

When you activating a software convergence, the best practices is to set those parameters:

- Deployment interval: the deployment interval will allow you to restrict the times at which you want a deployment to be done
- Max bandwidth: Pulse will try to run a deployment in the least amount of time possible. If you need to run a deployment on a link where the bandwidth is low, you can define a maximum bandwidth Pulse can use. This will allow you to prevent the saturation of a link if you run a deployment at daytime.
- Wake on lan: If the machines are turned off and you wish to turn them on before running the *Software Convergence*, select this option. Please note that this option needs all the network equipments to allow Wake-on-LAN (WoL) queries, and the client machines BIOS configured appropriately.

8. Disk imaging

Disk imaging is a block-by-block copy of all the data of an hard drive. It used for backup and used for disaster recovery purposes.

a. Requirements

Prior Disk imaging, your computer need to boot on the network, by pressing F12 (used by almost of the computer) during the early boot sequence, and choose to boot on the network. Or enable it by default in the bios, this will allow you to schedule wake on lan action, and you won't need anymore to do it manually.

b. Resgister as Pulse client

To create an image, the computer need to be register in Pulse imaging, different case can exist:

If your computer is not registered at all, you can do it from the pxe menu.

If your computer is only registered with the agent, you can do by the method.

- from the computer view in pulse, click on the imaging icon, and go to the configuration tab. If you have multiple network card, choose your ethernet one.
- from the pxe menu with the hostname of the computer

c. Create an image

If your computer is already registered or you have just done it, it will appear the a new choice “create a backup”, to create the computer image.

Once is done, the image is displayed in the imaging part of the computer, in the tab “Images and Masters”.

You can perform several action with the image:

- “Plus” icon allow you to display the image in the pxe menu or wake on lan pxe menu, and allow you to perform a restoration from the pxe menu
- “CD” icon to burn a cd, dvd, or blu-ray

d. Schedule a task

It's possible to schedule an action of “restoration” or “image creation”.

To do it, on the “Boot menu” tab, you need to set by default the action you want in the menu “Preselected choice on WOL” and next schedule the task.

Click on Package deployment icon from the actions icons in the top right-hand corner.

From the Quick action drop-down list, select “Wake on lan with imaging”, validate and select Advanced. Now you can select the date and time when you want the action start and end.

9. Mastering

Mastering or OS provisioning is how to create a generic Windows image that can be deployed with the Pulse imaging module.

The system preparation (sysprep) tool provided by Microsoft prepares an installation of Windows for duplication (imaging), auditing, and customer delivery. After having configured the master to your needs sysprep will prepare the master for cloning.

When installing the master sysprep will execute a detection phase of the hardware and ask a serie of questions to setup the system. This last part can be totally automated using a response file.

Workflow of Windows master creation

1. Make a clean Windows installation and prepare it
2. Run sysprep on the installation to convert it in a generic installation
3. Save the disk image in Pulse

Workflow of Windows master deployment

1. Deploy the master on the target with Pulse
2. A Pulse post-install script is run after the image is written on the target disk
3. The target boots and sysprep is executed
4. The system is configured automatically using the response file, additonnal drivers and a final script that were installed by the Pulse post-install script. No interaction user is needed to setup the client.

a. Creating the reference image

Installation of the reference system

You need to make a clean installation of Windows that will be used as the reference image and then converted as a master. It is recommended to do this installation in a virtual machine. With a VM you don't need any supplementary drivers and with the snapshot feature you can easily go backwards and modify the initial installation.

- Limit the disk size : if the installation is done on a 200Go partition the image can't be deployed on disks < 200Go
- Choose wisely the architecture (64 or 32 bits)
- Limit system customizations : don't join the computer to the domain, don't create any user accounts, don't install any drivers, don't install any software (can be done by Pulse afterwards)
- Apply Windows updates
- Delete temporary files

Sysprep and master creation

Get the `prepare-master.bat` script. This script is provided by Mandriva to assist the master creation. It will delete the page file (`pagefile.sys`), the hibernation file (`hiberfil.sys`) to have a smaller image and cleanup the Windows Media Player DRMs (can block sysprep).

Execute this script as **administrator**. Read carefully the messages. Sometime it doesn't remove the DRM keys correctly. In this case run `regedit` and delete all the keys in `HKLM > Software > Wow6432Node (if on 64bits) > Microsoft > DRM`.

Re-run the script to ensure everything is ok. At this time you can snapshot the VM to save this state.

Get the `execute-sysprep.bat` script (also provided by Mandriva) and run it as an administrator. It will run sysprep to generalize the installation. This operation can take some time. Once sysprep is done you need to save the system image disk with Pulse. Reboot the computer but **don't let it boot** and make an image of the disk with Pulse.

If sysprep doesn't complete and fails you can find logs in `C:\Windows\System32\Sysprep\Panther`.

This image is the master that can be deployed on clients. To that master several scripts and the response file will be associated.

b. Response file creation

With Microsoft Windows AIK you can create the response file that will be used when the master is deployed on the targets.

You can download WAIK at <http://www.microsoft.com/download/en/details.aspx?displaylang=en&id=5753>. You need also the installation disk of Windows used to install the reference installation to proceed.

Install and run WAIK on your workstation and not on the reference computer

- File > Select Windows Image
- Choose the `.clg` file that match your reference Windows installation from the Windows install CD in the `sources` directory.
- Create a new response file

You can now create the response file by adding components to Windows setup steps to customize the image :

- **Windows PE** : pre-installation environnement
- **OfflineServicing** : offline modification of the Windows installation
- **Generalize** : to create a reference image from a Windows installation
- **Specialize** : the step executed when the « generalized » master is deployed
- **AuditSystem** : apply settings in a user context
- **AuditUser** : apply settings in a system context
- **OobeSystem** : first run settings

To create the response file we need to customize the steps « specialize » and « oobesystem ». Other steps aren't used in our case.

Here are some useful settings you can setup in the response file.

Extend the system partition to the whole disk

Add the setting `Microsoft-Windows-Deployment > ExtendOSPartition` to the `specialize` step. (right click)

Set `Extend` to `true`.

Skip Windows auto activation

Add `Microsoft-Windows-Security-SPP` to `specialize`. Set `SkipAutoActivation` to `True`

Enable the local administrator

Add `Microsoft-Windows-Deployment > RunSynchronous > RunSynchronousCommand` to `specialize`.

Set `Order` to `1` `WillReboot` to `Never` and `Path` to `net user administrator /active:yes`.

General settings

Add `Microsoft-Windows-Shell-Setup` to `specialize`.

Set `ComputerName` to `XXX` (will be changed by Pulse)

Set `ShowWindowsLive` to `false` (remove Windows Live from the start menu)

Set `TimeZone` accordingly to your location, see : <http://technet.microsoft.com/en-us/library/cc749073%28WS.10%29.aspx>

Set `RegisteredOrganization` to your company name

Set `RegisteredOwner`

Set `ProductKey` with a valid Windows key. Check « `sources/product.ini` » on the installation CD for the key.

Oobe settings (out of the box experience)

Add `Microsoft-Windows-Shell-Setup > OOBE` to `oobesystem`.

Set `HideEULAPage` to `true` (automatically accept the licence)

Set `NetworkLocation` to `Work`

Set `ProtectYourPC` to `1` (automatic security updates)

Langage and region

Add `Microsoft-Windows-International-Core` to `oobesystem`

Set `InputLocale`, `SystemLocale`, `UILanguage`, `UserLocale` to your lang code.

Administrator password

Add `Microsoft-Windows-Shell-Setup > UsersAccount > AdministratorPassword` to `oobesystem`. Set in `Value` the administrator password.

Temporary user creation

We need to create a user in the oobe step to have fully unattended installation. We will remove this user afterwards.

```
Add Microsoft-Windows-Shell-Setup > UsersAccounts > LocalAccounts > LocalAccount to oobesystem.
```

```
Set Action to AddListItem
```

```
Set Description to Temp
```

```
Set DisplayName to Temp
```

```
Set Group to Users
```

```
Set Name to Temp
```

Join the target to the domain

```
Add Microsoft-Windows-UnattendedJoin to specialize.
```

In `Credentials` setup the `username` and `password` of a Domain administrator. The user must have the rights to join a computer to the domain. Specify also the domain name.

In `JoinDomain` specify the domain to join.

By default the computer will be added in the default `ou=Computer` branch. You can specify another OU to use in the `MachineObjectOU` setting. Specify the full LDAP dn (ex : `ou=mycomputers, dc=domain.local`)

Finalisation

Save the XML file on the Pulse server at `\\PulseSRV\postinstall\sysprep\win7-sysprep.xml` where `PulseSRV` is the name of your server on the Windows network.

c. Post-sysprep script

Create a script `SetupComplete.cmd` with the following contents. This script will be executed just after the master is deployed and the Windows setup has run. Right before the login screen.

Script contents :

```
rem Delete Sysprep response file
del /Q /F %windir%\System32\sysprep\sysprep.xml
```

- This will delete the XML response file.

```
rem Delete the original user created on the initial installation
net user Temp /delete
net user user1 /delete
rmdir /S /Q %SystemDrive%\Users\Temp
rmdir /S /Q %SystemDrive%\Users\user1
```

- Delete the user created when installing the reference installation. Replace `user1` accordingly.

```
rem Restore dynamic pagefile.sys
```

```
reg add "HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session  
Manager\Memory Management" /f /v PagingFiles /t REG_MULTI_SZ /d  
"%SystemDrive%\pagefile.sys 0 0"
```

- Restore the page file (was removed at the master creation step).

```
rem Enable back hibernation  
powercfg -h on
```

- Enable back the hibernation (was removed at the master creation step).

```
rem Remove drivers installed in post-imaging  
rmdir /S /Q %windir%\inf\driverpack
```

- Finally remove supplementary drivers.

```
rem Install all Mandriva Pulse Agents  
%windir%\Setup\Scripts\pulse2-win32-agents-pack-noprompt.exe
```

- Finally install the Pulse agents.

This script must be saved on the Pulse server at `\\PulseSRV\postinstall\sysprep\` where `PulseSRV` is the name of your server on the Windows network.

d. Post-install imaging script

Just after the master is restored on the target Pulse will copy the response file with the correct hostname in it for the target, the `SetupComplete.cmd` script and also supplementary drivers so that every hardware device will be recognized during the first boot.

These operations are done in a post-install script.

Additional drivers

Store on the Pulse server any drivers your machines needs. Only WHQL drivers can be used by sysprep. Also you need the `.inf` and `.sys` files of the drivers so that sysprep can use them.

Store all the drivers you need on the Pulse server at `\\PulseSRV\postinstall\sysprep\drivers\win7\` (for Windows 7 drivers) where `PulseSRV` is the name of your server on the Windows network.

Post-install script example

Create a post-install script in the Imaging module of Pulse :

```
MountSystem
```

- Will mount the partition containing the Windows installation

```
CopySysprepInf /opt/sysprep/win7-sysprep.xml
```

- Will copy the sysprep response file on the target. `/opt` correspond to `\\PulseSRV\postinstall\`. Will also change the `ComputerName` setting to the target hostname in the response file.

```
mkdir -p /mnt/Windows/Setup/Scripts
```

```
cp /opt/winutils/pulse2-win32-agents-pack-noprompt.exe \  
/mnt/Windows/Setup/Scripts  
cp /opt/sysprep/SetupComplete.cmd /mnt/Windows/Setup/Scripts
```

- Will copy the `SetupComplete.cmd` script in `C:\Windows\Setup\Scripts`.

```
cp -a /opt/sysprep/drivers/win7/ /mnt/Windows/inf/driverpack/
```

- Will copy additional drivers from `\\PulseSRV\postinstall\sysprep\drivers\win7` on the Pulse server to `C:\Windows\inf\driverpack` on the target.

e. Finalisation

Once the image, the scripts and the drivers are on the Pulse server convert the image of in a master through the Pulse interface. Associate the post-install script to this image and give a name to the master.

The master is now ready and can be deployed.

You can do any modification in the scripts, the response file or add any drivers you need without having to recreate the master image.

Sysprep execution logs

If something goes wrong when deploying the master you can find logs of the `sysprep specialize` step in `C:\Windows\Panther` and logs of the unattended setup in `C:\Windows\Panther\Unattendgc`.

10. Report

Pulse2 now offers you the ability to obtain detailed reports from several progress indicators of your system. These reports allow you to both manage your machines and get timely, clear and accurate information.

The reports allows to have a historical overview of your defined indicators with the selected entity or multiple entities.

a. The indicators

The different indicators available to create the report:

- Number of devices by OS
- Office installations
- Software installations
- Computer types

b. The format

Different format are available and all the graph can be downloaded

- Web page
- XLS format
- PDF format

c. Personalized report

It possible to use [Group creation](#) to query the inventory database, and export the content in CSV format.

11. License management

Pulse2 allows you to efficiently manage your software licenses via a consolidated view of used, inactive and overrun licenses. You can now map the exact number of licenses and their use, machine by machine.

a. Settings

To enable license management, you need to associate to a package the corresponding footprint in the inventory.

To do it follow the indications from [Inventory association](#).

b. Monitoring

From the list of available software, the column License provides different informations, the number of used and the total number license owned.

When the license is overrun, it is warning in red, up to you to choose the correct remediation (uninstall or buy new license).

12. Updates

Updates management allow you to control all available updates, to enhance the security of all your computer. This feature works for window clients.

After made an update validation in a test environment, this feature propose to enable the update, or banned it. Only Pulse will be in charge to install or not an update.

a. Pulse2 Secure agent update

Prior to use Updates, you need to install the agent Pulse2 Secure Agent (Windows Update plugin) on your windows client. It is available in the Packages list.

b. Update management

Once the plugin is installed, it will be periodically executed, if you do not want to wait it is possible to force it to have the list of the updates. To do it there is a "Quick action" available "Pulse Update Manager". It is possible run it as well on a group of computer.

The updates are sorted by operating system and all the updates will appear under the Available list.

The drop-down list provide different status:

Available: list the updates available on the computer

Enabled: list the updates validated, Pulse will install the updates

Disabled: list the updates banned, Pulse will block the updates to be installed

Pulse will manage automatically the installation process.

c. Settings

You can configure witch operating you want to manage (Windows XP, Vista, Seven).

And you have the possibility to force the updates deployment

13. Remote assistance

Remote assistance allow you to take the control on a remote computer and perform some task or assistance to a user.

a. The behavior

By default the user must accept the incoming request for remote assistance.

This behavior could be changed and allow you to access directly to the computer.

It don't need an open session, you can login through the remote assistance and control server as well.

To change the behavior, go on the computer > Software deployment > Quick actions and select the needed action:

- Disable user approval for remote desktop
- Enable user approval for remote desktop

14. Backup

Backup is a useful system for backing up all your computer files with full and incremental backup.

It's using compression and data deduplication to reduce the disk space needed to store the backups in the disk pool.

a. Configure

To set a computer to be backup, from the computer list, click on the directory icon and configure. The configuration is composed of a fieldset and schedule.

The fieldset

By default Pulse will suggest according to the operating system running on the computer two fieldsets "User files" or "Whole drive".

A fieldset is composed of a minimum of a directory to backup and a list of exclusions.

The schedule

By default Pulse will proposed day time and night time.

Both of those settings could be configured following your needs.

To facilitate the settings, you can from the left pan add your own fieldset and schedule.

b. Backup

The backup is running following the schedule, and possible to force manually the backup (force full, force incremental).

Browsing the different backup allow you to select multiple files and/or directory and restore. Three possibility are available:

- Download
- Restore files, to the original folder (overwrite)
- Restore files, to alternate folder

To enhance the restoration, a search box allow search in the different backup, and on file a Lens icon will prompt a list of all available version.

c. Monitoring

The view show a list of all computers under backup and their details:

- Number of backups (full, and incr)

- Size
- Age of the latest backup

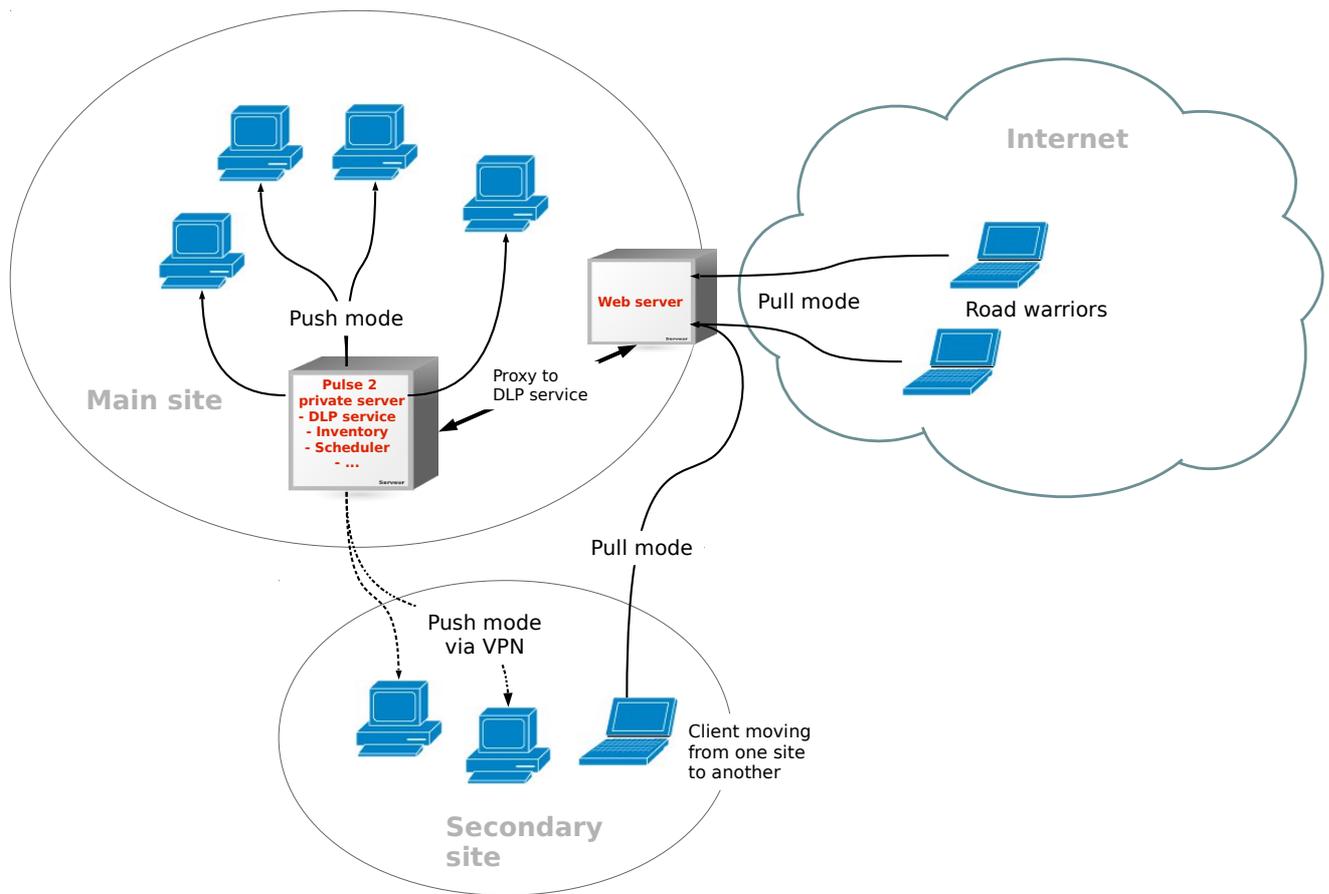
15. Pull mode

In a standard installation of Pulse 2 software deployments are usually done using “Push Mode”. In this mode Pulse 2 is contacting the client directly using SSH to do the deployment. This is the recommended deployment mode since we can specify when the deployment must be done. We also get feedback in case of errors : network connection failed, offline client, connection interrupted...

However, in certain cases you need to deploy software to clients that aren't directly accessible by Pulse 2 : clients in other sites (secured or not secured) behind routers, NAT filtering etc... In this particular case the “Pull Mode” of Pulse 2 can be used to deploy software on this clients.

When a software is deployed on a “Pull client” Pulse 2 doesn't try to contact the client directly like in “Push mode”. Instead the client will query Pulse 2 to know if there is any deployment to do.

a. Pull Mode setup example



To be able to deploy software through “Pull Mode” a public Pulse 2 service must be setup, the DLP (Download Provider) webservice.

You don't have to make this service public. On a public host you can translate a port (80 for example) to the DLP service (8080 by default). Or if you already have a webserver on this public host you can proxy the requests to a virtual host or an URL to the DLP service.

The clients that have the Pulse 2 Pull Client installed will query the public host to know if there is any deployment to do.

b. DLP server setup

Setting up the DLP service

Install the DLP service on a host where you have direct access to the Pulse 2 Inventory Server and the Pulse 2 Scheduler. All these service can be installed on the same host.

Install the package pulse2-dlp-server

```
# apt-get install pulse2-dlp-server
```

The configuration of the DLP service is located at `/etc/mmc/pulse2/dlp-server/dlp-server.ini`.

In the configuration adjust the connection information to the Pulse 2 Scheduler and to the Pulse 2 Inventory Server if needed. The default value are for using local services.

```
# Scheduler XMLRPC uri
xmlrpc.uri = "https://username:password@localhost:8000"
# Inventory Server uri
inventory.url = "http://localhost:9999"
```

You should also setup an authentication key for your DLP clients.

```
dlp.authkey = "mySeCretAuthKey%"
```

This authentication key will be used by the pull clients to communicate with the DLP. If the client key is not the same the DLP will refuse the communication.

Restart the service with the following command

```
# /etc/init.d/pulse2-dlp-server restart
[ ok ] Restarting Pulse2 Download Provider Service: pulse2-dlp-server.
```

By default the DLP service is running on the `8080` port.

To ensure that the service is running run the command : `curl http://localhost:8080/api/v1/commands`. You should get a **403 Forbidden** if the service is correctly listening and running.

The Pulse Pull clients will query the following URLs of the DLP service :

- `/api/v1/auth` (to authenticate the client against the DLP)
- `/api/v1/commands` (to get the client commands to run)
- `/api/v1/step/<coh_id>/<step_id>` (to send steps results of a command)
- `/api/v1/file/<package_uuid>` (to get the command package if any)
- `/api/v1/inventory` (to send the client inventory)

Access to the DLP service

In a standard setup a public host is proxying requests for the DLP to an internal (private) host running the DLP service.

Two choices are covered in this document to proxy requests to the DLP.

1. setup a port translation from the public host to the DLP service
2. setup a public webserver as a proxy to the DLP service

Port translation is simple and effective. It is the recommended setup.

In case you only have a webserver to use you can't translate all requests on port 80 to the DLP otherwise other web applications you are hosting won't be accessible anymore. You need to setup a proxy only on a specific virtual host or URL.

You can also proxy requests from a different port than the 80 but you must know that maybe some Pull Clients won't be able to reach another port than the 80 because of the network policies of their location.

Setting up a port translation to the DLP service

Depending on the firewall that you are using you can translate requests from a local port to the DLP service port on a different machine.

Iptables

Assuming that you are redirecting requests from the port 80 to the DLP service listening on 192.168.200.45 on port 8080 you can issue this rule on the public host:

```
iptables -t nat -I PREROUTING --src 0/0 --dst 192.168.200.45 -p tcp --dport 80 -j REDIRECT --to-ports 8080
```

Shorewall

The same configuration using shorewall would be (/etc/shorewall/rules):

```
DNAT all 192.168.200.45:8080 tcp 80
```

Like with the DLP you can check if the proxy is working by running the curl command on the webserver: `curl http://localhost/api/v1/commands`. You should get the same error as with the DLP service : a 403 Forbidden error.

Setting up an Apache proxy to the DLP service

On the public webserver setup an URL to proxy the requests to this URL to the internal DLP service.

On Apache the configuration can be done like this:

```
ProxyPass /api/ http://DLP\_HOST\_IP:8080/api/  
ProxyPassReverse /api/ http://DLP\_HOST\_IP:8080/api/
```

Create a file with the `.conf` extension in `/etc/apache2/conf.d/` with the configuration.

Make sure you have enabled the proxy module. In Debian this is done with:

```
# a2enmod proxy
```

Restart the webserver to apply the configuration

```
# /etc/init.d/apache2 restart
```

Like with the DLP you can check if the proxy is working by running the curl command on the webserver: `curl http://localhost/api/v1/commands`. You should get the same error as with the DLP service : a 403 Forbidden error.

c. Pull clients setup

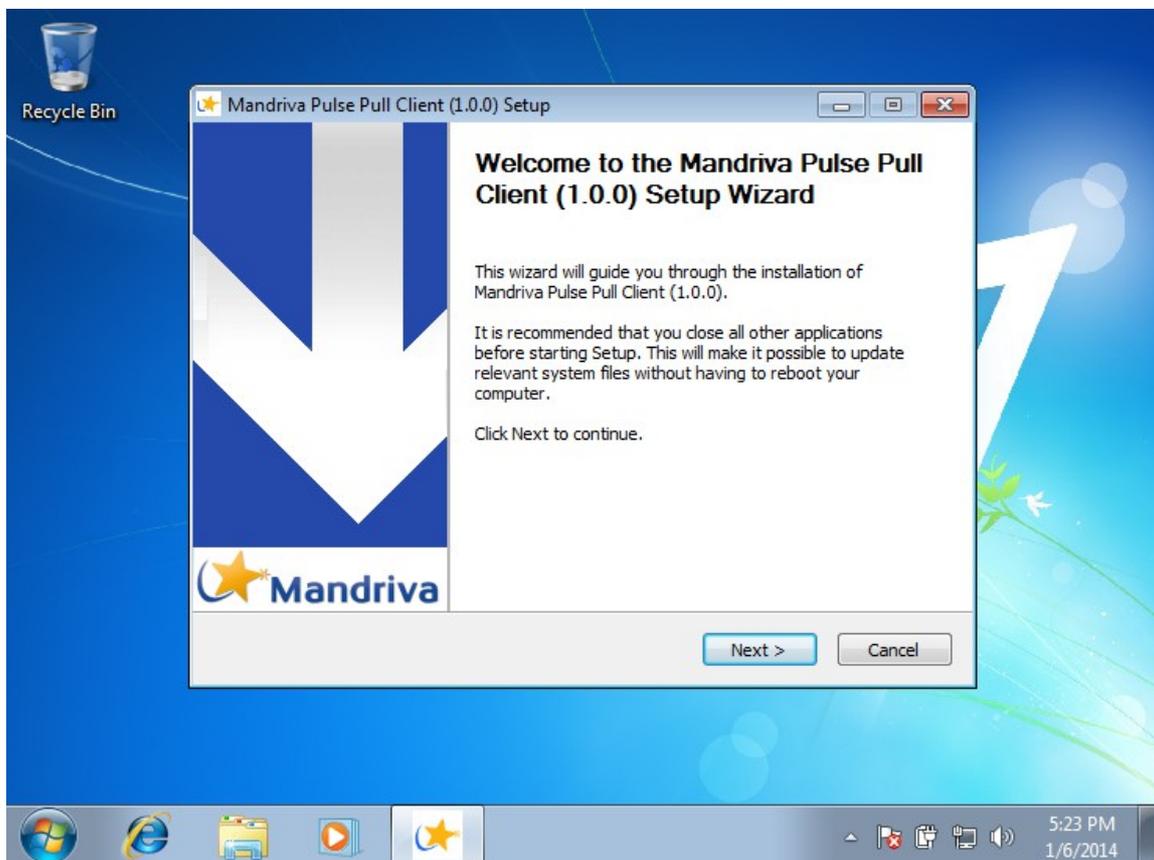
To act as a pull client the client must first be known to Pulse 2. *It must be in the Pulse 2 inventory.* If an unknown client tries to contact the DLP the DLP will refuse any communication with this client.

If the client isn't yet in the inventory you can install the Pulse 2 agents pack. After the installation the inventory will be send to the Pulse 2 Inventory Server. You should see the computer from the Computer module of Pulse 2. After that you can install the Pulse Pull Client agent on the client.

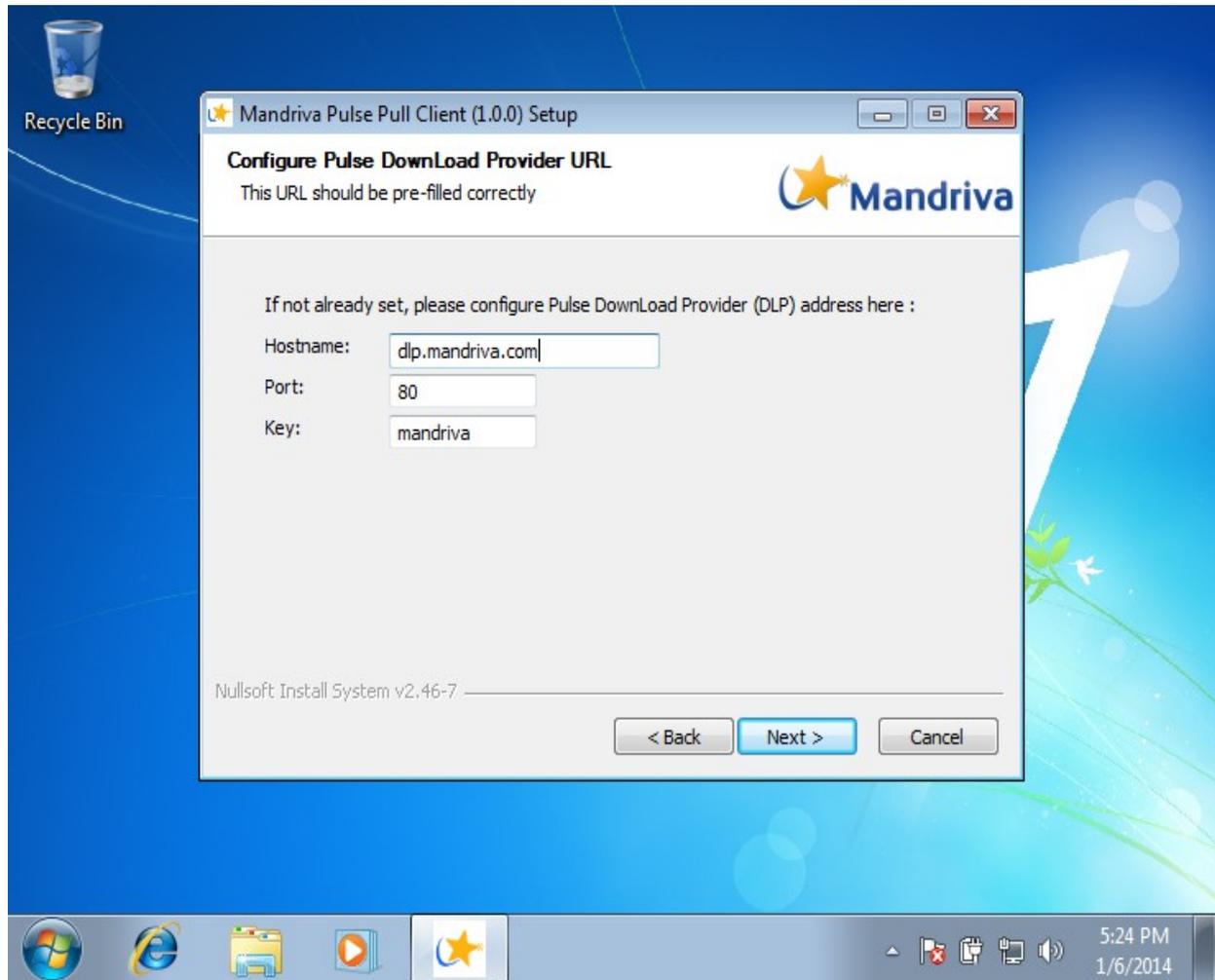
If you are running GLPI you can also create the computer manually in the inventory. You just need to specify the hostname and the MAC adress of the network card. After that you can install the Pulse Pull Client agent on the client.

Pull Client installation

Run the setup with the administrator rights



On the second step you need to specify the address, the port and the authentication key of your DLP server.



- The hostname is your public proxy. Use the public name or IP of the host. It must be accessible from outside your network.
- The port should be 80 if you have setup an Apache proxy or some port translation on port 80. It is better to listen on the port 80 so that clients can communicate through HTTP proxies easily.
- As for the authentication key you obviously need to use the key configured on the DLP service.

Once the Pulse Pull Client has been installed it will start to poll the DLP service for new deployments. You can check that the Pull Client is running in the Windows services list.

