



opsi Version 4.0

open pc server integration

Release Notes and Upgrade Manual

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1. Introduction

This documentation is not written for starting with opsi, use the opsi-getting-started manual instead.

Opsi 4.0 is a major release. This means that a lot of things have been changed and a upgrade should therefore done with care.

This manual should help you:

- see how the concepts of opsi 4.0 are
- test migrations of opsi 3.4 backend data
- upgrade productive opsi environments

For more detailed information to opsi 4.0 refer to the opsi40-manual.

2. Testing the data migration from opsi 3.4 to opsi 4.0

2. Testing the data migration from opsi 3.4 to opsi 4.0

2.1. Starting of a VMware-Machine

The data migration could be tested on our preconfigured opsi-VM. How to startup with the opsi-VM is described in the opsi40 getting started manual. Just follow this manual until chapter 2.4 'Install and check of the activation file'. Then come back to the next chapter of this manual.

2.2. Start up opsi 4.0 with data of a opsi 3.4 environment

In the following chapters will be described how to migrate opsi 3.4 backend data to your new opsi 4.0 VM. This is a important and risk less part of a complete upgrade test.

2.2.1. Requirements

The opsi packages on your opsi 3.4 server should have at least the following versions:

```
dpkg -l | grep opsi
opsi-utils      3.4-3
opsiconfd      2.0.0.24-1
python-opsi    3.4.0.8-1
```

2.2.2. Upgrade the opsi backends

If you are using at your opsi3.4 server multiple backends (e.g File32-Backend for configuration and MySQL-Backend for Inventory) you have to convert all backend data in the sequence described below.

2.2.2.1. Upgrade the LDAP-Backend

According to changes in the LDAP schema, it is not possible to update the LDAP-Backend directly. So you have at first to convert your LDAP-Backend to the File31-Backend.

At first, backup your LDAP-Backend on your opsi 3.4 productive system:

```
slapcat -l /tmp/opsi34-ldap-backend.ldif
```

Now convert the ldap data to the File31-Backend on your opsi 3.4 productive system:

```
opsi-convert LDAP File31
```

2. Testing the data migration from opsi 3.4 to opsi 4.0

Now you can go on with chapter 2.2.2.2. Upgrade the File31-Backend.

2.2.2.2. Upgrade the File31-Backend

At first you have to copy your File31-Backend data from your opsi 3.4 productive system to the opsi4 machine.

To do this, execute the following command on your opsi 3.4 productive system:

```
cd /
tar czvf /tmp/opsi34-file-backend.tar.gz /etc/opsi/pckey \
/etc/opsi/passwd /var/lib/opsi/audit /var/lib/opsi/config
```

Now copy the data to the VM:

```
scp /tmp/opsi34-file-backend.tar.gz <ip_of_the_vm_machine>:/tmp/
```

Extract the data on your opsi 4.0 VM:

```
cd /
tar xzvf /tmp/opsi34-file-backend.tar.gz
```

The next step is to upgrade the opsi3.4 File31-Backend to the new opsi 4 file backend.

Note:

This upgrade may take some time depending to the speed of your VM and the amount of data. You should not abort this process (!). You may see some "Backend referential integrity error" messages which you can ignore (in most cases). These errors are caused by wrong configuration data in your old backend. For example product properties in client files which belong to products which has been removed. opsi 3.4 doesn't matter about this. opsi 4 has now mechanisms to ensure the referential integrity of your backend. As a result you get after the upgrade a backend, which have a clean referential integrity.

With the following command you start the upgrade:

```
opsi-setup --update-file
```

2.2.2.3. Upgrade of the MySQL-Backend (Inventory / License Management)

If you are using the MySQL-Backend for Inventory (and License Management) you have to upgrade this backend as next step. First backup your MySQL-Backend with the following command (on the productive system):

```
mysqldump -u root -p opsi -r /tmp/opsi34-mysql-backend.sql
```

2. Testing the data migration from opsi 3.4 to opsi 4.0

Now copy the data to the VM:

```
scp /tmp/opsi34-mysql-backend.sql <ip_test_machine>:/tmp/
```

Now we have to restore the data on the opsi 4 VM.

Because the opsi 4 beta VM is provided with a initialized opsi 4 mysql backend, we have to drop this at first before we restore the opsi 3.4 data. Restoring the data you will be asked for the mysql root password. It is 'linux123' on the opsi 4 VM.

```
echo -e 'drop database opsi; create database opsi;' | mysql -u root -p  
mysql -u root -p -D opsi < /tmp/opsi34-mysql-backend.sql
```

The upgrade of the backend will now be started with:

```
opsi-setup --update-mysql
```

(Here you should calculate with 15 minutes per 1000 Clients without software inventory).

2.2.3. Select the backends

After the upgrade you have the free choice which of the new opsi 4 backends you want to use. Especially if you have large data (many clients and/or many products) you will find with the new opsi 4 mysql backend massive performance enhancements comparing to the other backends. Additionally the mysql backend is the only backend which integrates all opsi features in only one backend.

In this chapter we will describe some of the different possible configurations.

2.2.3.1. Using only the mysql backend

If you want to use the mysql backend as only backend you have to integrate your file backend data into the mysql backend. Also, you have to correct that the depot name in the file backend is still the name of your opsi 3.4 server. Therefore replace in the following command <fqdn_of_the_produkative_machine> by the FQDN (Hostname including the DNS domain name, e.g. opsi34.firma.local) of your opsi 3.4 productive system.

Note:

You may see some "Backend referential integrity error" messages which you can ignore (in most cases).

If your inventory data was in the file backend and should be converted to mysql too and therefore you skipped the chapter 2.2.2.3 Upgrade of the MySQL-Backend (Inventory /

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License Management) You will be asked for the mysql root password. It is 'linux123' on the opsi 4 VM.:

```
echo -e 'drop database opsi; create database opsi;' | mysql -u root -p
opsi-convert -a -s <fqdn_of_the_produkative_machine> file mysql
```

If your inventory data is already in the mysql backend (according to the chapter 2.2.2.3 Upgrade of the MySQL-Backend (Inventory / License Management) and you only want to convert the configuration data:

```
opsi-convert -s <fqdn_of_the_produkative_machine> file mysql
```

Finally you should execute the following commands:

```
opsi-setup --init-current-config
opsi-setup --set-rights
opsi-setup --cleanup-backend
/etc/init.d/opsiconfd restart
/etc/init.d/opsipxeconfd restart
```

2.2.3.2. Using the file backend in combination with the mysql backend

You may combine different backend with opsi 4 as well. The following configuration uses the mysql backend for inventory and license management and uses the file backend for all the rest.

The backend configuration which was in opsi 3.4 in the file `30_vars.conf` will be done at opsi 4.0 in the file `/etc/opsi/backendManager/dispatch.conf`.

For the backend usage as described above this file should be edited to look like the following example:

```
backend_.*      : file, mysql, opsipxeconfd
host_.*        : file, opsipxeconfd
productOnClient_.* : file, opsipxeconfd
configState_.*  : file, opsipxeconfd
license.*      : mysql
softwareLicense.* : mysql
audit.*        : mysql
.*            : file
```

Also you have to correct, that the depot name in the file backend is still the name of your opsi 3.4 server. Therefore replace in the following command `<fqdn_of_the_produkative_machine>` by the FQDN (Hostname including the DNS domain

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name, e.g. opsiserver.firma.local) of your opsi 3.4 productive system and <fqdn_of_the_test_machine> by the FQDN of your opsi 4 VM.

```
opsi-admin -d --no-depot method host_renameOpsiDepotserver \  
<fqdn_of_the_produkitive_machine> <fqdn_of_the_test_machine>
```

Finally you should execute the following commands:

```
opsi-setup --init-current-config  
opsi-setup --set-rights  
/etc/init.d/opsiconfd restart  
/etc/init.d/opsipxeconfd restart
```

The following chapters you may skip and go ahead with chapter 4. Installation / upgrade of opsi products.

3. Upgrade a opsi 3.4 server to opsi 4.0

3. Upgrade a opsi 3.4 server to opsi 4.0

In this chapter we describe how to upgrade a opsi 3.4 server to opsi 4.0.

We recommend to don't do this with your productive system until the final version of opsi 4.0 is released.

This chapter should be used to do some upgrade test for example with a virtualized clone of your productive system.

3.1. Requirements

There are two requirements:

1. The opsi packages on your opsi 3.4 server should have at least the following versions:

```
dpkg -l | grep opsi
opsi-utils      3.4-3
opsiconfd       2.0.0.24-1
python-opsi     3.4.0.8-1
```

2. At all opsi clients the preloginloader have to be installed in the opsiclientd mode. (The old prelogin mode does not (!) work with a opsi 4 server).

3.2. Some important notices

The following changes will take place on upgrading the Backends to opsi 4.0:

- Underscores in host names are not allowed and will be replaced by minus
- Underscores in opsi package version and in opsi software version are not allowed any more
- Any stored product properties which are not any more supported by the installed product will be removed

Brief you self about opsi 4.0 by reading the chapter 6 'What is new in opsi 4.0' in this manual and the opsi 4.0 chapters in the opsi-manual.

3. Upgrade a opsi 3.4 server to opsi 4.0

3.3. Backup your opsi 3.4 backends

Using the LDAP-Backend:

```
slapcat -l /tmp/opsi34-ldap-backend.ldif
```

Using the File31-Backends:

```
cd /  
tar czvf /tmp/opsi34-file-backend.tar.gz /etc/opsi/pckey \\  
/etc/opsi/passwd /var/lib/opsi/audit /var/lib/opsi/config
```

Using the MySQL-Backends (Inventory / License Management):

```
mysqldump -u root -p opsi > /tmp/opsi34-mysql-backend.sql
```

It is also recommended to backup the `/opt/pcbin/install` directory. Note: This directory contains your complete software depot and will be perhaps very large.

You should store the backup files at an other place than on your server as well.

3.4. Upgrade the opsi server installation

3.4.1. Debian / Ubuntu

At first you have to replace the old opsi 3.4 repository by the new opsi 4.0 repository:

Ubuntu Lucid:

```
deb http://download.opensuse.org/repositories/home:/uibmz:/opsi:/opsi40/xUbuntu_10.04 ./
```

Debian Lenny:

```
deb http://download.opensuse.org/repositories/home:/uibmz:/opsi:/opsi40/Debian_5.0 ./
```

Now execute commands to import the signature key of the repository:

Ubuntu Lucid:

```
wget -O - http://download.opensuse.org/repositories/home:/uibmz:/\opsi:/opsi40/xUbuntu_10.04/Release.key | apt-key add -
```

Debian Lenny:

3. Upgrade a opsi 3.4 server to opsi 4.0

```
wget -O - http://download.opensuse.org/repositories/home:/uibmz:/\
opsi:/opsi40/Debian_5.0/Release.key | apt-key add -
```

All:

Check for key import success:

```
apt-key list
```

should contain the output:

```
pub 1024D/4DC87421 2010-07-23 [expires: 2012-09-30]
```

```
uid home:uibmz OBS Project <home:uibmz@build.opensuse.org>
```

Now upgrade your server:

```
apt-get update
apt-get dist-upgrade
```

Now all opsi 4.0 packages should be installed at the server.

3.4.2. openSUSE

opsi 4.0 is tested and released for openSUSE 11.3.

We have no information if opsi 4.0 will work with other versions.

At first remove the old repository:

```
zypper rr opsi3.4
```

You can use zypper to add the new opsi-SUSE-Repository:

```
zypper ar http://download.opensuse.org/repositories
/home:/uibmz:/opsi:/opsi40/openSUSE_11.3 opsi40
```

Here again the same line for copy&paste:

```
zypper ar http://download.opensuse.org/repositories/home:/uibmz:/opsi:/opsi40/openSUSE_11.3 opsi40
```

Now start the upgrade:

```
zypper refresh
<Accept the key>
zypper update
/etc/init.d/opsiconfd restart
/etc/init.d/opsipxeconfd restart
```

Now all opsi 4.0 packages should be installed at the server.

3. Upgrade a opsi 3.4 server to opsi 4.0

3.5. Upgrade the backends

Using the LDAP-Backend you have to restart now your ldap server:

```
/etc/init.d/slaped restart
```

Note: After the restart of the ldap server with the new schema, the backend isn't usable any more (read and remove is possible but you can't write).

The new backend are configured at `/etc/opsi/backends/*.conf`. If you are using the MySQL-Backend or/and the LDAP-Backend you have to integrate here some data from the old backend configuration files from the opsi 3.4 directory `/etc/opsi/backendManager.d` in order to have the account data for the backend access.

- For the MySQL-Backend transfer from `/etc/opsi/backendManager.d/21_mysql.conf` to `/etc/opsi/backends/mysql.conf` the values for "database", "username" and "password". The value for "host" should be transferred to the row "address" in the file `mysql.conf`.
- For the LDAP-Backend transfer from `/etc/opsi/backendManager.d/11_ldap.conf` to `/etc/opsi/backends/ldap.conf`
 - The value for "host" to the entry "address".
 - The value for "bindDn" to the entry "username".
 - The value for "bindPw" to the entry "password".

As the next step the backend should be upgraded to opsi 4:

- File Backend

```
opsi-setup --update-file
```

- MySQL-Backend

```
opsi-setup --update-mysql
```

3. Upgrade a opsi 3.4 server to opsi 4.0

- LDAP-Backend

```
opsi-setup --update-ldap
```

3.6. Configure which backend to use

Edit the file `/etc/opsi/backendManager/dispatch.conf`.

Example for mysql backend only (DHCP on a other server):

```
backend_.*      : mysql, opsipxeconfd
host_.*         : mysql, opsipxeconfd
productOnClient_.* : mysql, opsipxeconfd
configState_.* : mysql, opsipxeconfd
.*             : mysql
```

Example for mysql backend only with DHCP on the opsi server:

```
backend_.*      : mysql, opsipxeconfd, dhcpd
host_.*         : mysql, opsipxeconfd, dhcpd
productOnClient_.* : mysql, opsipxeconfd
configState_.* : mysql, opsipxeconfd
.*             : mysql
```

Example for file backend only (DHCP on a other server):

```
backend_.*      : file, opsipxeconfd
host_.*         : file, opsipxeconfd
productOnClient_.* : file, opsipxeconfd
configState_.* : file, opsipxeconfd
.*             : file
```

Example for file backend only with DHCP on the opsi server:

```
backend_.*      : file, opsipxeconfd, dhcpd
host_.*         : file, opsipxeconfd, dhcpd
productOnClient_.* : file, opsipxeconfd
configState_.* : file, opsipxeconfd
.*             : file
```

Example for a combination of file backend and mysql backend for inventory and license management (DHCP on a other server):

```
backend_.*      : file, mysql, opsipxeconfd
host_.*         : file, opsipxeconfd
productOnClient_.* : file, opsipxeconfd
configState_.* : file, opsipxeconfd
```

3. Upgrade a opsi 3.4 server to opsi 4.0

```
license.*      : mysql
softwareLicense.* : mysql
audit.*       : mysql
.*            : file
```

Example for a combination of ldap backend and mysql backend for inventory and license management (DHCP on a other server):

```
backend_.*     : ldap, opsipxeconfd, mysql
host_.*        : ldap, opsipxeconfd
productOnClient_.* : ldap, opsipxeconfd
configState_.* : ldap, opsipxeconfd
license.*      : mysql
softwareLicense.* : mysql
audit.*        : mysql
.*            : ldap
```

Example for a combination of file backend and mysql backend for inventory and license management with DHCP on the opsi server:

```
backend_.*     : ldap, opsipxeconfd, mysql, dhcpd
host_.*        : ldap, opsipxeconfd, dhcpd
productOnClient_.* : ldap, opsipxeconfd
configState_.* : ldap, opsipxeconfd
license.*      : mysql
softwareLicense.* : mysql
audit.*        : mysql
.*            : ldap
```

After any modification of this file, you should always execute the following commands:

```
opsi-setup --init-current-config
opsi-setup --set-rights
/etc/init.d/opsiconfd restart
/etc/init.d/opsipxeconfd restart
```

3.7. Install and check of the activation file

Even opsi is open source, there are some components which are not free at the moment. These components are developed in a co-funding project which means that until the complete development costs are payed by co-funders, they are only allowed to use by the co-funders or for evaluation purposes. If we have earned the development cost we will give these modules for everybody for free. To control the use of these components until they are free there is a activation file `/etc/opsi/modules`, which is protected against changes via electronic signature. If this activation file doesn't exist, only the free parts of opsi will work.

3. Upgrade a opsi 3.4 server to opsi 4.0

If you need for evaluation a temporary valid activation file please contact info@uib.de. If you become a co-funder, you will get a unlimited activation file.

While the beta / release candidate phase of opsi 4.0 you will find a temporary activation file which is valid until 30.9.2010 at <http://download.uib.de/opsi4.0/modules> which you may copy as root to `/etc/opsi`. This may be done with the commands:

```
cd /etc/opsi
wget http://download.uib.de/opsi4.0/modules
opsi-setup --set-rights /etc/opsi
```

This file give you the opportunity to test the full features of the mysql backend and use of hierarchical client groups and the client/group display in the treeview. Also the license management is activated. If you test the mysql backend but decide to don't buy it, remember to switch back to a free backend before the activation file becomes invalid.

You may check your activation state with one of the following methods:

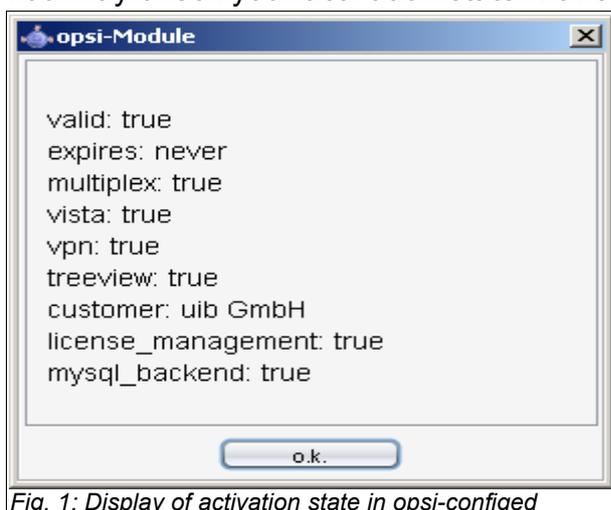


Fig. 1: Display of activation state in opsi-configed

Using the opsi-configed choose the menu entry Help/opsi-Module which shows a window with the activation state.

At the command line you may use the command `opsi-admin` with the method `backend_info`. (Remark: Never give your activation file or the output of this command to third people without deleting the signature).

```
opsi-admin -d method backend_info
{
"opsiVersion" : "3.99.0.0",
"modules" :
{
"customer" : "uib GmbH",
"vista" : true,
"vpn" : true,
"license_management" : true,
"expires" : "never",
"valid" : true,
"multiplex" : true,
"signature" : "THIS-IS-NO-TRUE-SIGNATURE",
"treeview" : true,
"mysql_backend" : true
}
```

3. Upgrade a opsi 3.4 server to opsi 4.0

```
}  
}
```

4. Installation / upgrade of opsi products

One important new feature of opsi 4.0 is a simple tool to update opsi products from a configured repository with the command `opsi-product-updater`. This tool compares the version of the locally installed products with the versions available at the repository in order to upgrade them. It is also possible to install additional products. How the `opsi-product-updater` works is configured at the `/etc/opsi/opsi-product-updater.conf` file. The default repository is `http://download.uib.de/opsi4.0/products` which may be used to install the new essential opsi products.

The opsi-product-update has the following core features:

- **autoInstall:**
Install all available products from the repository.
- **autoUpdate:**
Install available products from the repository only if there is a older version installed on the server yet.
- **autoSetup:**
After Installation of a updated product switch the action request to setup at all clients which have this product installed.

For more details to this function refer to the opsi-manual-v40-en.

You should now download and install the opsi products with the command:

```
opsi-product-updater -i -vv
```

5. And finally.....

5. And finally.....

You should use the new tool `opsi-setup` to set all access rights correctly:

```
opsi-setup --set-rights
```

Note:

According to the size of your installation this command will take a while

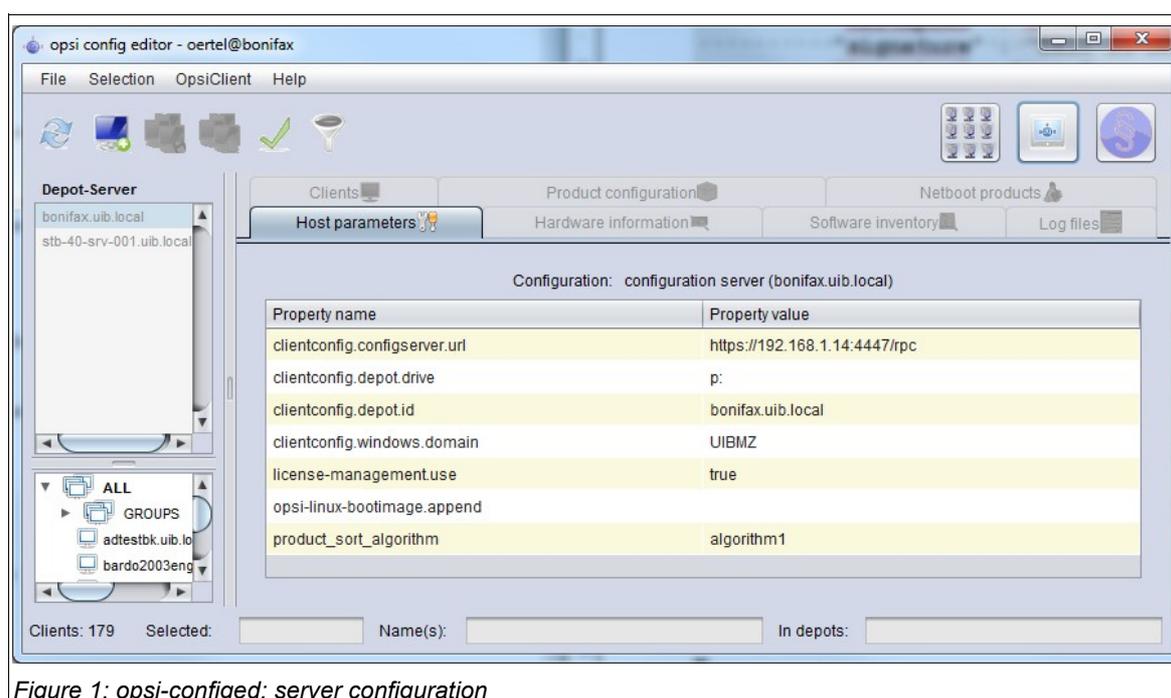


Figure 1: opsi-configed: server configuration

If you are using the opsi license management you have to switch it on for netboot products. You may do this either:

- at the opsi-configed, in the server configuration
- or on the command line with

```
opsi-setup --edit-config-defaults
```

All parts of a opsi release are designed to work together. It is no good idea to try running opsi with packages that are mixed from different releases. So you should make a final check if all your packages (Linux-Packages as well as opsi packages) have at least the release version that was published in the release mail on forum.opsi.org or in the announce mailing list.

5. And finally.....

To avoid running in mixed environments you should rollout the new opsi-client-agent to all your clients soon. If you forget this task, you will perhaps find your self in the situation, that the clients can't connect to the server any more after the next server upgrade.

6. What is new in opsi 4.0

Here are a summary of the new features of opsi 4.0:

- A complete redesigned server library
 - complete new data structures for the backends
 - The mysql backend now supports also configuration data and therefore may be used as central opsi backend.
This results in massive performance enhancements especially for large installations (500 to some thousand clients).
This is a co-funding project (2.000 €)
 - Unicode support in all parts
 - Official support for Python 2.6 based distributions
 - New database oriented (CRUD) web service methods
 - Very detailed configuration of the backends
 - Very detailed configuration of the backend data access rights
 - Product priorities to control the product installation sequence
- Revised opsiconfd
 - Enhanced stability
 - graphical statistic interface
- New and revised opsi-utils
 - General configuration tool opsi-setup for:
 - setting correct file access rights
 - register depot servers
 - initialize and update of any backend
 - configuration of SAMBA and DHCP configuration files
 - Revised tool opsi-newprod

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- Revised tool opsi-makeproductfile
- New tool opsi-product-updater to download and install opsi products from repositories and to synchronize depot servers.
- Revised tool opsi-package-manager
 - Reduced network traffic using the rsync protocol for distributing opsi products to depot servers.
 - Enhanced and more clearly information in multi depot environments
- Enhanced opsi client agent (preloginloader is be replaced by opsi-clientagent)
 - Supports more than one config server for use in high availability architectures and for load balancing. This is a part of a co-funding project (2.000 €)
 - Possibility to send messages to the client (Popups)
 - opsi-winst:
 - Strong performance improvements
 - New commands to support 64 bit architectures
 - New constants %ProgramFiles32Dir%, %ProgramFiles64Dir%, %ProgramFilesSysNativeDir%
 - New parameters /32Bit, /64Bit and /Sysnative for Files and Registry sections
 - Architecture dependent variants of FileExists and GetRegistryStringValue
 - A lot of new and enhanced commands: (GetMSVersionMap, GetFileInfoMap, GetLocaleInfoMap, showBitmap, getListContaining, addtolist, addListToList, takeFirstStringContaining, base64EncodeStr, base64DecodeStr, DecStrToHexStr, HexStrToDecStr)
 - New constants %installingProdName% %installingProdVersion%
 - Logging according opsi standard
 - Enhanced interactive GUI
 - Adapted to opsi 4 method calls

6. What is new in opsi 4.0

- Enhanced software inventory
 - Complete revised data structure
 - 64 bit support
 - Partly also recover license keys
- New netboot products for OS installation
 - create_driver_links now also can detect windows own drivers at Win7/Vista
 - Enhanced driver integration
 - Revised installation scripts
- Enhanced management interface
 - Possibility of hierarchical client groups and group/client display in a treeview
This is a co-funding project (500 €)
 - Graphical redesign
 - Very detailed product state display
 - Display of product priorities and installation sequence
 - Administration of additional client data like inventory number and ip-address
- Opsi is now licensed under the General Public License v3