



Landscape - Automation scripts for the BootCamp - Getting Started - Version 3.1.0

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Publication Date: 2018/04/04

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1 Introduction

TBD



Note

Currently all virtualized systems of a LandscapeUseCase need to be the same type, so have some amount of RAM, disks and get the same installation. If you need several different systems like for the complete NW-HA-CLU 740 Setup you need to define multiple LandscapeUseCases. In our case we need one for the cluster nodes (ASCS + ERS) and one for the DB plus Application servers.

2 Landscape environment and directory structure

For your set-up you need to select your own LandscapeMaster, LandscapeHypervisor, SMT and DNS server. For the sample session LandscapeMaster, LandscapeHypervisor, NFS-Server and DHCP are on the same system. LandscapeMaster and LandscapeHypervisor should be (short) host names. NFS, DNS and SMT server should be configured with the matching IP addresses.

TABLE 1: YOUR VALUES

| Object | Your value | Sample |
|---------------------|--------------------|--------------------|
| LandscapeMaster | | riedberg |
| LandscapeHypervisor | | riedberg |
| NFS-Server | | 192.168.210.1 |
| NFS-Share | /var/lib/Landscape | /var/lib/Landscape |
| NTP | | 192.168.210.1 |
| SMT | | smt-riedberg |
| DHCP | | 192.168.210.1 |
| DNS | | 192.168.210.1 |

2.1 Directory Structure

- `/etc/Landscape.d`: Config files with definitions for the environment and use-cases
- `/usr/share/Landscape`: Contains static files like scripts, templates, files needed by the scripts
- `/usr/share/Landscape/LandscapeCore`: Contains the KVM and auto-YaST templates, the scripts (bin) and the set-up sequence directories (automate-*)
- `/var/lib/Landscape`: Contains the files on the systems to be installed and maintained. This includes SUSE and SAP installation media. This also includes dynamic generated content like KVM and auto-YaST files. Also the post-installation script is been stored in this directory.
- `/data/vm`: Separate directory on each hypervisor
- TODO: `/data`: Some more directories to allow exchange of data between groups (upload) and to share additional stuff via NFS

Let us assume our LandscapeRoot is `/var/lib/Landscape` and LandscapeUseCase is Simple.

2.2 Landscape definition files

- `/etc/sysconfig/Landscape`
 - Defines LandscapeUseCase to Simple
 - Defines LandscapeEnv to Simple
- `/etc/Landscape.d/SetupLandscape.Simple.env`
 - Defines some globals for the environment
- `/etc/Landscape.d/SetupLandscape.Simple.usc`

- Defines UseCase specific key-values

2.3 KVM Templates

- /usr/share/Landscape/LandscapeCore/kvm/

2.4 AutoYaST Templates

- /usr/share/Landscape/LandscapeCore/ay/

2.5 Automation sequences

- /usr/share/Landscape/LandscapeCore/automate-VMs - the scripts in this directory are usefull to create, install and destroy VMs so the help in the lifecycle of VMs. Typicall usefull scripts here are:
 - automate-00-createDisks
 - automate-00-createVMs
 - automate-01-install-sles
 - automate-00-destroyVMs
- /usr/share/Landscape/LandscapeCore/automate-SAPHanaSR - the scripts in this directory are helpful to setup a SAP HANA Scale-Up System Replication Automation (SAPHanaSR)
- /usr/share/Landscape/LandscapeCore/automate-SAPHanaSR-scaleOut - the scripts in this directory are helpful to setup a SAP HANA Scale-Out System Replication Automation (SAPHanaSR-scaleOut)
- /usr/share/Landscape/LandscapeCore/automate-simple-stack - to be used for the simple stack hands-on scenario
- /usr/share/Landscape/LandscapeCore/automate-enqueue-repl - this /would/ be the place to have scripts for our new hands-on - unfortunately currently we do not have ready-to-use automation scripts.



Note

In the past the automation sequences have been started on several systems like either the hypervisor OR a virtual system (target). Currently the package is in rebuild so part by part is been changed, so all automation sequences could (and should) been started on the LandscapeMaster. This means the Landscape packages only needs to be installed on LandscapeMasters. All other systems (hypervisors and target systems) don't need access to the scripts and config files. All data needed for exchange between the Master and the targets are placed on the LandscapeRoot share (`/var/lib/Landscape`).

3 A simple sample session

We need first one LandscapeMaster which could also be a LandscapeHypervisor. You can have multiple LandscapeHypervisors. As external infrastructure you need an SMT server. The SMT server could also be hosted as a VM on one of the LandscapeHypervisors.

3.1 Installing a LandscapeMaster

- The LandscapeMaster must be installed with SLES for SAP 12 SP1 or newer.
- Install `nfs-server`, enable the service and export at least `/var/lib/Landscape`. `/var/lib/Landscape` should only be available for read-access without `root-squash`. Restart the NFS server or re-export the file systems.
- Additional install the package `Landscape` on this system
- The LandscapeMaster needs enough disk space for `/var/lib/Landscape`. The exact amount of space depends on the number of SAP and SUSE media stored on this share to provide them to the target systems.
- The LandscapeMaster could additionally have the role `LandscapeHypervisor`.

3.2 Installing a LandscapeHypervisor

- The LandscapeHypervisor must be installed with SLES for SAP 12 SP1 or newer.
- Install nfs-server, enable the service and export at least /data/Upload. /data/Upload must be available for read-write access without root-squash. Restart the NFS server or re-export the file systems.
- We use KVM as hypervisor technique, so all needed package for the hypervisor need to be installed (qemu-kvm, virt-manager, libvirt*)
- Enable and start the libvirtd service.
- The LandscapeHypervisor needs enough disk space for /data. The exact amount of disk space depends on the number of systems to be hosted, on the configured disk sizes and on the data to be shared for Upload and Download via that area.

3.3 Lets start with Landscape UseCase *Simple*

The UseCase Simple is just to test the Landscape scripts to get started with the package, the scripts and configuration. BTW: Dont mix-up *Simple* and *Simple-Stack*. *Simple* is the UseCase for this tutorial and *Simple-Stack* is a name for a SAP workload in just one cluster resource group per SAP system.

3.3.1 Prerequisites of UseCase *Simple*

- The LandscapeMaster and the LandscapeHypervisor are one system and there is only one LandscapeHypervisor like your laptop
- You have one virtual network named *default* with the following network configuration. Replace 'wlan0' with your preferred network device for the client systems to be forwarded to external networks.

EXAMPLE 1: DEFAULT NETWORK FOR THE SIMPLE SAMPLE SESSION

```
<network>
  <name>default</name>
  <forward dev='wlan0' mode='nat'>
    <nat>
      <port start='1024' end='65535' />
    </nat>
  </forward>
</network>
```

```

    </nat>
    <interface dev='wlan0' />
  </forward>
  <bridge name='virbr0' stp='on' delay='0' />
  <domain name='default' />
  <ip address='192.168.210.1' netmask='255.255.255.0'>
    <dhcp>
      <range start='192.168.210.128' end='192.168.210.254' />
    </dhcp>
  </ip>
</network>

```

- IP forwarding must be activated on the LandscapeHypervisor and the firewall must allow the forwarding
- You need a SMT server, either a VM on your LandscapeHypervisor or an external SMT server
- The SUSE SLES for SAP Applications installation media is available at /var/lib/Landscape.
- The NFS server (here typically the LandscapeMaster) must export /var/lib/Landscape.

3.3.2 Adjust the configuration

Configuration Changes needed for your environment. These changes have to be done on the LandscapeMaster

- Landscape Base Config: Set the variable *LandscapeUseCase=Simple* and *LandscapeEnv=Simple* in file /etc/sysconfig/Landscape

EXAMPLE 2: SETTING THE LANDSCAPEUSECASE AND THE LANDSCAPEENIRONMENT

```

...
#
# use case - either empty or predefined here
# the example points to /etc/Landscape.d/SetupLandscape.Simple.usc
#
LandscapeUseCase=Simple
#
# environment - either empty or predefined here
# the example points to /etc/Landscape.d/SetupLandscape.Simple.env
#
LandscapeEnv=Simple
...

```

- Environment: Set the variables for the environment in file `/etc/Landscape.d/SetupLandscape.Simple.env`

EXAMPLE 3: NETWORK ENVIRONMENT - FOR THE SAMPLE SESSION THOSE VALUES SHOULD MATCH YOUR NEEDS

```
...
LandscapeNetwork="192.168.210.0/24"
#
# LandscapeNFSServer
# Name or IP
#
LandscapeNFSServer="192.168.210.1"
LandscapeGATEWAY="192.168.210.1"
LandscapeNETMASK="255.255.255.0"
LandscapeNETMASK1="255.255.255.0"
```

EXAMPLE 4: SERVER ENVIRONMENT - THESE VALUES NEED TO BE ADAPTED

```
LandscapeNAMESERVER="192.168.210.1"
#
# LandscapeHypervisors
#
LandscapeHypervisors=("riedberg")
#
# SMT server
#
LandscapeSMTServer="smt-riedberg"
LandscapeSMTFingerPrint="6C:83:B5:13:45:66:48:CB:08:D8:3A:92:E2:B5:45:CB:84:F5:9F:FD"
```

EXAMPLE 5: TEMPLATE ENVIRONMENT - THIS SHOULD MATCH YOUR ENVIRONMENT

```
#
# Directories
#
LandscapeAYInDirectory="$LandscapeIn/ay"
LandscapeAYDirectory="$LandscapeRoot/ay"
LandscapeKVMInDirectory="$LandscapeIn/kvm"
LandscapeKVMDirectory="$LandscapeRoot/kvm"
...
```

- Environment: Set the variables for the use case n file `/etc/Landscape.d/SetupLandscape.Simple.usc`

EXAMPLE 6: SLES VERSION TO BE INSTALLED: SET THE LANDSCAPESUSE_MEDIA VARIABLE TO YOUR PREFERRED ISO IMAGE

```
...
```



```
LandscapeSUSE_MEDIA="SLE-12-SP3-SAP-DVD-x86_64-GM-DVD1.iso"
```

```
...
```

3.3.3 Using Landscape

- Creating the VMs and virtual disks

```
cd /usr/share/Landscape/LandscapeCore/automate-VMs
bash automate-00-createVMs --group=1
bash automate-00-createDisks --group=1
```

- Installing SLES for SAP Applications

```
cd /usr/share/Landscape/LandscapeCore/automate-VMs
bash automate-01-install-sles --group=1
```

3.3.4 Post actions

- Login at the VMs (e.g. simple01 and simple02) as user root and password SuSE1234. If the login via ssh directly from riedberg to the VM is not possible, use your vnc session to access the virt-manager on riedberg.
- Check the install / post install actions - login to the VM. One of The last actions during the autoinstallation is that the VM should load some additional helpful files from the Landscape NFS share, registering to the SMT server and to install all already existing updates inside the VM.

```
ssh root@simple01
cat go4Simple.nnnn.err
```

- Optionally: Repair failed post actions. In some cases we have seen timing problems with the NFS mount during initial system startup. This mount problem also causes the post install script to fail, but we can restart this quite easy. And yes - we need to fix that timing issue once we find the root cause ;-).

```
Here is how you could re-run the script which is shipped via the autoyast based
instalaltion:
```

```
mount -a
```

```
bash /var/adm/autoinstall/scripts/go4Simple
```

3.4 Destroying already configured VMs

If you need to reset the VM installations of a complete Landscape or a Landscape group you could use `automate-00-destroy` and `automate-00-createVMs`

```
cd /var/lib/Landscape/LandscapeCore/automate-VMs
./automate-00-destroy --group=1
./automate-00-createVMs --group=1
```

If you really need also to reset the entire disks of a Landscape or Landscape-Group you can call `automate-00-createDisks` with a `--force` flag.

```
cd /var/lib/Landscape/LandscapeCore/automate-VMs
./automate-00-createDisks --group=<be-careful-here> --force
```



Warning

You should really be sure to reset the correct Landscape or Landscape Group otherwise you could force yourself or others to repeat a lot of work ;-) This also means: **Do not use the `--force` flag by default.**

4 What's next?



Note

TBD