

VDCF - Virtual Datacenter Cloud Framework for the Solaris™ Operating System

VDCF Proxy

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1 Introduction

This documentation describes the Proxy features of the Virtual Datacenter Cloud Framework (VDCF) for the Solaris Operating System and explains how to use this features.

See these other documents for further information:

<i>VDCF – Release Notes</i>	for details about the new release
<i>VDCF – Quick Reference</i>	for a short command overview
<i>VDCF – Installation Solaris 11</i>	for VDCF installation on Solaris 11
<i>VDCF – Administration Guide</i>	for information about VDCF usage
<i>VDCF – Resource Management</i>	for information about VDCF Resource Management
<i>VDCF – Monitoring</i>	for information about VDCF Monitoring (HW, Resource, OS)

These and all other VDCF documents can be found at:
<http://www.jomasoft.ch/products/VDCF/docs/>

1.1 Overview

VDCF Proxy is a feature which allows to use VDCF in different networks without setting up more than one VDCF Management Server and opening multiple ports to all VDCF clients on the firewalls. With VDCF Proxies you have just one entry point to and from the additional network.

As per design all OS instances (Console, Node, GDom, vServer) on the same physical node are behind the same proxy. This means the VDCF management Server does use always the same proxy to connect to each of them. This includes the ILOM connection as well. You have to define the proxy only once during discover of the node. All other instances on the same node will inherit this proxy configuration. You can have different networks connected behind the proxy, but OS instances must be able to connect back all to the same IP address which is defined in the proxy configuration file.

1.2 VDCF Proxy

1.2.1 Components

VDCF Proxies are based on Socks (V5) and Apache reverse proxy technology. Basically it does only forward traffic to and from VDCF clients to the management server. This makes the proxy very slim and not resource hungry. If you like you may enable or disable caching in the reverse Proxy. By default IPS repository content is cached.

1.2.2 Requirements

A VDCF Proxy can run on any Solaris 11 System (Global zone or Non-Global Zone).

2 Installation and Configuration

2.1 Installation

2.1.1 Installing VDCF Client Package

A VDCF Proxy requires to have the JSvdcf-client package installed including ssh keys from the VDCF management server:

Use the URL which is configured on the VDCF Management Server:

```
user@VDCF% vdcfadm -c show_config | grep FLASH_WEBSERVER_URL  
FLASH_WEBSERVER_URL http://192.168.0.2:80
```

Setup on the VDCF Proxy:

```
root@proxy: $ mkdir /etc/vdcfbuild  
  
root@proxy: $ export FLASH_WEBSERVER_URL=http://192.168.0.2:80  
  
root@proxy: $ echo "$FLASH_WEBSERVER_URL" >/etc/vdcfbuild/.mngt_url  
  
root@proxy: $ yes | pkgadd -d $FLASH_WEBSERVER_URL/pkg/`uname -p`/JSvdcf-client.pkg all
```

To allow ssh communication between VDCF and the Proxy, the ssh key must be deployed using a VDCF client tool. Execute as root on the Proxy:

```
root@proxy: $ /opt/jomasoft/vdcf/client/sbin/update_key -u $FLASH_WEBSERVER_URL  
Obtaining public key ... done.  
SSH Key updated successfully.
```

2.1.2 Installing Apache Reverse Proxy

```
root@proxy: $ pkg install apache-24
```

2.1.3 Installing Socks Proxy

Install your preferred Socks Proxy Software.

For users of the Dante free SOCKS server 1.4, VDCF includes a tool to generate the required configuration file (Chapter 2.2.3).

The Dante SOCKS server is available from <https://www.inet.no/dante/>

2.2 Configuration

2.2.1 Configure VDCF

To enable Proxy usage in VDCF, you have to create the main configuration file, where you define all proxies available to the management server. Add each proxy on a new line in the proxy.cfg file:

```
user@VDCF: $ vi /var/opt/jomasoft/vdcf/conf/proxy.cfg

# VDCF Proxy Configuration

# ProxyName, SocksIP, WebIP
PROXY1,192.168.20.85,192.168.30.85
```

ProxyName: Defines just a name, which must be given, when using a proxy

SocksIP: IP address to which the VDCF management server connects on the proxy

WebIP: IP address where VDCF clients connect to when communicating back to the management server

To disable proxy functionality, just remove or rename this file.

2.2.2 Configure Apache Reverse Proxy

To configure the Apache reverse proxy, there is a configuration tool:

```
root@proxy:~# /opt/jomasoft/vdcf/client/rexec/setup_proxy

USAGE: cmdUsage [ -hmpcutjien ]
       The following options are supported:

       -h                               issue this message

       -m apache                         setup apache reverse proxy
       [ -p <proxy port> ]               port to use for reverse proxy, default is 8888
       [ -j <jomasoft repo port> ]       port jomasoft repo is listening on, default is 8281
       [ -c <webcache dir> ]             webcache dir: directory to be used for proxy cache files
                                         default is /export/webcache

       -- or --

       -m socks                           setup socks proxy
       -i <int_ip>                       Internal IP (traffic comes in from the VDCF mngt server)
       -e <ext_ip1>,<ext_ip2>,...         List of external IPs (traffic goes out to the VDCF clients)
       [ -n <netmask> ]                   Netmask of mngt IP in CIDR format, default is 24
       [ -p <socks port> ]                 port to use, default is 1080

       -- or --

       -m proxypass                       add/update additional proxypass definition
       -u <uri-string>                     uri to map,                               i.e. /ips-g0076-mngt-8283/
                                         /ips-g0076-mngt-80/s11u2/
       -t <target-url>                     url to forward request to, i.e. http://192.168.20.76:8283
                                         http://192.168.20.76/s11u2
```

To create the initial default configuration execute the following command:

```
root@proxy:~# /opt/jomasoft/vdcf/client/rexec/setup_proxy -m apache
INFO: Testing connection to http://192.168.0.2:80/pkg/admin
INFO: Testing connection to http://192.168.0.2:8281/versions/0/
INFO: Generating Apache config ...
INFO: Testing Apache config ...
INFO: Enabling network/http:apache24 ...
INFO: State of network/http:apache24:
STATE          STIME      FMRI
online         17:33:37  svc:/network/http:apache24
INFO: Apache config finished
```

This command creates two apache config files and enables the apache server:

```
/etc/apache2/2.4/conf.d/vdcf_proxy.conf      base config file (virt. hosts, caching, etc.)
/etc/apache2/2.4/conf.d/vdcf_repo_urls      URL mappings for repositories
```

The default port of the reverse proxy is 8888. You can change it if required. For AI installation we need a second virt. Host with port 5555. That port can't be changed.

As second step, you have to tell the proxy, where the IPS repositories are located. For every IPS repository used to setup systems with VDCF you have to add the mapping to the reverse proxy:

```
root@proxy:~# /opt/jomasoft/vdcf/client/rexec/setup_proxy -m proxypass -u
/ips-g0076-mngt-8282/ -t http://192.168.20.76:8282
INFO: Testing connection to http://192.168.20.76:8282/versions/0/
INFO: Adding proxypass for /ips-g0076-mngt-8282/
INFO: Testing Apache config ...
INFO: Restarting network/http:apache24 ...
INFO: State of network/http:apache24:
STATE          STIME      FMRI
online         17:41:34  svc:/network/http:apache24
INFO: Apache config changed
```

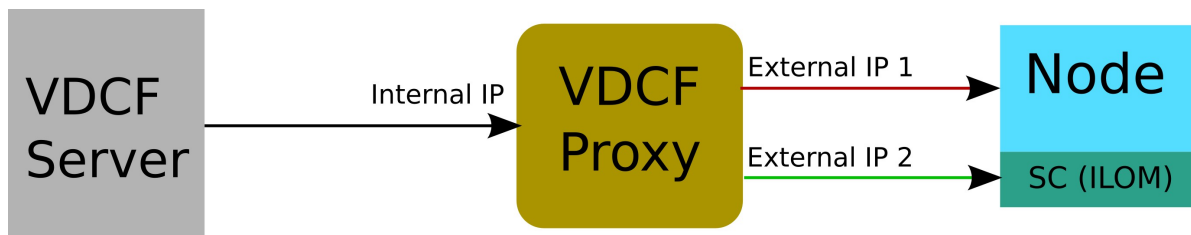
It's important to know, that the URL-Pattern has to be defined using this rule:
/ips-<repo-hostname>-<repo-port>/<repo-uri>

i.e. Repo-Server used in VDCF build: http://g0076-mngt/s11u2
 URL-Pattern to define in Proxy: /ips-g0076-mngt-80/s11u2

2.2.3 Configure Dante SOCKS Server 1.4

If you are using the Dante SOCKS Server Version 1.4, you can use the same configuration tool to configure the socks Proxy. You need to give all incoming (internal) and outgoing (external) IP addresses on the command line.

Define the IP addresses according the overview picture. The internal address is where the VDCF Management Server is connecting the Proxy. External IP addresses are where the traffic is coming out from the VDCF Proxy to the VDCF clients.



This will configure 20.85 as IP for incoming connections from VDCF management server. 20.85 and 30.85 can be used to connect from the Proxy to the VDCF client systems behind the Proxy.

```
root@proxy:~# /opt/jomasoft/vdcf/client/rexec/setup_proxy -m socks -i  
192.168.20.85 -e 192.168.20.85,192.168.30.85  
INFO: Testing connection to http://192.168.0.2:80/pkg/admin  
INFO: Generating Sockd config ...  
INFO: Testing Sockd config ...  
INFO: Socks proxy configured
```


3 Usage

3.1 Node Discover

To define a proxy for a system, you have to give the proxy name from the config file to the discover command:

```
nodecfg -c discover hostname=192.168.20.55 name=server1 proxy=PROXY1
```

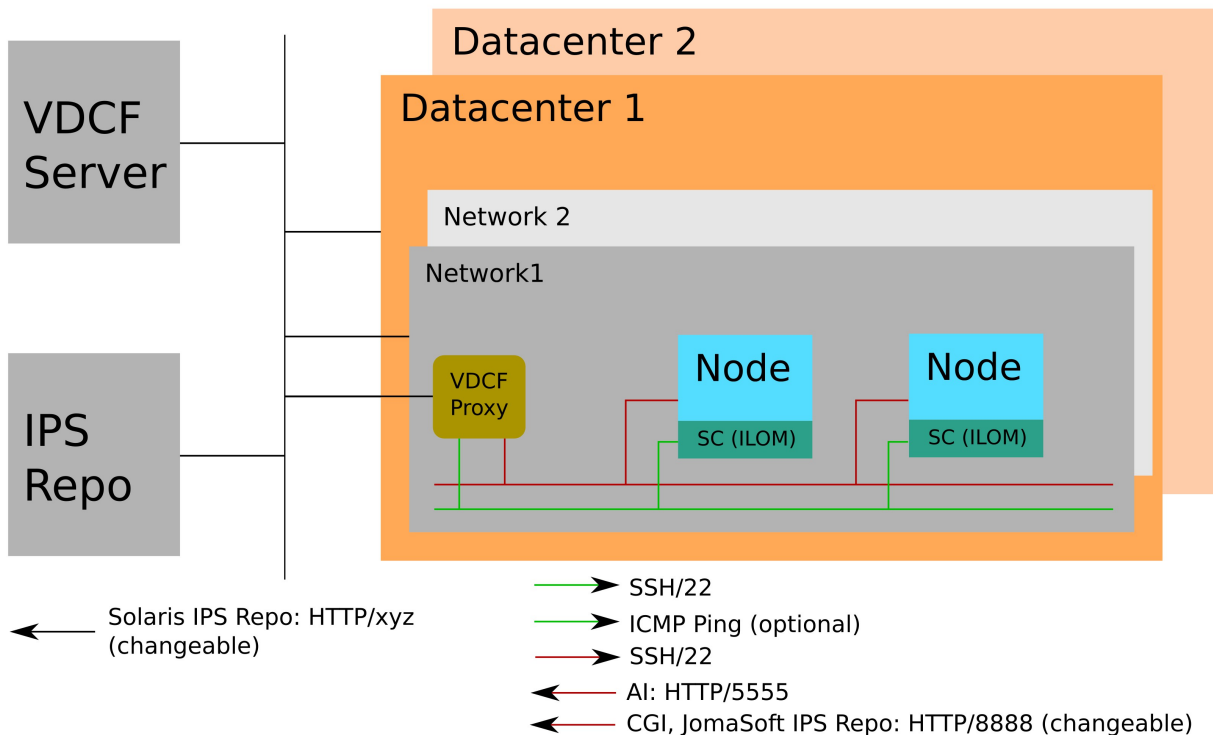
The proxy will be assigned to this node, when adding it to VDCF. Also the console will get the same proxy assigned, when configured for this node. Same applies to all GDoms and vServers, which will be created on this node. They all get the same proxy as the node.

4 Appendixes

4.1 Firewall Rules

In the picture you can see the connections from and to the VDCF Proxy.

- SSH/22
- Socks5/1080
- ← CGI: HTTP/80
- ← AI: HTTP/5555
- ← JomaSoft IPS Repo: HTTP/8281



If your system environment contains firewalls you may have to define firewall rules. These rules are required for a correct execution of VDCF:

a) Firewall rules between Management Server and VDCF Proxy

VDCF Management Server	Direction	VDCF Proxy	Comment
	→	ssh (port 22)	Required for Remote Command Execution
	→	Socks (port 1080)	Single Port for all traffic to the clients behind the proxy
WebServer (port 80)	←		Web server port (can be changed, see VDCF Installation Guide)
JomaSoft IPS repository (port 8281)	←	Solaris 11 only	JomaSoft Repository is only used at installation time.
Solaris AI service (port 5555)	←	Solaris 11 only	Used at installation time



b) Firewall rules between VDCF Clients behind the Proxy and VDCF Proxy

VDCF Proxy	Direction	VDCF Client	Comment
	→	ssh (port 22)	Required for Remote Command Execution
	→	icmp ping	Check for availability (optional)
WebServer (port 5555)	←		Reverse Proxy Port for Mapping to VDCF
IPS repository (port 8888)	←	Solaris 11 only	Reverse Proxy Port for Mapping to IPS

c) Other Firewall rules

IPS repository server	Direction	VDCF Proxy	Comment
Solaris IPS repositories (Repo server port)	←	Solaris 11 only	Solaris Repositories are used for installation and upgrade. You may have multiple repositories on the VDCF management server or on another Solaris system.