



GeNUGate 6.3 Release Notes

Information on the GeNUGate 6.3 product family is available in these release notes.

Please read this document carefully! You are advised to install this upgrade, as this release both resolves various problems, and provides new features.

Important Note!

We strongly recommend performing a configuration or preferably full backup of your GeNUGate system BEFORE upgrading.

Detailed instructions on how to perform this upgrade are available in section 5 of these release notes.

Important - Mirroring:

During the upgrade procedure, systems with mirror disks (offline mirror) will DEACTIVATE mirroring. This enables testing of the upgrade.

The models GeNUGate 400, 600, 800 as well as the older model GeNUGate Enterprise are equipped with mirror disks.

Upgrading of systems with mirroring is performed as follows:

- Upgrade system as described in section 5. The mirror update is automatically deactivated.
- Test: It usually is sufficient to let the upgraded system run under normal conditions for a few days.
- Reactivate mirror: After testing, delete the file `/var/db/.NOMIRROR`. This reactivates the automatic mirror update and synchronizes the mirror at the next cron job run (nightly at 2.30 a.m.).

Important - Upgrade Test in Multi User Mode:

Numerous registry data structures were changed in version 6.3. Chapter 2.4 describes how to run a "Test Upgrade", generate a new registry and check for inconsistencies.

If this test generates error messages, we recommend fixing the inconsistencies **before** the real upgrade.



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1 Scope of Delivery

With the current GeNUGate version 6.3 you have received:

- these release notes
- a bootable GeNUGate CD-ROM
- a compressed PDF version of the manual on the GeNUGate CD-ROM.

2 Before Upgrading

2.1 System

- The upgrade to version 6.3 is supported by any version 6.2 patch level.
- At least 512MB RAM in the ALG, and 128 MB RAM in the PFL system are needed to run version 6.3.
- Sufficient hard drive space is needed on the ALG to perform the upgrade. The procedure to determine hard drive space is described in chapter 5.3.

2.2 Option VPN

The VPN module is not supported in this version. This function will be available again in patch 1. However, VPN support will be deprecated with version 7.0. Affected customers will be notified in a separate communication.

2.3 Central Management by GeNUCenter Not Supported

This version cannot be centrally managed by GeNUCenter. Therefore, GeNUGate systems that already are integrated into central management **may not** be upgraded to this version. Central management will be available in a future patch.

2.4 Test Upgrade in Multi User Mode

A “test upgrade” of the GeNUGate system is recommended to detect and handle problems and inconsistencies. The procedure is as follows:

- In normal multi user mode, insert the CD-ROM in the system’s drive.
- Execute the command `ggupgrade` as the user `root`.

The first thing the test upgrade does is to convert the registry and write the result to the human readable file `/etc/configfw/fw.cfg.pretty-G630_000`.

The running system’s registry itself is **not** modified. Any occurring inconsistency will trigger error messages, and serious problems must be explicitly acknowledged.

Please note the test upgrade cannot diagnose if there is sufficient hard drive space in older hardware.



2 BEFORE UPGRADING

To determine needed space, follow the procedure described in chapter 5.3.

After the registry test conversion, the command `configfw` is executed to check if configuration files are correctly generated from the converted data.

Afterwards, normal systems operation can continue with the original, unconverted configuration, or the actual upgrade can be performed as described in chapter 5.

Please contact your service partner for further support. Detailed information is available in the files `/var/gg/patches/G630_000.upgrade.log` (registry upgrade) and `/var/gg/patches/G630_000.configfw.log`.

2.5 Avira Licenses

Upgrading to version 6.3 also changes the Avira virus scanner engine. You therefore will need a new license key, which can be installed **before** the upgrade. To obtain the license key, send a mail to `auftrag@genua.de` stating the machine ID and that you need an “Avira license key for the GeNUGate 6.3 upgrade”. You will be mailed the new license key.

If you have further questions, please contact your regular support address.

2.6 Assign Interface Names

GeNUGate version 6.2 introduced interface address labels as a configuration field. Per default, a standard label string is generated. During upgrade to version 6.3, these labels are used to generate names for the new rules. We therefore recommend to replace the default “labels” by short self-explanatory names, such as `EXT` oder `INT`.

2.7 IFROUTES in Relay Localfiles

It is possible to make entries in the format `IFROUTES{ADDR}` in the local relay configuration files.

These entries usually are very old, and were previously needed to extend configuration options for transparent relays. They will be included in the conversion process during update, but cannot be associated with specific relays. Instead, they will affect all relays of the same type on the same interface.

Any such entries therefore should be removed and their former functionality configured in the extended access control.

2.8 Clear All Mailqueues

E-mails that were accepted, but not delivered by the GeNUGate system prior to upgrade might be processed incorrectly, as the new policies may need modification to analyze and filter mails as intended. Instead, these mails might be processed and delivered according to default settings. This could lead to not filtering e-mails with forbidden attachments.

To prevent this, be sure to clear the mailqueue before upgrade.

To do so, deactivate all SMTP relays in the GUI. The system now no longer accepts mail. Click the GeNUA logo to check the two mail counters - if both display the value zero, the mailqueue is empty and you can start the upgrade.



3 Software Updates and Changes

3.1 Operating System

- **Included Patches:** GeNUGate 6.3 includes all changes and patches of version 6.2 up to and including patch 9.

3.2 Squid

- **Update to Squid 3.1.0.12:** The Web proxy Squid was updated to the current version 3.1.0.12 which includes support for ICAP (Internet Content Adaption Protocol).

Please refer to

<http://www.squid-cache.org/Versions/v3/3.0/RELEASENOTES.html> and

<http://www.squid-cache.org/Versions/v3/3.1/RELEASENOTES.html>

if you have made any local additions to the Squid configuration in the registry (which may have changed existing keys).

During upgrade, options configured in the registry are modified. These now are located in `global.squid.options`. In addition, this new version of Squid renames the configuration targets `squid2` and `squid2pwd` to `squid` and `squidpwd`.

In case you have customized the Squid error pages using `error_directory`, please note these now are located at

`/usr/local/share/squid/errors/<country code>`, e.g.

`/usr/local/share/squid/errors/en`.

Any localfiles used to customize Squid must be manually modified after the upgrade.

3.3 Option High Availability

- **Network interfaces:** Starting with this version, HA can only be set up if all HA systems within a cluster have the same number of configured network interfaces.
- **HA sync:** After the upgrade, the interface and address mapping needs to be completed so future takeovers will work. This can be configured in the GUI menus `SYSTEM → HA → CONFIGURATION → HA INTERFACES`, and `SYSTEM → HA → CONFIGURATION → HA ADDRESSES`.
Add the admin and OSPF addresses of your systems here. This will complete the HA master configuration (except for the PFL).
- **Node takeover:** Node takeovers are faster in GeNUGate 6.3 and use fewer system resources.

3.4 Option Virus Scanner

- **Native OpenBSD virus scanner:** GeNUGate 6.3 no longer supports Linux binaries. The Linux emulation layer has been completely removed from the system, and all virus scanners switched over to OpenBSD versions. During update, the GeNUGate system settings will be automatically



4 NEW FEATURES IN GENUGATE 6.3

modified accordingly.

Important: After the GeNUGate upgrade, be sure to update the virus scanner patterns with the tool `getpatterns`, or the GUI menu SERVICES → VIRUS SCANNER → UPDATE to install the correct scan engine(s) on your system!

3.5 Other Features

- **UDP relay for PFL syslog messages:** No specific rule is needed to receive these syslog messages, as it already has been automatically configured by the system.
The upgrade will have generated a rule for syslog packets from the PFL to the ALG - this can safely be deleted.
- **Accounting with new limits:** The daily process which collects relay accounting data no longer is permitted to use unlimited system resources. GeNUGate systems running under high loads thus preserve their resources and will be easier to reach.

4 New Features in GeNUGate 6.3

4.1 New Connection Concept

GeNUGate 6.3 re-implements the central functionality of the GeNUGate systems. This is a very important change.

Version 6.3 introduces a structured connection concept following the ISO/OSI layer model affecting the entire technical implementation as well as the configuration of the relays.

Important:

Please note this upgrade changes the entire menu setup and configuration procedure. Previously existing relays will be converted to the new concept - they will look somewhat different, but still work.

To be on the safe side, you must check the relays after the upgrade - very unusual or previously misconfigured relays may need to be modified. We recommend performing the **Test Upgrade in Multi User Mode** as described above!

The new connection concept introduced by GeNUGate 6.3 to replace the old relay setup is described in detail in the GeNUGate manual, chapters “2.4 ALG Connections” (general concept) and “4.4.26” (configuration of connections, rules and services). You must read this!

4.1.1 Relays

The new connection concept and the re-implemented relays for FTP, Telnet, UDP and IP offer extended configuration possibilities for transparent connections.

The FTP relay and Telnet relay no longer fork a new process for every connection. The UDP relay and IP relay were completely redesigned and their performance was significantly improved.



4.1.2 Remote Access

Any remote access configured before the upgrade will be converted to respective rules. These rules will be collected in the rule group “Remote Access”.

To set up remote access after the upgrade, you need to configure a TCP rule with the destination **local-host** and port **22000**. The product manual chapter “4.4.2 Rules” and following describe the procedure to do so.

4.1.3 Debugging

The important technical changes in GeNUGate 6.3 also change debugging procedures. For example, a violation of the **SRCACL** now will be logged to the file `/var/log/kern`, as incoming packets already are checked by the packet filter.

In addition, all relay processes now listen on `127.1.x.x` (the divert address), port 1. Packets reaching the GeNUGate system from the outside now are transmitted to the destination address by the packet filter, and then accepted by the relay for processing.

The files `/etc/pf.conf` and `/etc/relay/xxxrelay.conf` contain comments to assist in associating individual connections with the so-called divert addresses.

4.2 ICAP for Virus Scanners

The virus scanner daemon now supports communication with an external scan server via ICAP (Internet Content Adaption Protocol, RFC 3507). To do so, activate the scanner type `ICAP` in the GUI menu `SYSTEM → VIRUS SCANNER → CONFIGURATION` and configure the ICAP communication parameters there.

4.3 Relays

- **Diode functionality for TCP and UDP policies:** By activating the hidden registry parameter `hidden_oneway`, connection policies can be used as data diodes.
- **Relay Control Daemon (RctID):** The `rctl` tool gives the admin control over all relay types.

4.4 Mail

- **Sender Policy Framework (SPF):** SPF helps prevent counterfeiting an e-mail’s source address on the SMTP level. To do so, a resource record (type `TXT` or `SPF`) is entered in the domain zone file containing information on networks permitted to send e-mail for the respective domain. Further details are available in the product manual, chapter 4.4 “SMTP Policy”.
- **Debugging tools for SPF:** `spflookup` is an important commandline tool to debug problems in accepting and transmitting e-mail while using SPF.
- **TLS:** Transport Layer Security (TLS) is a protocol for Internet communication encryption and mutual identity checks of communication partners. GeNUGate supports TLS for reception of e-mails from other SMTP servers via encrypted connections.



5 UPGRADE INSTALLATION

Configuration details are available in the online help of the GUI policy menus, as well as in the GeNUGate manual, chapter 4.4 “SMTP Policy”.

4.5 Other Features

- **Domain name system security extensions (DNSSEC):** DNSSEC is an extension of the DNS protocol to authenticate DNS replies.
If DNSSEC is activated on the GeNUGate system, SMTPgwd can generate specific bounce mails if recipient authentication fails.

As this is a new technology, usage is not widespread in the Internet and various implementation issues still need to be addressed by DNSSEC. We therefore only provide configuration of this feature via hidden keys. Please contact your support partner for assistance.
- **SNMP support:** GeNUGate can be centrally monitored via SNMP, protocol versions 1 and 2.
Further details are available in the GeNUGate manual, chapter 4.3 “SNMP Configuration”.
- **GeNUGate option “manpages”:** This option encompasses all manpages and command documentation for the operating system OpenBSD, and can be installed after the system upgrade with the GUI menu SYSTEM → SYSADMIN → LICENSES.
- **Logfile conversion tool:** The tool `blgcat` converts binary logfiles to a format readable by syslog.
Enter the command `blgcat -h` for a usage overview.

4.5.1 Registry Changes

The new connection setup of GeNUGate 6.3 causes important changes in the registry. The previous complex tree structure attached to the registry key `if`, describing relay and interface configuration, has been replaced by a redesigned data structure with fewer levels. The previous data structure will be backed up under `if_backup`.

The configuration data of the new connection setup now is stored in the registry key `config`. Please do **not** edit this key with `vicfg`.

5 Upgrade Installation

5.1 Upgrade Path

Beginning from version 6.2, GeNUGate systems can be upgraded to version 6.3.

No specific patch level within version 6.2 is necessary.

5.2 Data Integrity

The upgrade to GeNUGate 6.3 will not affect log files and e-mails in the system spool directory. Nevertheless, please back up your configuration before upgrade with:

```
# cfgbu -s
```



To back up log files and e-mails, a full system backup is necessary, as described in the product manual, chapter “Backup and Restore”.

5.3 Minimum Available Disk Space

Sufficient space in the partitions on the hard drive is needed for a successful upgrade. Above all, the partitions / and /usr need more than 50% available space. Enter the command `df` to determine file system usage:

```
admin@ggd132:~# df -h
Filesystem      Size  Used Avail Capacity  Mounted on
/dev/wd0a       126M  40.8M  78.9M    34%     /
/dev/wd0f       1.5G  113M   1.3G     8%     /cage
mfs:6239        62.9M  2.0K  59.8M    0%     /tmp
/dev/wd0d       502M  238M  239M    50%     /usr
/dev/wd0e       251M  33.5M  205M    14%     /var
```

The column “Capacity” states the used percentage of the respective file system.

5.4 Performing the Upgrade

Please note:

Physical access to the GeNUGate system itself, or to a connected serial console is necessary, as a CD-ROM and possibly a USB stick (or a floppy in older hardware) need to be inserted or switched.

Insert the GeNUGate 6.3 CD-ROM in the drive, log on to the system as the user “admin”, and become “root” with the command `su`.

```
admin@ggd132:~# su -
Password:
Apr 18 08:06:33 ggd132 su: admin to root on /dev/console
root@ggd132:~#
```

Enter the command `ggupgrade` to start the upgrade.

```
root@ggd132:~# /usr/local/gg/sbin/ggupgrade
Executing upgrade script from cdrom.
Starting /cdrom/usr/local/gg/sbin/ggupgrade ...

Before the upgrade starts, the patches for the new release are
transferred. This ensures your GeNUGate system will be running with
the latest patchlevel immediately after upgrade.

Get upgrade patch from cdrom ...
Retrieving G630_000.tar

The patches for the new version can be fetched from GeNUA over the
Internet.

Patches from GeNUA (yes no) [yes]? yes
```



5 UPGRADE INSTALLATION

You can check for published patches before restarting the system by typing **yes**.

At this point, the you will be informed some questions will be asked for the installation. Simply enter [RETURN] here - the upgrade procedure will skip these questions and continue.

Now a registry test upgrade and test run of `configfw` is performed to check for problems during the procedure. If any problems occur, please contact your service partner. Reboot the system now.

```

root@ggd132:~# reboot
Apr 18 08:11:42 ggd132 reboot: rebooted by admin
/etc/rc.shutdown in progress...
IP is OFF
/etc/rc.shutdown complete.
Apr 18 08:11:45 ggd132 syslogd: exiting on signal 15
syncing disks... done
rebooting...

```

Be sure the system boots from the inserted GeNUGate 6.3 CD-ROM by checking for the message **CDBOOT 2.02** in the boot prompt.

```

>> OpenBSD/i386 CDBOOT 2.02
boot>
booting cd0a:bsd.install: 4020108+930528 [52+215856+195731]=0x51d3d8
entry point at 0x200120

[ using 412012 bytes of bsd ELF symbol table ]
Copyright (c) 1982, 1986, 1989, 1991, 1993
    The Regents of the University of California. All rights reserved.
Copyright (c) 1995-2008 OpenBSD. All rights reserved.
http://www.OpenBSD.org

OpenBSD 4.4-stable (ALG.install) #0: Tue Jul 28 18:58:54 CEST 2009
  bluhm@g631.genua.de:/build/gg.63/63.D016/ALG.install
cpu0: Dual Core AMD Opteron(tm) Processor 265 ("AuthenticAMD"
686-class, 1024KB L2 cache) 1.80 GHz
cpu0:
FPU, V86, DE, PSE, TSC, MSR, PAE, MCE, CX8, APIC, SEP, MTRR, PGE, MCA, CMOV, PAT, PSE36, CFLUSH, MMX, FXSR, SSE, SSE2, SSE3
...

```

After loading the kernel, the GeNUGate 6.3 installation routine will prompt you for the installation language and keyboard mapping. Afterwards, please select the installation mode **upgrade**.

```

GeNUGate Installation

Sprache auswaehlen.
Sprache/Language (de en) [de] ? en

Select the layout of the keyboard connected to the GeNUGate.
Keyboard layout (us de de.noad ... pl hu si cf cf.noad) [cf.noad] ?
us
kbd: keyboard mapping set to us

Probing system.

Choose installation, upgrade or recovery from backup.
Mode (install upgrade recover) [upgrade] ? upgrade

```

The hard drives and file systems are checked, mounts performed and the upgrade is started.

```

Mount hard disk.
Select boot hard disk.

```



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```
Detecting hard drives in system.
Boot hard disk selected.
Unmount all partitions.
Read in fstab.

Check file systems.
/dev/rwd0a: file system is clean; not checking
/dev/rwd0f: file system is clean; not checking
/dev/rwd0d: file system is clean; not checking
/dev/rwd0e: file system is clean; not checking

Mount all partitions.

Remove flags.

GeNUGate licenses.

Initialize license.
```

You are prompted for the GeNUGate license number and hardware serial number. The values from GeNUGate 6.2 still are valid. Press **[RETURN]** to accept them.

```
Enter license.
The value to be entered has the format 1234-GG-ABCD-EFGH-IJKL-MNOP.
License [1234-GG-ABCD-EFGH-IJKL-MNOP] ? [RETURN]

Enter serial number.
The value to be entered has the format XXXXX-XX-XXXX.
Serial number [12345-CD-89AB] ? [RETURN]
```

You now can transfer patches from USB stick, an HA peer or over the network.

```
Get patches from USB stick.
Fetch patches from USB medium (yes no) [no] ? [RETURN]

Get patches from HA peer.
Fetch patches from HA network (yes no) [no] ? [RETURN]

Get patches from GeNUA.
Fetch patches from network (yes no) [no] ? [RETURN]
```

Upgrade begins now. The new software is copied to the system and configuration starts.

```
Begin upgrade.

Copy upgrade patch from cdrom.
Retrieving G630_000.tar
...
```

At the end of the upgrade, you are prompted to set new passwords for the administrative accounts “admin” and “root”. Alternatively, keep the existing passwords by pressing **[RETURN]** to select **no**.

```
Set administrator passwords.
Set passwords (yes no) [no] ? no
```

The upgrade is done. Press **[RETURN]** to restart the system and remove the CD-ROM from the drive.

```
Press <Enter> to reboot, remove the cdrom after the 'rebooting...'
message.
Reboot now (reboot) [reboot] ? [RETURN]
```



5 UPGRADE INSTALLATION

The system now starts the new software. After the kernel has been loaded, you are prompted for the “root” password, as a bootinstall script needs to be run to upgrade the PFL (packet filter) system component.

```
I found at least one bootinstall script. You can only run them as root.
So I will ask for the root password now. If you do not know it, enter
an empty string three times, and we will continue with booting without
executing the bootinstall scripts. Enter your root password now.
You have 60 seconds to authenticate!
```

```
Enter root password!
```

```
Password:
```

Select the script with **1** und **[RETURN]**. Start the script by entering **y**.

```
Select a list of bootinstall scripts by entering their numbers or by
entering * to select all.
```

```
=====
1) /var/gg/boot/bootinst.2009.08.10-15.12.02.exe
   Initialize packet filter disk
```

```
Auswahl (1) []: 1
```

```
1) /var/gg/boot/bootinst.2009.08.10-15.12.02.exe
   Initialize packet filter disk
```

```
Is this ok? (y/n) [n]: y
```

Insert the PFL floppy in the ALG drive, or insert the PFL USB stick in an available USB slot of the ALG, and rewrite the PFL medium. Follow the displayed instructions to restart the PFL. After restart, log on to the ALG. A banner will displayed with the new version number.

```
login: admin
```

```
Password:
```

```
Last login: Mon Aug 10 15:05:02 on console
```

```
        Welcome to your GeNUGate Firewall System.
```

```
        This system is running GeNUGate Version 6.3 000 based on OpenBSD 4.4
```

```
admin@ggd132:/var/home/admin$
```

Enter the command `su` to become “root”, and execute the command `configfw`. This is necessary to perform syntax checks of configuration files (the upgrade does not perform these checks):

```
root@ggd132:~# configfw
zone file /cage/ALG_2_INTERN/etc/namedb/gg.de.db: new serial
(2009081061) <= current (2009081061)
zone file /cage/ALG_2_INTERN/etc/namedb/18.172.in-addr.arpa.db: new
serial (2009081061)
<= current (2009081061)
zone file /cage/ALG_2_INTERN/etc/namedb/16.172.in-addr.arpa.db: new
serial (2009081061)
<= current (2009081061)
zone file /cage/ALG_2_INTERN/etc/namedb/19.172.in-addr.arpa.db: new
serial (2009081061)
<= current (2009081061)
zone file /cage/ALG_1_EXTERN/etc/namedb/gg.de.db: new serial
(2009081061)
```



```
<= current (2009081061)
zone file /cage/ALG_1_EXTERN/etc/namedb/16.172.in-addr.arpa.db: new
serial (2009081061)
<= current (2009081061)
SYSLOG: Aug 10 15:19:17 configfw[14384]: I5200 1249910357 SubSystem:
Installiere /etc/licenses
SYSLOG: Aug 10 15:19:17 configfw[14384]: I5200 1249910357 SubSystem:
Kommando:
/usr/local/gg/sbin/licctl -M read -M store
SYSLOG: Aug 10 15:19:18 configfw[14384]: I5200 1249910358 SubSystem:
Kommando:
/usr/local/gg/sbin/cage_setup -C /cage/LOOPBACK
SYSLOG: Aug 10 15:19:19 configfw[14384]: I5200 1249910359 SubSystem:
Kommando:
/usr/local/gg/sbin/cage_setup -C /cage/ALG_1_EXTERN
SYSLOG: Aug 10 15:19:20 configfw[14384]: I5200 1249910360 SubSystem:
Kommando:
/usr/local/gg/sbin/cage_setup -C /cage/ALG_2_INTERN
SYSLOG: Aug 10 15:19:21 configfw[14384]: I5200 1249910361 SubSystem:
Kommando:
/usr/local/gg/sbin/cage_setup -C /cage/ALG_3_ADMIN
SYSLOG: Aug 10 15:19:22 configfw[14384]: I5200 1249910362 SubSystem:
Kommando:
ln -sf /usr/share/zoneinfo/CET /etc/localtime
SYSLOG: Aug 10 15:19:22 configfw[14384]: I5200 1249910362 SubSystem:
Kommando:
/sbin/pfctl -f /etc/pf.conf
...
```

To check if all files were correctly installed, run `filecop`:

```
root@ggdl32:~# filecop
filecop: Phase 1 - comparing database(es) with filesystem
filecop: Phase 2 - comparing filesystem with database(es)
```

If the option GeNUScan is installed on your system, be sure to update the virus scanner! As **root**, execute the command `getpatterns`:

```
root@ggdl32:~# getpatterns
...
```

Enjoy your new GeNUGate system!

6 Information in the Web

These release notes also are available on our Web server in the “Customer Service” area:
<http://www.genua.de/customer/index.en.html> ,
“Internal Customers Area”.

7 How to Contact Us

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7 HOW TO CONTACT US

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