CYBERNETICA

X-road migration manual to Ubuntu 14.04 LTS (security server & monitoring station)

Manual

Redaction: 0.5

04.03.2015

9 **pages**

Date	No.	Description	Author
20.02.2015	0.1	First version.	Kristo Heero
23.02.2015	0.2	Different supplements and specifications.	Kristo Heero, Tarmo Oja
02.03.2015	0.3	The latest request log files are archived in the observation station as well.	Kristo Heero
02.03.2015	0.4	Fixed spelling in a command.	Kristo Heero
04.03.2015	0.5	The command to update packages: apt-get dist-upgrade.	Kristo Heero

Contents

1   Introduction

Up to the X-road version 5.41, the security server (SS) and the observation station (OS) operated on the operating system Linux Ubuntu Server 10.04 LTS (Long-Term Support). Since the X-road version 5.42, security server and observation station operate on the newer Ubuntu version 14.04 LTS. Only the 64-bit platform is supported.

Ubuntu does not enable direct transfer from version 10.04 to version 14.04. In order to do that, Ubuntu should be first updated to the interim version and only then to the desired version. This kind of updating is obviously a fragile procedure and might bring about unwanted results. Therefore, in order to transfer the security server and observation station to a newer operating system, we recommend installing the entirely new Ubuntu 14.04 LTS operating system.

The security server and observation station can be updated to a newer operating system independent of each other.

The current document gives detailed instructions on how to transfer the existing security server and observation station to a newer version of Ubuntu, replacing the old server with the new one without changing IP-addresses.

1.1   Necessity of the new hardware

If the server, which needs to be updated, works on a 32-bit platform, it is definitely required to obtain a 64-bit server.

If the server downtime is of crucial importance, it is recommended to install the new Ubuntu server parallel to new hardware or use a new virtual server, so that later transfer procedures would take significantly less time.

In case of the security server, minimal memory demand (RAM) has been raised to 2 GB (a security server operating on small loads could possibly operate with the current 1 GB).

2 Transferring SS to a newer Ubuntu

2.1 Important data in SS

The security server contains the following important data:

1   security server's configuration,

1) request logs,

2) audit logs.

2.2 Preparing the old SS for transfer

1   Make sure that the server has installed the latest version of X-road software 5.41 in this distribution. In the command line terminal:

```
dpkg -l xtee-proxy
```

If the software version is older, update it. In the command line terminal:

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

1. Back up the security server's configuration (advisably 2 copies on separate data media). In the user interface:

```
System -> Backup configuration
```

2. Set the interval for sending log hash to the central server to 60 seconds. In the user interface:

```
Configuration -> Time-outs and logging
```

That will ensure a shorter queue time for sending the last intermediated request log record to the central server. Sending the log record to the central server ensures the possibility for subsequent request establishment until the latest intermediated request, inclusively.

(An alternative, but a more troublesome option would be to copy the old security server's /usr/xtee/var/log/sslog file into the new security server before the request intermediation is started in the new security server. While copying the file, the service xtee-sslogd must be stopped in the new security server and the existing sslog* files must be deleted. The new file must also be appropriately privileged (user ui, group xroad and rw permissions to the owner).

3. If archiving the request logs is not set to automatically archive, it is reasonable to previously archive the request logs. That will ensure shorter downtime later on, because only the request logs intermediated after the last archiving must then be archived. In the user interface:

```
System -> Archive request logs
```

2.3   Suspending the old SS

1   Forbid access to request mediation (network connection from the security server must be preserved). For that, it is necessary to make the CGI-program `consumer_proxy` inaccessible to information systems and stop the intermediary service `xtee-producerproxy`, so that other security servers would not be able to communicate with that server anymore.

Insert comment on the web-server configuration file `/etc/apache2/sites-available/xtee.conf` regarding the interface for listening to SOAP-field requests (for example):

```
# Listen for SOAP connections
# Listen 192.168.4.46:80
<VirtualHost 192.168.4.46:80>
```

and reload the web-server configuration. In the command line terminal:

```
sudo /etc/init.d/apache2 reload
```

NB! The web-server configuration is generated by the SS interface. Therefore, do not initiate actions in the interface, which would cause overwriting the manually changed web server configuration.

Alternatively, the port accepting requests could be prohibited by other means as well (firewall, load hub, ipchain, etc.).

Stop the request mediation service. In the command line terminal:

```
sudo service xtee-producerproxy stop
```

4.   For the security server attending the information system, check the status of asynchronous message mediation, to confirm, whether some requests are left without mediation or some could still be mediated.

```
System -> Asynchronous messages
System -> Log for Asynchronous messages
```

If there are requests in the list, which cannot be mediated by the security server, stop the asynchronous mediation service. In the command line terminal:

```
sudo service xtee-asyncmanager stop
```

Messages not mediated will not be transferred to the new system.

5.   Make sure that the last request log entry is sent to the central server. In the command line terminal:

```
tail -f /usr/xtee/var/log/sslog
```

The last entry must begin with the symbol "!", which means that the entry has been sent to the central server. For example:

```
# ME8wCwYJYIZIAWUDBAIDBEBEAmPCkDiYRSvvRHG9UZwG48c/mS2q0IGnodke
h41onvvY157H1W0GhnOaUKm2nT5FMxO7lmVfG1gNLlTI3Ofd - -
. ME8wCwYJYIZIAWUDBAIDBESx... MIIGSzBCMB8wBwYFKw4DAhoEFSerstF... 1424153444
. ME8wCwYJYIZIAWUDBAIDBECd... MIIGSzBCMB8wBwYFKw4DAhoEFPuGGZP... 1424156344
! ME8wCwYJYIZIAWUDBAIDBEAs... MIIGSzBCMB8wBwYFKw4DAhoEFGcaRnE... 1424156523
```

Each request log file begins with a special entry beginning with the symbol "#". The request log entry, which is not sent to the central server, begins with the symbol ".".

If the last entry begins with the symbol ".", wait (previously, the period for sending configured log entries was set to 60 seconds) until it reaches the central server and then check the last entry of the file again.

It may happen that there are no log entries after the one beginning with the symbol "#", because after rotating the log file, the security server has not intermediated any requests. In that case, observe the previous (rotated) file `/usr/xtee/var/log/sslog.0.`

6. Archive the request logs. In the user interface:

```
System -> Archive request logs
```

If it is not desirable to archive the request logs over the HTTP(S) and the old security server is not reinstalled, the request logs can be archived later in the offline mode in order to reduce downtime.

7. Archive the audit log. In the user interface:

```
System -> Archive audit log
```

If the security server is not reinstalled, the audit logs can be archived later in offline mode in order to reduce downtime.

8. Stop the old security server.

9. Replace the old security server with the new one, which has previously completed the steps described in clause Error: Reference source not found, or, in case the old security server has been reinstalled, complete the actions described in the abovementioned clause.

2.4   Preparing the new SS

1   Install the operating system Ubuntu 14.04 LTS in the security server on the same IP-addresses, which are used by the old security server. NB! Possible IP-address conflicts!

10. Install all the security updates on the server from the Ubuntu repository.

11. Install the X-road security server software to the server according to the security server installation guide [Error: Reference source not found].

12. Restore the security server configuration from the previously created backup copy.

3   Transferring OS to the new Ubuntu

3.1   Important data in OS

The observation station contains the following important data:

1   observation station configuration,

3) request logs.

3.2   Preparing the old OS for transfer

1   Make sure that the server has installed the latest version of X-road software 5.41 in this distribution. In the command line terminal:

```
dpkg -l xtee-monitor
```

If the software version is older, update it. In the command line terminal:

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

13. Back up the observation station's configuration (advisably 2 copies on separate data media). In the user interface:

```
System -> Backup configuration...
```

14. Archive the request logs. First, stop the service for accepting monitoring data. In the command line terminal:

```
sudo service xtee-datareceiver stop
```

In order to archive the last written request log file via the user interface, create a new fictitious last request log file. In the command line terminal:

```
sudo su ui -c "printf queries.%X `date +%s` | xargs touch"
```

Now, archive the request log files. In the command line terminal:

```
System -> Archive request logs...
```

If it is not intended to reinstall the server, the request log can be archived after the old observation station is disconnected from the network.

3.3   Decommissioning the old OS

1   Stop the old observation station.

15. Replace the old observation station with the new one, which has completed the steps described in clause 3.4, or in case the old observation station is reinstalled, complete the actions described in the abovementioned clause.

3.4   Preparing the new OS

1. Install the operating system Ubuntu 14.04 LTS in the observation station on the same IP-addresses, which the old observation station uses. NB! Option of IP-address conflicts!

2. Install all the security updates on the server from the Ubuntu repository.

3. Install the X-road security server software to the server according to the observation station installation guide [Error: Reference source not found].

4. Restore the observation station's configuration from the previously created backup copy.