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*Secure real-time audio/video communication – H.350, Encryption & Gatekeeper/Proxy – using H.323 (...and a bit SIP)*

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Tutorial/workshop session  
- Installation/Setup of GnuGK -

**19<sup>th</sup> APAN Meeting  
Bangkok, Thailand  
January 2005**

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# Outline

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- Hardware requirements
- Software requirements
  - Download the software
  - Compilation of
    - pwlib
    - openh323
    - gnugk
  - Config file
- Test

The setup/installation instruction is based on a self-compiled version of GnuGK running on Linux

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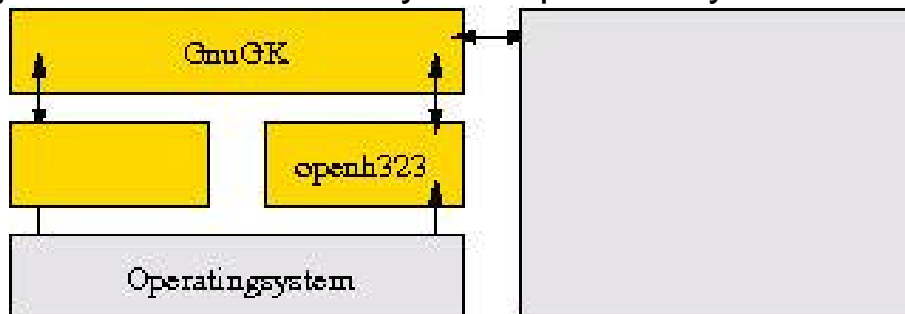
# *Installation/Setup*

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- Hardware requirements
  - A reasonable new computer, running Linux
    - A 1.6GHz Pentium III was enough to run the service for more than two years
    - A standard PC for US\$1000 should do the job

# Installation/Setup

- Software requirements
  - Please download the following files at <http://addlinkhere> (store them in the /tmp directory)
    - pwlib-Pandora\_release-src-tar.gz
    - openh323-Pandora\_release-src-tar.gz
    - gnugk-2.0.8.tar.gz
    - apan-sample-config.conf
    - ldaplink.cxx (This file is necessary in order to compile GnuGK properly)
  - Library concept
    - just interested in the 'yellow' part today



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# *Installation/Setup*

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- Export some path variables and add them to root's ~/.bashrc file

```
kewin@apan:/tmp$ export PWLIBDIR=/usr/local/lib/pwlib
```

```
kewin@apan:/tmp$ export OPENH323DIR=/usr/local/lib/openh323
```

```
kewin@apan:/tmp$ export LD_LIBRARY_PATH=$PWLIBDIR/lib:$OPENH323DIR/lib
```

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# *Installation/Setup*

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- **Compiling pwlib**

```
kewin@apan:/tmp$ gzip -d pwlib-Pandora_release-tar.gz
kewin@apan:/tmp$ tar -xvf pwlib-Pandora_release-tar
kewin@apan:/tmp$ mkdir /usr/local/lib/pwlib_pandora/
kewin@apan:/tmp$ mv pwlib/* /usr/local/lib/pwlib_pandora
kewin@apan:/tmp$ cd /usr/local/lib/pwlib_pandora
kewin@apan:pwlib_pandora$ ./configure --disable-sasl
kewin@apan:pwlib_pandora$ make
kewin@apan:pwlib_pandora$ ln -sf /usr/local/lib/pwlib_pandora
    /usr/local/lib/pwlib
```

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# *Installation/Setup*

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- **Compiling openh323**

```
kewin@apan:/tmp$ gzip -d openh323-Pandora_release-tar.gz
kewin@apan:/tmp$ tar -xvf openh323-Pandora_release-tar
kewin@apan:/tmp$ mkdir /usr/local/lib/openh323_pandora/
kewin@apan:/tmp$ mv openh323/* /usr/local/lib/openh323_pandora
kewin@apan:/tmp$ cd /usr/local/lib/openh323_pandora
kewin@apan:pwlib_pandora$ ./configure
kewin@apan:pwlib_pandora$ make
kewin@apan:pwlib_pandora$ ln -sf /usr/local/lib/openh323_pandora
    /usr/local/lib/openh323
```

**Compiling the openh323 library takes a bit.**

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# *Installation/Setup*

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- **Compiling GnuGK**

```
kewin@apan:/tmp$ gzip -d gnugk-2.0.8.tar.gz
```

```
kewin@apan:/tmp$ tar -xvf gnugk-2.0.8.tar
```

```
kewin@apan:/tmp$ mkdir /opt/gnugk-2.0.8
```

```
kewin@apan:/tmp$ mvopenh323gk/* /opt/gnugk-2.0.8
```

```
kewin@apan:/tmp$ mv ldaplink.cxx /opt/gnugk-2.0.8
```

```
kewin@apan:/tmp$ cd /opt/gnugk-2.0.8
```

```
kewin@apan:pwlib_pandora$ NO_MYSQL=1 NO_PGSQL=1 NO_RADIUS=1
```

```
HAS_ACCT=1 HAS_LDAP=1 LARGE_FDSET=16384 make both
```

```
kewin@apan:pwlib_pandora$ mkdir log
```

```
kewin@apan:pwlib_pandora$ mkdir config
```

```
kewin@apan:pwlib_pandora$ cp /tmp/apan-sample-gk.conf ./config/
```

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# *Installation/Setup*

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- The config file: `apan-sample-gk.conf`
  - The config file is separated into 7 sections
    - Global settings
      - In here global Gatekeeper settings are specified, e.g. the IP address, the TTL of the registration of an endpoint, Bandwidth management, etc.
    - Routing and proxy settings
      - In this section it is specified, whether GnuGK should work with or without the proxy. Other settings like support for NATed endpoints is set in here as well
    - Gatekeeper monitoring
      - Specify clients who are allowed to monitor the gatekeeper
    - Client authentication
      - In this section specific settings for the client authentication is set; e.g. which authentication method should be used (in our case LDAP for H.350)

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# *Installation/Setup*

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- The config file: `apan-sample-gk.conf`
  - Section 5-7
    - Neighboring
      - Specify all neighbor gatekeepers in here (if your system should be on GDS, then just specify the country Gatekeeper in here)
    - “some extra stuff”
      - Set any other options who won’t fit in one of the other areas in here, e.g. special LRQ features, etc.
    - Accounting
      - Even though you may don’t account, it is useful for some statistical data, as well as for some debugging purposes

The sample config file `apan-sample-gk.conf` can be downloaded from the conference webpage.

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# *Installation/Setup*

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- The config file: `apan-sample-gk.conf`
  - Please adjust the values in the config file, such as IP address of the Gatekeeper, the IP addresses of the neighbor Gatekeepers, and so forth
    - Used IP address range: 202.28.194.0 – 202.28.195.255

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# Installation/Setup

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- Starting GnuGK

```
kewin@apan:/$ /opt/gnugk-2.0.8/obj_linux_x86_r/gnugk -c
/opt/gnugk-2.0.8/config/apan-sample-gk.conf -o
/opt/gnugk-2.0.8/log/tty.log -ttt &
```

– If the start was successful, you should see something similar to:

```
OpenH323 Gatekeeper - The GNU Gatekeeper with ID 'OpenH323GK' started on 0.0.0.0
Gatekeeper(GNU) Version(2.0.8) Ext(pthread=1,acct=1,radius=0,mysql=0,pgsql=0,ldap=1,
large_fdset=16384) Build(Jan  6 2005, 06:30:27) Sys(Linux i686 2.4.21-243-default)
```

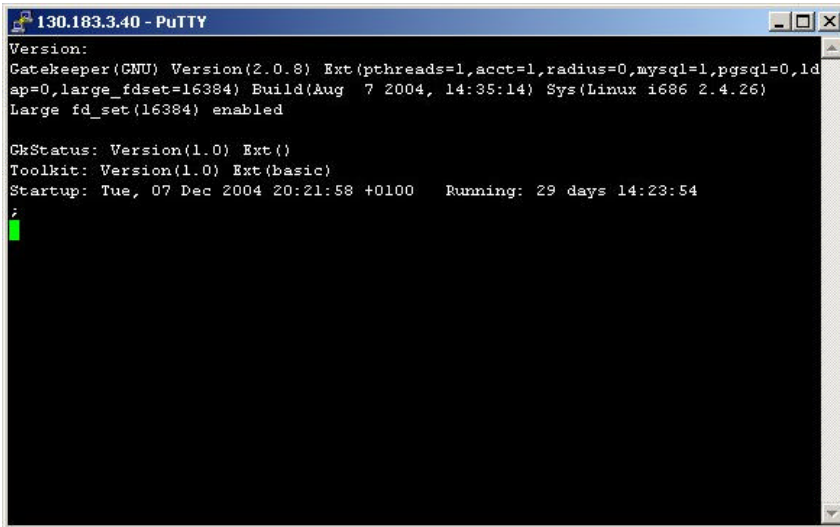
```
Default IP = 130.183.2.48
```

```
This program is free software. You can redistribute it and/or
modify it under the terms of the GNU General Public License
as published by the Free Software Foundation, either version 2
of the License, or (at your option) any later version.
```

```
Disable Bandwidth Management
```

# Installation/Setup

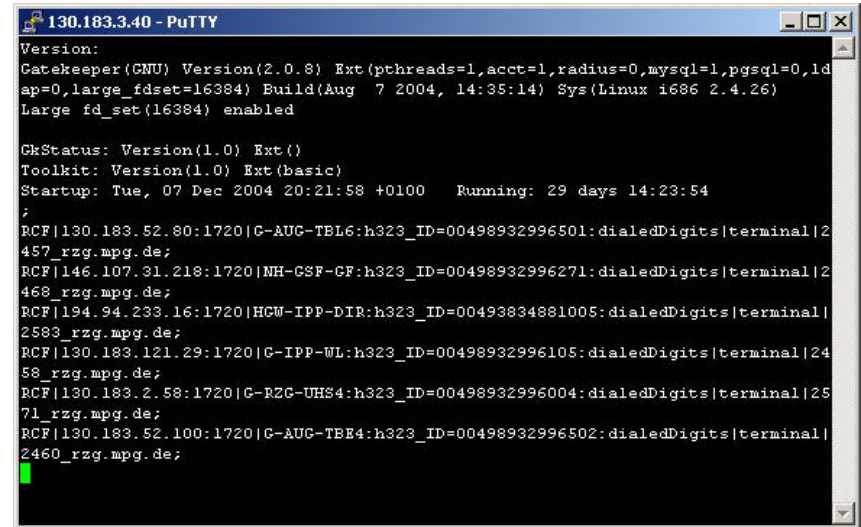
- After the first start
  - Open a telnet session to <ip of gatekeeper>:7000



```
130.183.3.40 - PuTTY
Version:
Gatekeeper(GNU) Version(2.0.8) Ext(pthread=1,acct=1,radius=0,mysql=1,pgsql=0,ld
ap=0,large_fdset=16384) Build(Aug 7 2004, 14:35:14) Sys(Linux i686 2.4.26)
Large fd_set(16384) enabled

GkStatus: Version(1.0) Ext()
Toolkit: Version(1.0) Ext(basic)
Startup: Tue, 07 Dec 2004 20:21:58 +0100   Running: 29 days 14:23:54
;
```

Plain monitor window



```
130.183.3.40 - PuTTY
Version:
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ap=0,large_fdset=16384) Build(Aug 7 2004, 14:35:14) Sys(Linux i686 2.4.26)
Large fd_set(16384) enabled

GkStatus: Version(1.0) Ext()
Toolkit: Version(1.0) Ext(basic)
Startup: Tue, 07 Dec 2004 20:21:58 +0100   Running: 29 days 14:23:54
;
RCF|130.183.52.80:1720|C-AUG-TBL6:h323_ID=00498932996501:dialedDigits|terminal|2
457_rzg.mpg.de;
RCF|146.107.31.218:1720|NH-CSF-GF:h323_ID=00498932996271:dialedDigits|terminal|2
468_rzg.mpg.de;
RCF|194.94.233.16:1720|HCW-IPP-DIR:h323_ID=00493834881005:dialedDigits|terminal|
2583_rzg.mpg.de;
RCF|130.183.121.29:1720|C-IPP-WL:h323_ID=00498932996105:dialedDigits|terminal|24
58_rzg.mpg.de;
RCF|130.183.2.58:1720|C-RZG-UHS4:h323_ID=00498932996004:dialedDigits|terminal|25
71_rzg.mpg.de;
RCF|130.183.52.100:1720|C-AUG-TBB4:h323_ID=00498932996502:dialedDigits|terminal|
2460_rzg.mpg.de;
```

Monitor window incl. RCFs  
(Registration confirms)

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# *Installation/Setup*

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- Test
  - Try to call each other using the following numbers:
    - APAN-GK1: 1 x (x for the number of the system)
    - APAN-GK2: 2 x (x for the number of the system)
    - ...