

Testing report Release 4.0.13-0

Installation & Configuration

Following the above instruction, you can found:

- installation log SL6 here
- configuration log SL6 here

RPM checks

The rpms installed:

```
[root@cert-43 ~]# rpm -qa | grep dgas | sort
glite-dgas-common-4.0.13-0.centos6.x86_64
glite-dgas-hlr-clients-4.0.13-0.centos6.x86_64
glite-dgas-hlr-service-4.0.13-3.centos6.x86_64
glite-dgas-hlr-service-consumers-4.0.13-2.centos6.x86_64
yaim-dgas-5.0.0-4.noarch
```

Check the rpm installed put the executable, libraries and configuration file in the right palce:

```
[root@cert-43 ~]# rpm -qil glite-dgas-common-4.0.13-0.centos6.x86_64
Name           : glite-dgas-common           Relocations: (not relocatable)
Version        : 4.0.13                 Vendor: (none)
Release        : 0.centos6             Build Date: Thu 11 Oct 2012 10:44:50 AM CEST
Install Date:  Mon 22 Oct 2012 02:55:16 PM CEST   Build Host: dgas-dev-27.to.infn.it
Group          : System Environment/Libraries   Source RPM: glite-dgas-common-4.0.13-0.centos6.src.rpm
Size           : 1505950                 License: Apache Software License
Signature      : (none)
Packager       : ETICS
Summary        : Common set of utility libraries needed by all DGAS modules
Description    :
Common set of utility libraries needed by all DGAS modules
/usr/include/glite
/usr/include/glite/dgas
/usr/include/glite/dgas/tls
/usr/include/glite/dgas/tls/socket++
/usr/include/glite/dgas/tls/socket++/errors.h
/usr/include/glite/dgas/tls/socket++/tokens.h
/usr/lib64/libglite_dgas_config.a
/usr/lib64/libglite_dgas_config.so
/usr/lib64/libglite_dgas_config.so.0
/usr/lib64/libglite_dgas_config.so.0.0.0
/usr/lib64/libglite_dgas_localSecurity.a
/usr/lib64/libglite_dgas_localSecurity.so
/usr/lib64/libglite_dgas_localSecurity.so.0
/usr/lib64/libglite_dgas_localSecurity.so.0.0.0
/usr/lib64/libglite_dgas_lock.a
/usr/lib64/libglite_dgas_lock.so
/usr/lib64/libglite_dgas_lock.so.0
/usr/lib64/libglite_dgas_lock.so.0.0.0
/usr/lib64/libglite_dgas_log.a
/usr/lib64/libglite_dgas_log.so
/usr/lib64/libglite_dgas_log.so.0
/usr/lib64/libglite_dgas_log.so.0.0.0
/usr/lib64/libglite_dgas_tls_gsisocket_pp.a
/usr/lib64/libglite_dgas_tls_gsisocket_pp.so
/usr/lib64/libglite_dgas_tls_gsisocket_pp.so.0
/usr/lib64/libglite_dgas_tls_gsisocket_pp.so.0.0.0
/usr/lib64/libglite_dgas_tls_socket_pp.a
/usr/lib64/libglite_dgas_tls_socket_pp.so
```

Release40130_SL6 < IGIRelease < TWiki

```
/usr/lib64/libglite_dgas_tls_socket_pp.so.0
/usr/lib64/libglite_dgas_tls_socket_pp.so.0.0.0
/usr/lib64/libglite_dgas_xmlutil.a
/usr/lib64/libglite_dgas_xmlutil.so
/usr/lib64/libglite_dgas_xmlutil.so.0
/usr/lib64/libglite_dgas_xmlutil.so.0.0.0
```

```
[root@cert-43 ~]# rpm -qil glite-dgas-hlr-clients-4.0.13-0.centos6.x86_64
```

```
Name      : glite-dgas-hlr-clients      Relocations: (not relocatable)
Version   : 4.0.13                    Vendor: (none)
Release   : 0.centos6                Build Date: Thu 11 Oct 2012 10:45:15 AM CEST
Install Date: Mon 22 Oct 2012 02:55:44 PM CEST    Build Host: dgas-dev-27.to.infn.it
Group     : System Environment/Libraries  Source RPM: glite-dgas-hlr-clients-4.0.13-0.centos6.
Size      : 422626                    License: Apache Software License
Signature : (none)
Packager  : ETICS
Summary   : Emi.dgas.hlr-clients
Description :
emi.dgas.hlr-clients
/usr/bin/dgas-hlr-query
/usr/bin/dgas-ping
/usr/lib64/libglite_dgas_pingClient.a
/usr/lib64/libglite_dgas_pingClient.so
/usr/lib64/libglite_dgas_pingClient.so.0
/usr/lib64/libglite_dgas_pingClient.so.0.0.0
/usr/share/man/man1/dgas-hlr-query.1.gz
/usr/share/man/man1/dgas-ping.1.gz
```

```
[root@cert-43 ~]# rpm -qil glite-dgas-hlr-service-4.0.13-3.centos6.x86_64
```

```
Name      : glite-dgas-hlr-service    Relocations: (not relocatable)
Version   : 4.0.13                    Vendor: (none)
Release   : 3.centos6                Build Date: Thu 11 Oct 2012 10:44:16 AM CEST
Install Date: Mon 22 Oct 2012 02:56:16 PM CEST    Build Host: dgas-dev-27.to.infn.it
Group     : System Environment/Libraries  Source RPM: glite-dgas-hlr-service-4.0.13-3.centos6.
Size      : 7116837                  License: Apache Software License
Signature : (none)
Packager  : ETICS
Summary   : The module containing the server backend for te Distributed Grid Accounting System
Description :
emi.dgas.hlr-service
/etc/dgas
/etc/dgas/dgas_hlr.conf.template
/etc/dgas/dgas_hlr.sql
/etc/dgas/dgas_hlr_tmp.sql
/etc/dgas/dgas_sumrecords2goc.conf.template
/etc/dgas/glite-dgas-sumrecords2goc-SumCPU.sql
/usr/lib64/libdgasAtmResourceEngine.a
/usr/lib64/libdgasAtmResourceEngine.so
/usr/lib64/libdgasAtmResourceEngine.so.0
/usr/lib64/libdgasAtmResourceEngine.so.0.0.0
/usr/lib64/libdgasAtmResourceEngine2.a
/usr/lib64/libdgasAtmResourceEngine2.so
/usr/lib64/libdgasAtmResourceEngine2.so.0
/usr/lib64/libdgasAtmResourceEngine2.so.0.0.0
/usr/lib64/libdgasEngineCmnUtl.a
/usr/lib64/libdgasEngineCmnUtl.so
/usr/lib64/libdgasEngineCmnUtl.so.0
/usr/lib64/libdgasEngineCmnUtl.so.0.0.0
/usr/lib64/libglite_dgas_atmResBankClient.a
/usr/lib64/libglite_dgas_atmResBankClient.so
/usr/lib64/libglite_dgas_atmResBankClient.so.0
/usr/lib64/libglite_dgas_atmResBankClient.so.0.0.0
/usr/lib64/libglite_dgas_atmResBankClient2.a
/usr/lib64/libglite_dgas_atmResBankClient2.so
/usr/lib64/libglite_dgas_atmResBankClient2.so.0
```

```

/usr/lib64/libglite_dgas_atmResBankClient2.so.0.0.0
/usr/lib64/libglite_dgas_dbhelper.a
/usr/lib64/libglite_dgas_dbhelper.so
/usr/lib64/libglite_dgas_dbhelper.so.0
/usr/lib64/libglite_dgas_dbhelper.so.0.0.0
/usr/lib64/libglite_dgas_hlr.a
/usr/lib64/libglite_dgas_hlr.so
/usr/lib64/libglite_dgas_hlr.so.0
/usr/lib64/libglite_dgas_hlr.so.0.0.0
/usr/lib64/libglite_dgas_hlrGenericQuery.a
/usr/lib64/libglite_dgas_hlrGenericQuery.so
/usr/lib64/libglite_dgas_hlrGenericQuery.so.0
/usr/lib64/libglite_dgas_hlrGenericQuery.so.0.0.0
/usr/lib64/libglite_dgas_hlrQTransaction.a
/usr/lib64/libglite_dgas_hlrQTransaction.so
/usr/lib64/libglite_dgas_hlrQTransaction.so.0
/usr/lib64/libglite_dgas_hlrQTransaction.so.0.0.0
/usr/lib64/libglite_dgas_hlrTransLog.a
/usr/lib64/libglite_dgas_hlrTransLog.so
/usr/lib64/libglite_dgas_hlrTransLog.so.0
/usr/lib64/libglite_dgas_hlrTransLog.so.0.0.0
/usr/lib64/libglite_dgas_serviceCommonUtils.a
/usr/lib64/libglite_dgas_serviceCommonUtils.so
/usr/lib64/libglite_dgas_serviceCommonUtils.so.0
/usr/lib64/libglite_dgas_serviceCommonUtils.so.0.0.0
/usr/libexec
/usr/libexec/dgas-hlr-checkHostCertProxy.sh
/usr/libexec/dgas-hlr-urforward
/usr/libexec/dgas-ml-client
/usr/libexec/dgasmonitor
/usr/libexec/dgasmonitor/glite-dgas-monitor-run.sh
/usr/libexec/dgasmonitor/plugins
/usr/libexec/dgasmonitor/plugins/ping_2
/usr/libexec/dgasmonitor/plugins/ping_3
/usr/libexec/dgasmonitor/plugins/ping_4
/usr/libexec/dgastests
/usr/libexec/dgastests/full.test
/usr/libexec/dgastests/glite-dgas-testrun.pl
/usr/libexec/dgastests/joinCover.pl
/usr/libexec/dgastests/level1.test
/usr/libexec/dgastests/level2.test
/usr/libexec/dgastests/sensors_full.test
/usr/libexec/dgastests/storage.test
/usr/libexec/dgastests/test.conf
/usr/libexec/dgastests/tests
/usr/libexec/dgastests/tests/UR_LRMS_lsf.records
/usr/libexec/dgastests/tests/UR_LRMS_pbs.records
/usr/libexec/dgastests/tests/addResourceAuth.sh
/usr/libexec/dgastests/tests/atmClient.sh
/usr/libexec/dgastests/tests/benchmarksTest.sh
/usr/libexec/dgastests/tests/checkTable.sh
/usr/libexec/dgastests/tests/cleanResubJob.sh
/usr/libexec/dgastests/tests/cleanUpJob.sh
/usr/libexec/dgastests/tests/createLSFRecords.sh
/usr/libexec/dgastests/tests/delResourceAuth.sh
/usr/libexec/dgastests/tests/dgas_sensors_test.conf
/usr/libexec/dgastests/tests/dgas_sensors_test.conf.lsf.ldif.sed
/usr/libexec/dgastests/tests/dgas_sensors_test.conf.lsf.sed
/usr/libexec/dgastests/tests/dgas_sensors_test.conf.template
/usr/libexec/dgastests/tests/dgas_sensors_test_poolPatterns.conf
/usr/libexec/dgastests/tests/generateJobId.sh
/usr/libexec/dgastests/tests/glideInTest.sh
/usr/libexec/dgastests/tests/glite-info-dynamic-ce.ldif.4482
/usr/libexec/dgastests/tests/grid-jobmap.template
/usr/libexec/dgastests/tests/grid-jobmap.template.lsf
/usr/libexec/dgastests/tests/gridJobFQAN.lsf.sed
/usr/libexec/dgastests/tests/gridJobFQAN.sed

```

Release40130_SL6 < IGIRelease < TWiki

```
/usr/libexec/dgastests/tests/gridJobGlideIn.sed
/usr/libexec/dgastests/tests/gridJobpool.sed
/usr/libexec/dgastests/tests/hlrDBExists.sh
/usr/libexec/dgastests/tests/hlrHADIsAlive.sh
/usr/libexec/dgastests/tests/hlrQmgrIsAlive.sh
/usr/libexec/dgastests/tests/hlrServerdIsAlive.sh
/usr/libexec/dgastests/tests/hlr_tmpDBExists.sh
/usr/libexec/dgastests/tests/localJobmap.sed
/usr/libexec/dgastests/tests/missingStartQtimeJob.sh
/usr/libexec/dgastests/tests/multiplePing.sh
/usr/libexec/dgastests/tests/multipleRecords.sh
/usr/libexec/dgastests/tests/mysqldPing.sh
/usr/libexec/dgastests/tests/mysqldStatus.sh
/usr/libexec/dgastests/tests/negativeWCTJob.sh
/usr/libexec/dgastests/tests/poolAccountPattern.conf.template
/usr/libexec/dgastests/tests/putLSFURindgasURBox.sh
/usr/libexec/dgastests/tests/putURindgasURBox.SQL.sh
/usr/libexec/dgastests/tests/putURindgasURBox.sh
/usr/libexec/dgastests/tests/static-test.ldif
/usr/libexec/dgastests/tests/test.lsf.UR
/usr/libexec/dgastests/tests/test.pbs.UR
/usr/libexec/dgastests/tests/test.pbs.UR.SQL
/usr/libexec/dgastests/tests/testJobMap.conf
/usr/libexec/dgastests/tests/testMinus_a.sh
/usr/libexec/dgastests/tests/testMinus_o.sh
/usr/libexec/dgastests/tests/testResubmission.sh
/usr/libexec/dgastests/tests/voOriginTest.sh
/usr/libexec/dgastests/tests/vopproblemjob.sh
/usr/libexec/dgastests/tests/waitForJob.sh
/usr/libexec/dgastests/tests/wrongcputjob.sh
/usr/sbin/dgas-hlr-addadmin
/usr/sbin/dgas-hlr-addressource
/usr/sbin/dgas-hlr-archive
/usr/sbin/dgas-hlr-bdiiresimport.pl
/usr/sbin/dgas-hlr-checkqueue
/usr/sbin/dgas-hlr-dbcreate
/usr/sbin/dgas-hlr-deladmin
/usr/sbin/dgas-hlr-delresource
/usr/sbin/dgas-hlr-had.pl
/usr/sbin/dgas-hlr-listener
/usr/sbin/dgas-hlr-populateJobTransSummary
/usr/sbin/dgas-hlr-qmgr
/usr/sbin/dgas-hlr-queryadmin
/usr/sbin/dgas-hlr-queryresource
/usr/sbin/dgas-hlr-sqlexec
/usr/sbin/dgas-hlr-translatedb
/usr/sbin/dgas-hlrd
/usr/sbin/dgas-sumrecords2goc.pl
```

```
[root@cert-43 ~]# rpm -qil glite-dgas-hlr-service-consumers-4.0.13-2.centos6.x86_64
Name       : glite-dgas-hlr-service-consumers  Relocations: (not relocatable)
Version    : 4.0.13                          Vendor: (none)
Release    : 2.centos6                      Build Date: Thu 11 Oct 2012 10:42:36 AM CEST
Install Date: Mon 22 Oct 2012 02:56:19 PM CEST  Build Host: dgas-dev-27.to.infn.it
Group      : System Environment/Libraries    Source RPM: glite-dgas-hlr-service-consumers-4.0.13-
Size       : 1152949                         License: Apache Software License
Signature  : (none)
Packager   : ETICS
Summary    : Emi.dgas.hlr-service-consumers
Description:
emi.dgas.hlr-service-consumers
/etc/dgas
/etc/dgas/car_aggregated_v1.0.xsd
/etc/dgas/car_v1.0.xsd
/etc/dgas/dgas_amq_consumer.conf.template
```

```

/etc/dgas/ogfur_v1.xsd.xml
/usr/lib64/libglite_dgas_AMQConsumer.a
/usr/lib64/libglite_dgas_AMQConsumer.so
/usr/lib64/libglite_dgas_AMQConsumer.so.0
/usr/lib64/libglite_dgas_AMQConsumer.so.0.0.0
/usr/lib64/libglite_dgas_legacyRecordManager.a
/usr/lib64/libglite_dgas_legacyRecordManager.so
/usr/lib64/libglite_dgas_legacyRecordManager.so.0
/usr/lib64/libglite_dgas_legacyRecordManager.so.0.0.0
/usr/libexec
/usr/libexec/dgas-AMQConsumer
/usr/libexec/dgas-legacyRecordManager
/usr/libexec/glite-dgas-ogfurParser
/usr/sbin/dgas-hlr-amq-consumer

```

```

[root@cert-43 ~]# rpm -qil yaim-dgas-5.0.0-4.noarch
Name           : yaim-dgas                Relocations: /opt/glite
Version        : 5.0.0                  Vendor: INFN
Release        : 4                      Build Date: Thu 14 Jun 2012 12:12:25 PM CEST
Install Date:  Mon 22 Oct 2012 02:55:53 PM CEST      Build Host: igi-01.pd.infn.it
Group          : Custom/INFN-GRID          Source RPM: yaim-dgas-5.0.0-4.src.rpm
Size           : 43660                   License: LCG
Signature      : (none)
Packager       : grid-release@lists.infn.it
URL            : http://repo-pd.italiangrid.it
Summary        : DGAS YAIM module
Description    :
YAIM is a generic configuration for Grid Middleware developed by EGEE.
This package provides additional customizations for DGAS profile of INFN-GRID release.
/opt/glite/yaim/defaults
/opt/glite/yaim/defaults/hlr.pre
/opt/glite/yaim/examples/siteinfo/services
/opt/glite/yaim/examples/siteinfo/services/dgas_sensors
/opt/glite/yaim/examples/siteinfo/services/hlr
/opt/glite/yaim/examples/siteinfo/services/igi-hlr
/opt/glite/yaim/functions
/opt/glite/yaim/functions/config_dgas_ce
/opt/glite/yaim/functions/config_dgas_hlr
/opt/glite/yaim/functions/config_dgas_mysql
/opt/glite/yaim/functions/utils
/opt/glite/yaim/functions/utils/manage_conf
/opt/glite/yaim/node-info.d
/opt/glite/yaim/node-info.d/dgas_sensors
/opt/glite/yaim/node-info.d/hlr
/opt/glite/yaim/node-info.d/igi-hlr

```

Only yaim files are in /opt/glite all other HLR server files are in EMI or linux standard places.

First Functionality Test (Legacy mode):

Try to submit some jobs to a CE and see if the records arrive to HLR :

From HLR Server : Check the dgas-hlrd status and add the resource (CE DN is needed) from dgas:

```

[root@cert-43 ~]# service dgas-hlrd status
/var/lock/dgas/dgas_hlrd.lock
Process HLR listener: 28239
root      28239  0.6  1.0 476772 31096 pts/0    SN   10:30   0:31 /usr//sbin/dgas-hlr-listener -c
The process is running.
/var/lock/dgas/dgas_hlr_qmgrd.lock
Process Batch Transaction manager: 28240
root      28240  0.0  0.0 111724 2876 pts/0    SN   10:30   0:00 /usr//sbin/dgas-hlr-qmgr -l /var
The process is running.
Server alive.

```

First Functionality Test (Legacy mode):

```
listener answers to ping
/var/lock/dgas/dgas_hlr_urforward.lock
Process urForward: 28241
root      28241  0.0  0.1 101560  4312 pts/0    SN   10:30   0:00 /usr//libexec/dgas-hlr-urforward
The process is running.
```

```
[root@cert-43 ~]# dgas-hlr-addadmin -Sa "/C=IT/O=INFN/OU=Host/L=Padova/CN=cert-34.pd.infn.it"
Record added!
```

From CE CREAM Host: The dgas sensors into the CE CREAM host cert-34.pd.infn.it are the production sensors release:

```
[root@cert-34 ~]# rpm -qa | grep -i dgas | sort
glite-dgas-common-4.0.13-0.centos5
glite-dgas-hlr-clients-4.0.13-0.centos5
glite-dgas-hlr-sensors-4.0.13-1.centos5
glite-dgas-hlr-sensors-producers-4.0.13-2.centos5
yaim-dgas-5.0.0-3
```

From UI :

```
[traldis@cert-25 ~]$ glite-ce-job-submit -r cert-34.pd.infn.it:8443/cream-pbs-cert -a testCreamSle
https://cert-34.pd.infn.it:8443/CREAM996637620
[traldis@cert-25 ~]$ glite-ce-job-status https://cert-34.pd.infn.it:8443/CREAM996637620
```

```
***** JobID=[https://cert-34.pd.infn.it:8443/CREAM996637620]
        Status      = [REALLY-RUNNING]
```

```
[traldis@cert-25 ~]$ glite-ce-job-status https://cert-34.pd.infn.it:8443/CREAM996637620
```

```
***** JobID=[https://cert-34.pd.infn.it:8443/CREAM996637620]
        Status      = [DONE-OK]
        ExitCode     = [0]
```

From HLR Server : Check the data

```
mysql> select * from trans_in;
+-----+-----+-----+-----+
| tid | rid | gid | from_dn |
+-----+-----+-----+-----+
...
| 10 | cert-34.pd.infn.it:cert | NONE | /C=IT/O=INFN/OU=Personal Certificate/L=Padova/CN=Sergio |
+-----+-----+-----+-----+
```

After 15 submission:

```
mysql> select count(*) from trans_in;
+-----+
| count(*) |
+-----+
|      15 |
+-----+
1 row in set (0.00 sec)
```

Second Functionality Test (Legacy mode):

Copy from a preproduction CE many accounting jobs info to allow the HLR to work with real load:

Copy the accounting data:

Release40130_SL6 < IGIRelease < TWiki

```
[root@cert-37 ~]# rsync -axv /var/log/cream/accounting/* cert-34:/var/log/cream/accounting/
```

```
[root@cert-37 ~]# rsync -axv /opt/lsf_7.0/work/pd_lsf70_sl4/logdir/* cert-34:/opt/lsf_7.0/work/pd
```

Change the dgas sensors file:

```
[root@cert-34 ~]# cat /etc/dgas/dgas_sensors.conf | egrep -v '^#|^$'
siteName="INFN-PADOVA"
lrmsType="lsf"
lsfAcctLogDir = "/opt/lsf_7.0/work/pd_lsf70_sl4/logdir/"
res_acct_bank_id="cert-43.pd.infn.it:56568:"
ignoreJobsLoggedBefore="2009-04-01"
useCEJobMap = "yes"
ceJobMapLog="/var/log/cream/accounting/blahp.log"
collectorLockFileName="/var/lock/dgas/dgas_urcollector.lock"
collectorHADLockFileName="/var/lock/dgas/dgas_urcollector_had.lock"
collectorLogFileFileName="/var/log/dgas/dgas_urcollector.log"
collectorBufferFileName = "/var/dgasCollectorBuffer"
mainPollInterval="5"
jobPerTimeInterval="100"
timeInterval="1"
systemLogLevel="7"
limiterWaitFor="5"
maxNumRecords="10000"
localHostNameAsCEHostName = "no"
jobsToProcess="grid"
keyList="GlueHostBenchmarkSF00,GlueHostBenchmarkSI00,GlueHostApplicationSoftwareRunTimeEnvironment
glueLdifFile="/var/lib/bdii/gip/ldif/static-file-Cluster.ldif"
pushdLockFileName="/var/lock/dgas/dgas_pushd.lock"
pushdLogFileFileName="/var/log/dgas/dgas_pushd.log"
localUserGroup2VOMap="/etc/dgas/dgas_localUserGroup2VOMap.conf"
gipDynamicTmpCEFiles = "ldap://`hostname`:2170"
qMult="1"
queuePollInterval="2"
queuePollInterval="2"
voToProcess=""
useCEHostName="cert-34.pd.infn.it"
```

Restart the dgas sensors process:

```
[root@cert-34 ~]# /etc/init.d/dgas-urcollector restart
Stopping urCollector HAD... [ OK ]
Stopping dgas-urcollector-SQLite.pl: [ OK ]
Starting dgas-urcollector-SQLite.pl: [ OK ]
Starting urCollector HAD... [ OK ]

[root@cert-34 ~]# /etc/init.d/dgas-pushd restart
Stopping dgas-pushd-SQLite.pl:/var/lock/dgas/dgas_pushd.loc[ OK ]1286)
Starting dgas-pushd-SQLite.pl: [ OK ]
```

In HLR Server host :

```
[root@cert-43 ~]# mysql -u root -p
Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 11513
Server version: 5.1.61 Source distribution

Copyright (c) 2000, 2011, Oracle and/or its affiliates. All rights reserved.

Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

Second Functionality Test (Legacy mode):

Have a look into the database:

```
mysql> use hlr;
Reading table information for completion of table and column names
You can turn off this feature to get a quicker startup with -A
```

```
mysql> select count(*) from trans_in;
+-----+
| count(*) |
+-----+
|      2629 |
+-----+
1 row in set (0.00 sec)
```

```
-- Main.SergioTraldi - 2013-01-30
```

```
%META:FILEATTACHMENT{name="install_HRL_SL6.txt" attachment="install_HRL_SL6.txt" attr="h" comment=""}
%META:FILEATTACHMENT{name="configuration_HRL_SL6.txt" attachment="configuration_HRL_SL6.txt" attr="h" comment=""}
%META:FILEATTACHMENT{name="configuration_HLR_SL6.txt" attachment="configuration_HLR_SL6.txt" attr="h" comment=""}
</div><!-- /patternTopic-->
```

```
%META{"form"}%
```

```
%META{"attachments"}%</div><!-- /patternContent-->
```

```
---
```

```
%MAKETEXT{"This topic:"}% <nop>%WEB%%META{"parent" prefix="<span class='twikiSeparator'>&nbsp;&gt;&gt;
```

```
%MAKETEXT{"Topic revision:"}% %REVINFO{format="r$rev - $date - <nop>$wikiname"}%
```

```
</div><!-- /patternMainContents-->
```

```
</div><!-- /patternMain-->
```

```
</div><!-- /patternFloatWrap-->
```

```
<div class="clear">&nbsp;&nbsp;&nbsp;</div>
```

```
</div><!-- /patternOuter--><div id="patternBottomBar"><div id="patternBottomBarContents"><div id="patternPage">
```

```
</div><!-- /patternPage-->
```

```
</div><!-- /patternPageShadow-->
```

```
</div><!-- /patternScreen-->
```

```
</body></html>
```