

**Quality Criteria Verification  
Executive Summary  
For QCV, Stage Rollout, DMSU and EGI internal**

Name of the component			
Release	<b>emi.cream.sl5.x86_64-1.14.1</b>	RT Ticket	#4144
Software Provider			
Release Contact	Name: Cristina Aiftimiei	E-Mail: cristina.aiftimiei@pd.infn.it	
Validator	Name: Esteban Freire García	E-Mail: esfreire@cesga.es	
V. Hours Worked	8		
Component status	<b>Verified</b>	Date	27/07/12
Verification start date	24/07/12	Verification end date	27/07/12

**Summary:**

**emi.cream.sl5.x86\_64-1.14.1 was updated from UMD2 repository without any relevant issue.**

**GGUS Tickets:**

**Summary of Quality Criteria verification:**

	Generic Quality Criteria Total (Critical/Non critical)			
	Passed	Not passed	Not Applicable	Total
<b>TP</b>				
<b>VLD</b>	18			18
	Specific Quality Criteria			
<b>TP</b>				
<b>VLD</b>	18			18

## Quality Criteria verification cheatsheet:

Criteria	Accept	Test	Comments
<b>DOCUMENTATION QC</b>			
GENERIC_DOC_1 (Functional Description)	Optional		
GENERIC_DOC_2 (Release Notes)	Y	VLD	<a href="https://rt.egi.eu/rt/Ticket/Display.html?id=4144">https://rt.egi.eu/rt/Ticket/Display.html?id=4144</a>
GENERIC_DOC_3 (User Documentation)	Y	VLD	<a href="https://wiki.italiangrid.it/twiki/bin/view/CREAM/UserGuideEM12">https://wiki.italiangrid.it/twiki/bin/view/CREAM/UserGuideEM12</a>
GENERIC_DOC_4 (Online help (man pages))	Y	VLD	<a href="https://wiki.italiangrid.it/twiki/bin/view/CREAM/UserGuideEM12#Man_pages_for_CREAM_Command_Line">https://wiki.italiangrid.it/twiki/bin/view/CREAM/UserGuideEM12#Man_pages_for_CREAM_Command_Line</a>
GENERIC_DOC_5 (API Documentation)	Y	VLD	<a href="https://wiki.italiangrid.it/twiki/bin/view/CREAM/DevelopersDocumentation">https://wiki.italiangrid.it/twiki/bin/view/CREAM/DevelopersDocumentation</a>
GENERIC_DOC_6 (Administrator Documentation)	Y	VLD	<a href="https://wiki.italiangrid.it/twiki/bin/view/CREAM/SystemAdministratorGuideForEM12">https://wiki.italiangrid.it/twiki/bin/view/CREAM/SystemAdministratorGuideForEM12</a>
GENERIC_DOC_7 (Service Reference Card)	Y	VLD	<a href="https://wiki.italiangrid.it/twiki/bin/view/CREAM/ServiceReferenceCardEM12">https://wiki.italiangrid.it/twiki/bin/view/CREAM/ServiceReferenceCardEM12</a>
GENERIC_DOC_8 (Software License)	Y	VLD	Emi-cream: Apache Software License 2.0
GENERIC_DOC_9 (Release changes testing)	Y	VLD	<a href="https://rt.egi.eu/rt/Ticket/Display.html?id=4144">https://rt.egi.eu/rt/Ticket/Display.html?id=4144</a>
<b>SOFTWARE DISTRIBUTION QC</b>			
GENERIC_DIST_1 (Source Code Availability)	Y	VLD	
GENERIC_DIST_3 (Binary Distribution)	Y	VLD	<a href="http://admin-repo.egi.eu/sw/unverified/umd-2.emi.cream.sl5.x86_64/1/14/1/glite-ce-blahp-1.18.1-2.sl5.x86_64.rpm">http://admin-repo.egi.eu/sw/unverified/umd-2.emi.cream.sl5.x86_64/1/14/1/glite-ce-blahp-1.18.1-2.sl5.x86_64.rpm</a>
<b>SOFTWARE FEATURES QC</b>			
GENERIC_SOFT_1 (Backwards Compatibility)	Y	VLD	
GENERIC_SOFT_2 (New features testing)	Y	VLD	
<b>SERVICE CRITERIA QC</b>			
GENERIC_SERVICE_1 (Service control and status)	Y	VLD	
GENERIC_SERVICE_2 (Log Files)	Y	VLD	
GENERIC_SERVICE_3 (Service Reliability)	Optional		
GENERIC_SERVICE_4 (Service Robustness)	Optional		
GENERIC_SERVICE_5 (Automatic Configuration)	Optional		
GENERIC_SERVICE_6 (Default Password Configuration)	Y	VLD	
<b>SECURITY QC</b>			
GENERIC_SEC_1 (World Writable Files)	Y	VLD	
GENERIC_SEC_3 (Passwords in world readable files)	Y	VLD	
<b>MISCELLANEOUS QC</b>			
GENERIC_MISC_2 (Bug Tracking System)	Y	VLD	GGUS
<b>AUTHENTICATION QC</b>			
AUTHN_IFACE_1 (X.509 Certificate support)	Y	VLD	
AUTHN_DELEG_1 (Delegation Interface)	Y	VLD	
<b>AUTHORISATION QC</b>			
AUTHZ_PCYDEF_3 (Ban User/FQAN)	Y	VLD	
AUTHZ_PCYDEF_4 (Allowed users definition)	Y	VLD	
AUTHZ_PEP_1 (Policy Enforcement)	Y	VLD	
AUTHZ_PEP_2 (User Mapping)	Y	VLD	
<b>JOB EXECUTION QC</b>			
JOBEXEC_IFACE_1 (Job Execution Interface)	Y	VLD	
JOBEXEC_JOB_1 (Simple Job)	Y	VLD	
JOBEXEC_JOB_2 (Simple Job with input/output)	Y	VLD	
JOBEXEC_JOB_3 (Cancel Job)	Y	VLD	
JOBEXEC_EXECMNGR_1 (Not Invasive Dependency)	Y	VLD	
JOBEXEC_EXECMNGR_2 (Job Management)	Y	VLD	
JOBEXEC_EXECMNGR_3 (Information Retrieval)	Y	VLD	
JOBEXEC_AVAIL_1 (Service Redundancy)	Y	VLD	
JOBEXEC_AVAIL_2 (Self Disabling Mechanism)	Optional		
JOBEXEC_AVAIL_4 (Timely Job Status Update)	Optional		
<b>PARALLEL JOB QC</b>			
PARALLEL_JOB_1 (Simple parallel job submission)	Y	VLD	
PARALLEL_JOB_2 (Single machine parallel job)	Optional		
PARALLEL_JOB_3 (Fine grained mapping parallel job)	Optional		
<b>MONITORING PROBES QC</b>			
MON_PROBE_GENERIC_1 (Certificate Lifetime)	Optional		
MON_PROBE_GENERIC_2 (Service Probe)	Optional		
MON_PROBE_JOBEXEC_1 (Job Execution Failure)	Y	VLD	
MON_PROBE_JOBEXEC_2 (CREAM Job Execution)	Y	VLD	
<b>ACCOUNTING CAPABILITY QC</b>			
ACC_JOBEXEC_1 (Job Execution Appliances)	Y	VLD	
<b>CLIENT TOOLS QC</b>			
CLIENT_TOOLS_1 (Command line Options collection)	Optional		
CLIENT_TOOLS_2 (Error Messages)	Optional		

**Validator comments:**

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== EMI\_creamCE\_Torque + MPI ==

=== Ticket assigned ===

\* [<https://rt.egi.eu/guest/Ticket/Display.html?id=4144>]

=== ggus tickets opened ===

=== Repositories ===

(!) Verifier must install a new repo for each product, this information is available at RT ticket field:

\* CREAM repo under verification

{{{

[root@test06 yum.repos.d]# cat EMI.cream.sl5.x86\_64.repo

# EGI Software Repository - REPO META (releaseId,repositoryId,repofileId) - (4144,657,583)

[EMI.cream.sl5.x86\_64]

name=EMI.cream.sl5.x86\_64

baseurl=http://admin-repo.egi.eu/sw/unverified/umid-2.emi.cream.sl5.x86\_64/1/14/1/

enabled=1

protect=1

priority=1

gpgcheck=1

gpgkey=http://emisoft.web.cern.ch/emisoft/dist/EMI/2/RPM-GPG-KEY-emi

}}}

=== Installing ===

\* Updating the CREAM-CE service:

\* yum update (OK)

{{{

```
=====
=====
=====
=====
=====
```

Package	Arch	Version
Repository	Size	

```
=====
=====
```

```

=====
Updating:
glite-ce-blahp                x86_64                1.18.1-
2.sl5                        EMI.cream.sl5.x86_64 488 k
glite-lbjp-common-gss        x86_64
3.1.4-1.e15                  EMI.cream.sl5.x86_64
18 k

```

Transaction Summary

```

}}}

```

==== Configure the siteinfo.def file for the CreamCE ====

\* This is the site-info used to configure the CreamCE + Torque

```

{{{

```

```

[root@test06 etc]# cat site-info.def

```

```

# YAIM example site configuration file - adapt it to your site!

```

```

#####

```

```

# CE configuration variables #

```

```

#####

```

```

CE_HOST=test06.egi.cesga.es

```

```

WMS_HOST=test22.egi.cesga.es

```

```

##BDII_HOST=topbdii02.ncg.ingrid.pt

```

```

##SITE_BDII_HOST=sbdii02.ncg.ingrid.pt

```

```

BDII_HOST=test04.egi.cesga.es

```

```

BDII_LIST="test04.egi.cesga.es:2170,topbdii02.ncg.ingrid.pt:2170"

```

```

SITE_BDII_HOST=test04.egi.cesga.es

```

```

##LFC_HOST=lxb7607.cern.ch

```

```

PX_HOST=myproxy.egi.cesga.es

```

```

MON_HOST=test07.egi.cesga.es

```

```

YAIM_LOGGING_LEVEL=DEBUG

```

```

#####

```

```

# CREAM CE node cluster mode #

```

```

#####

```

```

CREAMCE_CLUSTER_MODE=yes

```

```

# Hostname where the cluster is configured

```

```

CLUSTER_HOST="test06.egi.cesga.es"

```

```

COMPUTING_SERVICE_ID="test06.egi.cesga.es_ComputingElement"

# Space separated list of your cluster names
CLUSTERS="clustersa2"

# Cluster UniqueID
CLUSTER_CLUSTERSA2_CLUSTER_UniqueID=my-sa2
CLUSTER_TEST06_EGI_CESGA_ES_CLUSTER_UniqueID=my-sa2

##QUEUE_XXX_CLUSTER_UniqueID

# Cluster human readable name
CLUSTER_CLUSTERSA2_CLUSTER_Name="This is the SA2 cluster for UMD
verification"
CLUSTER_TEST06_EGI_CESGA_ES_CLUSTER_Name="This is the SA2 cluster for
UMD verification"

# Site name where the cluster belongs to
# It should be consistent with your variable SITE_NAME
# NOTE: This may be changed to SITE_UniqueID when the GlueSite
# is configured with the new infosys variables
CLUSTER_CLUSTERSA2_SITE_UniqueID=cesga-egi
CLUSTER_TEST06_EGI_CESGA_ES_SITE_UniqueID=cesga-egi

# space separated list of CE hostnames configured in the cluster
CLUSTER_CLUSTERSA2_CE_HOSTS="test06.egi.cesga.es"
CLUSTER_TEST06_EGI_CESGA_ES_CE_HOSTS="test06.egi.cesga.es"
CLUSTER_YAIM_CE_TYPE="cream"
CLUSTER_CLUSTERSA2_INFO_PORT=2170
CLUSTER_CLUSTERSA2_INFO_TYPE=resource

# Define the following variables for the CEs configured in your cluster
# NOTE: you don't need to uncomment these variables if you are configuring
# only one CE in the same host as your cluster.
# You can use the variables defined in services/lcg-ce instead
# CE type: 'jobmanager' for lcg CE and 'cream' for cream CE
CE_HOST_test06_egi_cesga_es_CE_TYPE="cream"

# Space separated list of the queue names configured in the CE
# This variable has been renamed in the new infosys configuration.
# The old variable name was: QUEUES
#CE_HOST_test06_egi_cesga_es_QUEUES="GRID_ops GRID_dteam GRID_opsibeu
GRID_iberibeu"

# The name of the job manager used by the gatekeeper
# This variable has been renamed in the new infosys configuration.
# The old variable name was: JOB_MANAGER
# Please, define: lcgpbs, lcgifs, lcgsgge or lcgcondor
CE_HOST_test06_egi_cesga_es_CE_InfoJobManager="pbs"

```

CE\_HOST\_test06\_egi\_cesga\_es\_QUEUES="GRID\_ops GRID\_dteam GRID\_opsibeu  
GRID\_iberibeu"

QUEUE\_GRID\_OPS\_CLUSTER\_UniqueID=my-sa2

QUEUE\_GRID\_DTEAM\_CLUSTER\_UniqueID=my-sa2

QUEUE\_GRID\_OPSIBEU\_CLUSTER\_UniqueID=my-sa2

QUEUE\_GRID\_IBERIBEU\_CLUSTER\_UniqueID=my-sa2

# The Subcluster variables should contain the name of the subcluster variable in upper  
case

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_SUBCLUSTER\_UniqueID=cesga-egi-  
configuration

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_ApplicationSoftwareRunTimeEnv  
ironment="LCG-2|LCG-2\_1\_0|LCG-2\_1\_1|LCG-2\_2\_0" # CE\_RUNTIMEENV

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_ArchitectureSMPSize=2

# CE\_SMPSIZE

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_ArchitecturePlatformType=x86\_6  
4

# CE\_OS\_ARCH

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_BenchmarkSF00=1714

# CE\_SF00

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_BenchmarkSI00=2395

# CE\_SI00

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_MainMemoryRAMSize=513

# CE\_MINPHYSMEM

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_MainMemoryVirtualSize=524

# CE\_MINVIRTMEM

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_NetworkAdapterInboundIP=FAL  
SE

# CE\_INBOUNDIP

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_NetworkAdapterOutboundIP=TR  
UE

# CE\_OUTBOUNDIP

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_OperatingSystemName="Scientifi  
c Linux"

# CE\_OS

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_OperatingSystemRelease=5.5

# CE\_OS\_RELEASE

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_OperatingSystemVersion="Scienti  
ficSL"

# CE\_OS\_VERSION

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_ProcessorClockSpeed=2200

# CE\_CPU\_SPEED

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_ProcessorModel=Opteron

# CE\_CPU\_MODEL

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_ProcessorVendor=amd

# CE\_CPU\_VENDOR

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_HOST\_ProcessorOtherDescription="Core  
s=24,Benchmark=9.58-HEP-SPEC06"

# Processor description

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_SUBCLUSTER\_Name="my subcluster  
SA2 verification"

SUBCLUSTER\_TEST06\_EGI\_CESGA\_ES\_SUBCLUSTER\_PhysicalCPUs=2

# CE\_PHYSCPU

```
SUBCLUSTER_TEST06_EGI_CESGA_ES_SUBCLUSTER_LogicalCPUs=4
# CE_LOGCPU
SUBCLUSTER_TEST06_EGI_CESGA_ES_SUBCLUSTER_TmpDir=/tmp
SUBCLUSTER_TEST06_EGI_CESGA_ES_SUBCLUSTER_WNTmpDir=/tmp
```

```
#####
# Site configuration variables #
#####
```

```
SITE_EMAIL=egee-admin@cesga.es
```

```
SITE_NAME=CESGA-EGEE
SITE_LOC="Santiago de Compostela, Spain"
SITE_LAT=42.875558      #42.8757 # -90 to 90 degrees
SITE_LONG=-8.553147    #-8.5536 # -180 to 180 degrees
```

```
#####
# Batch server configuration variables #
#####
```

```
# Jobmanager specific settings
JOB_MANAGER=lcgpbs
BATCH_SERVER=test06.egi.cesga.es
CE_BATCH_SYS=torque
BATCH_LOG_DIR=/var/torque
BATCH_VERSION=torque-2.5.7-7
```

```
#####
# APEL configuration variables #
#####
```

```
# Database password for the APEL DB.
APEL_MYSQL_HOST=test07.egi.cesga.es
APEL_DB_PASSWORD=""
```

```
#####
```

```
# ARGUS authorisation framework control #
```

```
#####
```

```
# Set USE_ARGUS to yes to enable the configuration of ARGUS
```

```
###USE_ARGUS=yes
USE_ARGUS=no
```

```
# In case ARGUS is to be used the following should be set
# The ARGUS service PEPD endpoints as a space separated list:
```

```
###ARGUS_PEPD_ENDPOINTS="https://test10.egi.cesga.es:8154/authz"
###CREAM_PEPD_RESOURCEID="http://www.egee.cesga.es/test10"
```

```
# These variables tell YAIM where to find additional configuration files.
```

```
WN_LIST=/opt/glite/yaim/etc/wn-list.conf
USERS_CONF=/opt/glite/yaim/etc/users.conf
GROUPS_CONF=/opt/glite/yaim/etc/groups.conf
FUNCTIONS_DIR=/opt/glite/yaim/functions
```

```
#
# SE_dpm-specific settings - Ignore if you are not running a DPM
#
# Set these if you are installing a DPM yourself
# and/or if you need a default DPM for the lcg-stdout-mon
#
# DPMDATA is now deprecated. Use an entry like $DPM_HOST:/filesystem in
# the DPM_FILESYSTEMS variable.
# From now on we use DPM_DB_USER and DPM_DB_PASSWORD to make clear
# its different role from that of the dpmmgr unix user who owns the
# directories and runs the daemons.
```

```
# The name of the DPM head node
DPM_HOST=test08.egi.cesga.es
```

```
DPMPOOL=egi-pool
DPM_FILESYSTEMS="$DPM_HOST:/storage"
```

```
# The base user
DPM_DB_USER=dpmmgr
DPM_DB_HOST=$DPM_HOST
DPM_DB_PASSWORD=
```

```
# Specifies the default amount of space reserved for a file
#DPMFSIZE=200M
```

```
DPM_INFO_USER=dpm_info
DPM_INFO_PASS=
```

```
# Variable for the port range - Optional, default value is shown
# RFIO_PORT_RANGE="20000 25000"
```



```
# This largely replaces CE_CLOSE_SE but it is a list of hostnames
SE_MOUNT_INFO_LIST="none"
SE_LIST="$DPM_HOST"
SE_ARCH="multidisk" # "disk, tape, multidisk, other"
```

```
#####
```

```
# SubCluster configuration #
```

```
#####
```

```
# Architecture and environment specific settings
```

```
CE_CPU_MODEL=Opteron
```

```
CE_CPU_VENDOR=amd
```

```
CE_CPU_SPEED=2200
```

```
CE_OS="ScientificSL" # Forma correcta
```

```
CE_OS_RELEASE=5.5
```

```
CE_OS_VERSION="Boron"
```

```
#New variables
```

```
CE_PHYSCPU=2
```

```
CE_LOGCPU=2
```

```
CE_OS_ARCH=x86_64
```

```
CE_CAPABILITY="CPUScalingReferenceSI00=2395"
```

```
CE_OTHERDESCR="Cores=24,Benchmark=9.58-HEP-SPEC06"
```

```
SE_MOUNT_INFO_LIST="none"
```

```
CE_SI00=2395
```

```
CE_MINPHYSMEM=524
```

```
CE_MINVIRTMEM=512
```

```
CE_SMPSIZE=2
```

```
CE_SF00=1714
```

```
CE_OUTBOUNDIP=TRUE
```

```
CE_INBOUNDIP=FALSE
```

```
CE_RUNTIMEENV="
```

```
  LCG-2
```

```
  LCG-2_1_0
```

```
  LCG-2_1_1
```

```
  LCG-2_2_0
```

```
  LCG-2_3_0
```

```
  LCG-2_3_1
```

```
  LCG-2_4_0
```

```
  LCG-2_5_0
```

```
  LCG-2_6_0
```

```
  LCG-2_7_0
```

```
  GLITE-3_0_0
```

```
  GLITE-3_0_2
```

```
  GLITE-3_1_0
```

```

R-GMA
"

###CREAM CE Variables
CEMON_HOST=test06.egi.cesga.es
CREAM_DB_USER=umctest
CREAM_DB_PASSWORD=""
MYSQL_PASSWORD=""
BLPARSER_HOST=test06.egi.cesga.es

# MPI CONFIGURATION
#####
MPI_OPENMPI_ENABLE="yes"
MPI_OPENMPI_VERSION="1.4-4"
##If you do NOT provide a shared home, set $MPI_SHARED_HOME to "no" (default).
###MPI_SHARED_HOME="no"
## If you do NOT have SSH Hostbased Authentication between your WNs, set the
below variable to "no" (default). Else, set it to "yes".
###MPI_SSH_HOST_BASED_AUTH="yes"
### If you use Torque as batch system, you may want to let the yaim plugin configure a
submit filter for you. Uncomment the following line to do so
MPI_SUBMIT_FILTER="yes"
# KNOWN ISSUE IN SL6!!!
##TORQUE_VAR_DIR=/var/lib/torque

# VOS="atlas alice lhcb cms dteam biomed"
# Space separated list of supported VOs by your site
VOS="ops dteam ops.vo.ibergrid.eu iber.vo.ibergrid.eu"
QUEUES="GRID_ops GRID_dteam GRID_opsibeu GRID_iberibeu"
VO_SW_DIR=/opt/exp_soft

#New in Yaim 3.0.1
GRID_OPS_GROUP_ENABLE="ops /VO=ops/GROUP=/ops/ROLE=lcgadmin"
GRID_DTEAM_GROUP_ENABLE="dteam
/VO=dteam/GROUP=/dteam/ROLE=lcgadmin"
GRID_OPSIBEU_GROUP_ENABLE="ops.vo.ibergrid.eu
/VO=ops.vo.ibergrid.eu/GROUP=/ops.vo.ibergrid.eu/ROLE=VO-Admin
/VO=ops.vo.ibergrid.eu/GROUP=/ops.vo.ibergrid.eu/ROLE=Production"
GRID_IBERIBEU_GROUP_ENABLE="iber.vo.ibergrid.eu
/VO=iber.vo.ibergrid.eu/GROUP=/iber.vo.ibergrid.eu/ROLE=VO-Admin
/VO=iber.vo.ibergrid.eu/GROUP=/iber.vo.ibergrid.eu/ROLE=Production"

#:::
#ops
#:::
VO_OPS_SW_DIR=$VO_SW_DIR/ops
VO_OPS_DEFAULT_SE=$DPM_HOST
VO_OPS_STORAGE_DIR=$CLASSIC_STORAGE_DIR/ops

```

VO\_OPS\_QUEUES="GRIDEGI\_ops"  
VO\_OPS\_VOMS\_SERVERS=""vomss://voms.cern.ch:8443/voms/ops?/ops/"  
VO\_OPS\_VOMSES=""ops voms.cern.ch 15009  
/DC=ch/DC=cern/OU=computers/CN=voms.cern.ch ops 'ops lcg-voms.cern.ch  
15009 /DC=ch/DC=cern/OU=computers/CN=lcg-voms.cern.ch ops"  
VO\_OPS\_VOMS\_CA\_DN=""/DC=ch/DC=cern/CN=CERN Trusted Certification  
Authority' '/DC=ch/DC=cern/CN=CERN Trusted Certification Authority"

#:.....:

#dteam

#:.....:

VO\_DTEAM\_SW\_DIR=\$VO\_SW\_DIR/dteam  
VO\_DTEAM\_DEFAULT\_SE=\$DPM\_HOST  
VO\_DTEAM\_STORAGE\_DIR=\$CLASSIC\_STORAGE\_DIR/dteam  
VO\_DTEAM\_QUEUES="GRID\_dteam"  
VO\_DTEAM\_VOMS\_SERVERS='vomss://voms.hellasgrid.gr:8443/voms/dteam?/dteam/'  
VO\_DTEAM\_VOMSES=""dteam lcg-voms.cern.ch 15004  
/DC=ch/DC=cern/OU=computers/CN=lcg-voms.cern.ch dteam 24' 'dteam voms.cern.ch  
15004 /DC=ch/DC=cern/OU=computers/CN=voms.cern.ch dteam 24' 'dteam  
voms.hellasgrid.gr 15004  
/C=GR/O=HellasGrid/OU=hellasgrid.gr/CN=voms.hellasgrid.gr dteam 24' 'dteam  
voms2.hellasgrid.gr 15004  
/C=GR/O=HellasGrid/OU=hellasgrid.gr/CN=voms2.hellasgrid.gr dteam 24"  
VO\_DTEAM\_VOMS\_CA\_DN=""/DC=ch/DC=cern/CN=CERN Trusted Certification  
Authority' '/DC=ch/DC=cern/CN=CERN Trusted Certification Authority'  
'/C=GR/O=HellasGrid/OU=Certification Authorities/CN=HellasGrid CA 2006'  
'/C=GR/O=HellasGrid/OU=Certification Authorities/CN=HellasGrid CA 2006"

## IBERGRID VOS ##

# ops.vo.ibergrid.eu

VO\_OPS\_VO\_IBERGRID\_EU\_SW\_DIR=\$VO\_SW\_DIR/opsibeu  
VO\_OPS\_VO\_IBERGRID\_EU\_DEFAULT\_SE=\$DPM\_HOST  
VO\_OPS\_VO\_IBERGRID\_EU\_STORAGE\_DIR=\$CLASSIC\_STORAGE\_DIR/opsibeu  
VO\_OPS\_VO\_IBERGRID\_EU\_QUEUES="GRID\_opsibeu"  
VO\_OPS\_VO\_IBERGRID\_EU\_VOMS\_SERVERS=""vomss://voms02.ncg.ingrid.pt:84  
43/voms/ops.vo.ibergrid.eu?/ops.vo.ibergrid.eu"  
VO\_OPS\_VO\_IBERGRID\_EU\_VOMSES=""ops.vo.ibergrid.eu voms02.ncg.ingrid.pt  
40001 /C=PT/O=LIPCA/O=LIP/OU=Lisboa/CN=voms02.ncg.ingrid.pt  
ops.vo.ibergrid.eu"  
VO\_OPS\_VO\_IBERGRID\_EU\_VOMS\_CA\_DN=""/C=PT/O=LIPCA/CN=LIP  
Certification Authority"

# iber.vo.ibergrid.eu

VO\_IBER\_VO\_IBERGRID\_EU\_SW\_DIR=\$VO\_SW\_DIR/iberibeu  
VO\_IBER\_VO\_IBERGRID\_EU\_DEFAULT\_SE=\$DPM\_HOST  
VO\_IBER\_VO\_IBERGRID\_EU\_STORAGE\_DIR=\$CLASSIC\_STORAGE\_DIR/iberibeu

```
VO_IBER_VO_IBERGRID_EU_QUEUES="GRID_iberibeu"
VO_IBER_VO_IBERGRID_EU_VOMS_SERVERS=""vomss://voms02.ncg.ingrid.pt:8
443/voms/iber.vo.ibergrid.eu?/iber.vo.ibergrid.eu"
VO_IBER_VO_IBERGRID_EU_VOMSES=""iber.vo.ibergrid.eu voms02.ncg.ingrid.pt
40003 /C=PT/O=LIPCA/O=LIP/OU=Lisboa/CN=voms02.ncg.ingrid.pt
iber.vo.ibergrid.eu"
VO_IBER_VO_IBERGRID_EU_VOMS_CA_DN=""/C=PT/O=LIPCA/CN=LIP
Certification Authority"
```

```
{{{
ops.vo.ibergrid.eu and iber.vo.ibergrid.eu VOs were included from verification VOMS
server installed at LIP. (voms02.ncg.ingrid.pt)
```

LB and WMS were configured at CESGA (test22.egi.cesga.es)

TopBDII was configured for verification in topbdii02.ncg.ingrid.pt.

```
}}}
```

\* Set your siteinfo.def file, which is the input file used by yaim. Documentation about yaim variables relevant for CREAM CE is available at:

\* [[https://twiki.cern.ch/twiki/bin/view/LCG/Site-info\\_configuration\\_variables#cream\\_CE](https://twiki.cern.ch/twiki/bin/view/LCG/Site-info_configuration_variables#cream_CE)]

(!) Be sure that CREAMCE\_CLUSTER\_MODE is set to no (or not set at all).

(!) The MPI\_CE profile should be the first in the yaim configuration, otherwise the Glue variables will not be properly defined. This restriction may be removed in future versions.

==== Configuring with YAIM the CreamCE =====

```
{{{
/opt/glite/yaim/bin/yaim -c -s /opt/glite/yaim/etc/site-info.def -n creamCE -n
TORQUE_server -n TORQUE_utils
[ .... ]
```

Stopping glite-lb-logd ... not running

Stopping glite-lb-interlogd ... not running

Starting glite-lb-logd ... This is LocalLogger, part of Workload Management System in EU DataGrid & EGEE.

done

Warning: stale /var/cream\_lb/glite-lb-interlogd.pid for glite-lb-interlogd

Warning: stale /tmp/interlogger.sock for glite-lb-interlogd

Starting glite-lb-interlogd ... done

DEBUG: Skipping function: config\_cream\_glite\_initd\_setenv because it is not defined

INFO: Executing function: config\_cream\_glite\_initd

DEBUG: Write the gLite service startup function

DEBUG: Make the gLite init script executable

INFO: Executing function: config\_torque\_server\_setenv

INFO: Currently this function doesn't set any environment variables.

INFO: Executing function: config\_torque\_server

DEBUG: TORQUE\_VAR\_DIR not set

DEBUG: Using /var/torque

DEBUG: Add all the pbs services...

DEBUG: Define the batch server name

DEBUG: Create the node list

DEBUG: Saving the existing nodes configuration

DEBUG: (Re)start the torque server

INFO: Re-starting the torque server

pbs\_server is not running.

/var/torque/server\_priv/serverdb

Starting TORQUE Server: [ OK ]

DEBUG: Create the pbs queues

DEBUG: Queue "GRID\_ops" already exists, it won't be created.

DEBUG: Queue "GRID\_dteam" already exists, it won't be created.

DEBUG: Queue "GRID\_opsibeu" already exists, it won't be created.

DEBUG: Queue "GRID\_iberibeu" already exists, it won't be created.

Max open servers: 9

set server scheduling = True

set server acl\_host\_enable = False

set server managers = root@test06.egi.cesga.es

set server operators = root@test06.egi.cesga.es

set server default\_queue = dteam

set server log\_events = 511

set server mail\_from = adm

set server mail\_domain = never

set server query\_other\_jobs = True

set server scheduler\_iteration = 600

set server default\_node = lcgpro

set server node\_pack = False

set server kill\_delay = 10

set server authorized\_users = \*@test06.egi.cesga.es

Max open servers: 9

set queue GRID\_ops queue\_type = Execution

set queue GRID\_ops resources\_max.cput = 48:00:00

set queue GRID\_ops resources\_max.walltime = 72:00:00

set queue GRID\_ops enabled = True

set queue GRID\_ops started = True

set queue GRID\_ops acl\_group\_enable = True

DEBUG: Mapping: ops --> ops

DEBUG: Mapping: /VO=ops/GROUP=/ops/ROLE=lcgadmin --> opssgm

Max open servers: 9

set queue GRID\_dteam queue\_type = Execution

```

set queue GRID_dteam resources_max.cput = 48:00:00
set queue GRID_dteam resources_max.walltime = 72:00:00
set queue GRID_dteam enabled = True
set queue GRID_dteam started = True
set queue GRID_dteam acl_group_enable = True
  DEBUG: Mapping: dteam --> dteam
  DEBUG: Mapping: /VO=dteam/GROUP=/dteam/ROLE=lcgadmin --> dteamsgm
Max open servers: 9
set queue GRID_opsibeu queue_type = Execution
set queue GRID_opsibeu resources_max.cput = 48:00:00
set queue GRID_opsibeu resources_max.walltime = 72:00:00
set queue GRID_opsibeu enabled = True
set queue GRID_opsibeu started = True
set queue GRID_opsibeu acl_group_enable = True
  DEBUG: Mapping: ops.vo.ibergrid.eu --> opsibeu
  DEBUG: Mapping: /VO=ops.vo.ibergrid.eu/GROUP=/ops.vo.ibergrid.eu/ROLE=VO-Admin --> opsibeusgm
  DEBUG: Mapping:
/VO=ops.vo.ibergrid.eu/GROUP=/ops.vo.ibergrid.eu/ROLE=Production --> opsibeuprd
Max open servers: 9
set queue GRID_iberibeu queue_type = Execution
set queue GRID_iberibeu resources_max.cput = 48:00:00
set queue GRID_iberibeu resources_max.walltime = 72:00:00
set queue GRID_iberibeu enabled = True
set queue GRID_iberibeu started = True
set queue GRID_iberibeu acl_group_enable = True
  DEBUG: Mapping: iber.vo.ibergrid.eu --> ibeibeu
  DEBUG: Mapping:
/VO=iber.vo.ibergrid.eu/GROUP=/iber.vo.ibergrid.eu/ROLE=VO-Admin -->
ibeibeusgm
  DEBUG: Mapping:
/VO=iber.vo.ibergrid.eu/GROUP=/iber.vo.ibergrid.eu/ROLE=Production -->
ibeibeuprd
Shutting down TORQUE Server:          [ OK ]
/var/torque/server_priv/serverdb
Starting TORQUE Server:                [ OK ]
  DEBUG: zip server log
  INFO: Executing function: config_mai_cfg_setenv
  DEBUG: Currently this function doesn't set any environment variables.
  INFO: Executing function: config_mai_cfg
  INFO: configuring maui ...
  DEBUG: Saving the existing maui configuration
creamCE TORQUE_server TORQUE_utils
  DEBUG: Starting Maui ...
MAUI is already stopped:                [ OK ]
Starting MAUI Scheduler:                [ OK ]
  INFO: Executing function: config_apel_pbs_setenv
  DEBUG: This function currently doesn't set any environment variables.
  INFO: Executing function: config_apel_pbs

```

```

DEBUG: Check if the parser config template (/etc/glite-apel-pbs/parser-config.xml)
exists, exists if not
DEBUG: TORQUE_VAR_DIR is set
DEBUG: BATCH_ACCT_DIR not set. Using /var/torque/server_priv/accounting
DEBUG: Create a parser config xml file (/etc/glite-apel-pbs/parser-config-yaim.xml)
DEBUG: Creating APEL parser configuration in /etc/glite-apel-pbs/parser-config-
yaim.xml
DEBUG: Change the ownership and permissions of the created config file
DEBUG: Add a cron job (glite-apel-pbs-parser) for periodic configuration.
INFO: Executing function: config_gip_sched_plugin_pbs_setenv
DEBUG: This function currently doesn't set any environment variables.
INFO: Executing function: config_gip_sched_plugin_pbs
DEBUG: TORQUE_VAR_DIR is set
DEBUG: Checks if the batch system is correct for this function
DEBUG: Define the 'max jobs' cmd for the VOs
DEBUG: Add BATCH_SERVER to the /var/torque/server_name file to enable torque
clients
DEBUG: Create ERT configuration
DEBUG: Skipping function: config_torque_submitter_ssh_setenv because it is not
defined
INFO: Executing function: config_torque_submitter_ssh
DEBUG: TORQUE_VAR_DIR is set
Starting MUNGE:                [ OK ]
Reloading sshd:                [ OK ]
INFO: Configuration Complete.           [ OK ]
INFO: YAIM terminated successfully.
}}}
```

==== To enable munge on your torque cluster ====

- \* Install the munge package on your pbs\_server and submission hosts in your cluster.
- \* On one host generate a key with \*/usr/sbin/create-munge-key\*
- \* Copy the key, /etc/munge/munge.key to your pbs\_server and submission hosts on your cluster.
- \* Start the munge daemon on these nodes.. \*\*service munge stop && service munge start && chkconfig munge on\*\*

=== TESTING ===

==== Checking ldap (OK) ====

```
{{{
```

```
[root@ce2 etc]# ldapsearch -x -H ldap://sbdii02.ncg.ingrid.pt:2170 -b o=grid | grep
cesga
```

```
# test06.egi.cesga.es, UMD-VERIFICATION, grid
```

```
dn: GlueClusterUniqueID=test06.egi.cesga.es,Mds-Vo-name=UMD-
VERIFICATION,o=gri
```

GlueClusterUniqueID: test06.egi.cesga.es  
GlueClusterService: test06.egi.cesga.es:8443/cream-pbs-GRID\_ops  
GlueClusterService: test06.egi.cesga.es:8443/cream-pbs-GRID\_dteam  
GlueClusterService: test06.egi.cesga.es:8443/cream-pbs-GRID\_opsibergrid  
GlueClusterService: test06.egi.cesga.es:8443/cream-pbs-GRID\_ibergrid  
GlueForeignKey: GlueCEUniqueID: test06.egi.cesga.es:8443/cream-pbs-GRID\_ops  
GlueForeignKey: GlueCEUniqueID: test06.egi.cesga.es:8443/cream-pbs-GRID\_dteam  
GlueForeignKey: GlueCEUniqueID: test06.egi.cesga.es:8443/cream-pbs-GRID\_opsibe  
GlueForeignKey: GlueCEUniqueID: test06.egi.cesga.es:8443/cream-pbs-GRID\_ibergr  
GlueClusterName: test06.egi.cesga.es  
}}}

{{{

```
[root@ce2 etc]# ldapsearch -x -H ldap://topbdii02.ncg.ingrid.pt:2170 -b o=grid | grep test06
```

```
# test06.egi.cesga.es, UMD-VERIFICATION, local, grid
```

```
dn: GlueClusterUniqueID=test06.egi.cesga.es,Mds-Vo-name=UMD-VERIFICATION,Mds-V
```

```
GlueClusterUniqueID: test06.egi.cesga.es  
GlueClusterService: test06.egi.cesga.es:8443/cream-pbs-GRID_ops  
GlueClusterService: test06.egi.cesga.es:8443/cream-pbs-GRID_dteam  
GlueClusterService: test06.egi.cesga.es:8443/cream-pbs-GRID_opsibergrid  
GlueClusterService: test06.egi.cesga.es:8443/cream-pbs-GRID_ibergrid  
GlueForeignKey: GlueCEUniqueID: test06.egi.cesga.es:8443/cream-pbs-GRID_ops  
GlueForeignKey: GlueCEUniqueID: test06.egi.cesga.es:8443/cream-pbs-GRID_dteam  
GlueForeignKey: GlueCEUniqueID: test06.egi.cesga.es:8443/cream-pbs-GRID_opsibe
```



GlueForeignKey: GlueCEUniqueID: test06.egi.cesga.es:8443/cream-pbs-GRID\_ibergr

GlueClusterName: test06.egi.cesga.es

}}}

{{{

```
[root@ce2 etc]# ldapsearch -x -H ldap://test06.egi.cesga.es:2170 -b o=grid | grep
```

GlueCEStateFreeCPUs

GlueCEStateFreeCPUs: 4

GlueCEStateFreeCPUs: 4

GlueCEStateFreeCPUs: 4

GlueCEStateFreeCPUs: 4

}}}

==== Checking if ssh works in bidirectional sense ====

\* From WN to CE (OK)

{{{

```
[root@test14 ~]# su - dteam004
```

```
[dteam004@test14 ~]$ ssh test06.egi.cesga.es
```

```
[dteam004@test06 ~]$
```

}}}

==== Trying some internal commands ====

{{{

```
[root@test06 etc]# qstat -B
```

Server	Max	Tot	Que	Run	Hld	Wat	Trn	Ext	Status
--------	-----	-----	-----	-----	-----	-----	-----	-----	--------

-----

test06.egi.cesga	0	0	0	0	0	0	0	0	Active
------------------	---	---	---	---	---	---	---	---	--------

```
[root@test06 etc]# qstat -Q
```

Queue	Max	Tot	Ena	Str	Que	Run	Hld	Wat	Trn	Ext	T
-------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---

-----

GRID_ops	0	0	yes	yes	0	0	0	0	0	0	E
----------	---	---	-----	-----	---	---	---	---	---	---	---

GRID_dteam	0	0	yes	yes	0	0	0	0	0	0	E
------------	---	---	-----	-----	---	---	---	---	---	---	---

```
GRID_opeibeu    0  0  yes  yes  0  0  0  0  0  0  E
GRID_iberibeu  0  0  yes  yes  0  0  0  0  0  0  E
```

```
}}}
```

```
* Submitting a direct qsub
```

```
{{{
```

```
[opssgm004@test06 ~]$ vi test.sh
[opssgm004@test06 ~]$ chmod +x test.sh
[opssgm004@test06 ~]$ qsub -q GRID_ops -l nodes=test15.egi.cesga.es test.sh
0.test06.egi.cesga.es
[opssgm004@test06 ~]$ ls
test.sh test.sh.e0 test.sh.o0
[opssgm004@test06 ~]$ cat test.sh.e0
[opssgm004@test06 ~]$ cat test.sh.o0
test15.egi.cesga.es
Fri Jul 27 09:03:35 CEST 2012
}}}
```

```
==== Submitting a job from the CESGA UI ====
```

```
{{{
```

```
[esfreire@test13 ~]$ glite-ce-delegate-proxy -e test06.egi.cesga.es esfreire
Proxy with delegation id [esfreire] succesfully delegated to endpoint
[test06.egi.cesga.es]
```

```
[esfreire@test13 ~]$ glite-ce-proxy-renew -e test06.egi.cesga.es esfreire
Proxy with delegation id [esfreire succesfully renewed to endpoint [test06.egi.cesga.es]
}}}
```

```
{{{
```

```
[esfreire@test13 ~]$ glite-ce-job-submit -D esfreire -r test06.egi.cesga.es:8443/cream-
pbs-GRID_dteam testCream1.jdl
https://test06.egi.cesga.es:8443/CREAM963737516
```

```
[esfreire@test13 ~]$ glite-ce-job-status
https://test06.egi.cesga.es:8443/CREAM963737516
```

```
***** JobID=[https://test06.egi.cesga.es:8443/CREAM963737516]
      Status    = [DONE-OK]
      ExitCode   = [0]
}}}
```

```
==== Checking edg-apel-sge-parser crond ====
```

```
{{{
```

```
[root@test06 etc]# export APEL_HOME="/"
```

```
[root@test06 etc]# /usr/bin/apel-pbs-log-parser -f/etc/glite-apel-pbs/parser-config-yaim.xml
Fri Jul 27 07:14:21 UTC 2012: apel-pbs-log-parser - Read-in configuration: [quiet, p, inspectTables, c, e, recursiveEventFiles, b, recursiveBlahdFiles] [DBPassword=****, site=CESGA-EGEE, pbslog=/var/torque/server_priv/accounting, GIIS=test06.egi.cesga.es, CEhost=test06.egi.cesga.es, blahdlogPrefix=blahp.log-, DBURL=jdbc:mysql://test07.egi.cesga.es:3306/accounting, DBUsername=accounting, timeZone=UTC, blahdlog=/var/log/cream/accounting]
Fri Jul 27 07:14:21 UTC 2012: apel-pbs-log-parser - ----- Starting the apel application -----
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - **** APEL is examining the schema ****
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Checking the LcgRecords table
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The LcgRecords schema is up-to-date
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Checking the BlahdRecords table
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The BlahdRecords schema is up-to-date
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Checking the LcgProcessedFiles table
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The LcgProcessedFiles schema is up-to-date
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Checking the SpecRecords table for patch 28593
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Checking the SpecRecords table for patch 65723
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The SpecRecords schema is up-to-date
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Checking the GkRecords table
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The GkRecords schema is up-to-date
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Checking the MessageRecords table
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The MessageRecords schema is up-to-date
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - **** Schema checks complete ****
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Finding CPU spec values from GIIS server: test06.egi.cesga.es
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - LDAP URL: ldap://test06.egi.cesga.es:2170
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The ClusterId : SpecInt pair are latest, no update required test06.egi.cesga.es:8443/cream-pbs-GRID_dteam:2395
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The ClusterId : SpecInt pair are latest, no update required test06.egi.cesga.es:8443/cream-pbs-GRID_ops:2395
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The ClusterId : SpecInt pair are latest, no update required test06.egi.cesga.es:8443/cream-pbs-GRID_iberibeu:2395
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The ClusterId : SpecInt pair are latest, no update required test06.egi.cesga.es:8443/cream-pbs-GRID_opsibeu:2395
```

Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Reprocess disabled, checking new event logs only  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - \*\*\*\* Updating PBS end event table (EventRecords) \*\*\*\*  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Processing batch log file: test06.egi.cesga.es /var/torque/server\_priv/accounting/20120727  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Ignoring already processed event log file: test06.egi.cesga.es /var/torque/server\_priv/accounting/20120726  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Event records inserted: 3  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Checking the BlahdRecords table  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - The BlahdRecords schema is up-to-date  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Reprocess disabled, checking new event logs only  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Processing /var/log/cream/accounting/blahp.log-20120727  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Processing /var/log/cream/accounting/blahp.log-20120726  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - Blahd records inserted: 27  
Fri Jul 27 07:14:22 UTC 2012: apel-pbs-log-parser - ----- Processing finished -----  
}}}

**Not applicable Quality Criteria**

**Specific Functional Tests to be repeated in SR:**

Test number	Description	Motivation

**Specific Non-functional tests (Scalability, etc...) to be repeated in SR:**

Test number	Description	Motivation

**Comments for UMD QC definition (TSA2.2):**

- Review criteria xxxx
- Add criteria xxxx

**Comments for SR (TSA1.3):**

**Comments for DMSU (TSA2.5):**

**Comments for TP:**