



Enabling Grids for E-science

# GILDA Praticals : Security and Information systems

GILDA Tutors  
INFN Catania  
EGEE Tutorial Rome  
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[www.eu-egee.org](http://www.eu-egee.org)



# How access the GILDA User Interface

**Login** : romaXX@glite-tutor.ct.infn.it  
where XX=01,..40

**Passwd** : GridROMXX XX=01,..,40

**PEM PASSPHRASE** : ROMA



Enabling Grids for E-science

# Practicals on VOMS and MyProxy

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Information Society



- **VOMS proxy creation**
- **MyProxy Usage**

- **.globus directory contains your personal public / private keys**

```
[glite-tutor] /home/giorgio > ls -l .globus
total 8
-rw-r----- 1 giorgio users 1613 Oct  4 19:30 usercert.pem
-r----- 1 giorgio users 1914 Oct  4 19:30 userkey.pem
```

**Pay attention to permissions !**

- **Main options**

**-voms** <vo-name>:[command]>

- **command** syntax is :/<voname>/group for group specify (default none)
- **command** syntax is :/<voname>/Role=<role name> for Role choice (default none)

```
voms-proxy-init --voms gildav:/gildav/Role=VO-Admin
voms-proxy-init --voms gildav:/gildav/tutors
```

-valid **x:y**, create a proxy valid for **x** hours and **y** minutes

-vomslife **x**, create a proxy with AC valid for **x** hours (max 24 h)

-cert <certfile> Non-standard location of user certificate

-key <keyfile> Non-standard location of user key

-out <proxyfile> Non-standard location of new proxy cert

-userconf <file> Non-standard location for user-defined voms server addresses

- **Default** location for voms server address file is /opt/glite/etc/vomses or ~/.glite/vomses. **Syntax**

```
"vo-nickname" "voms server FQDN" "port" \ "voms server
certificate subject" "vo name"
```

Vomses parameters are usually provided by VOs manager

```

voms-proxy-init --voms gildav
Your identity: /C=IT/O=GILDA/OU=Personal
Certificate/L=INFN/CN=Emidio
Giorgio/Email=emidio.giorgio@ct.infn.it
Enter GRID pass phrase for this identity:
[insert your certificate passphrase]
Creating temporary proxy
..... Done
/C=IT/O=INFN/OU=Host/L=CNAF/CN=cert-voms-
01.cnaf.infn.it
/C=IT/O=INFN/CN=INFN Certification Authority
Creating proxy
..... Done
Your proxy is valid until Mon Jun 13 09:06:00 2005

```

- `voms-proxy-info`
- **Principal options :**
  - all prints all proxy options
  - file specifies a different location of proxy file

**Exercise 1 : create a voms proxy requesting your group membership (all of you belong to `generic-users` group)**



```
[giorgio@glite-tutor:~]$ voms-proxy-info --all
subject      : /C=IT/O=GILDA/OU=Personal
              Certificate/L=INFN/CN=Emidio
              Giorgio/Email=emidio.giorgio@ct.infn.it/CN=proxy
issuer       : /C=IT/O=GILDA/OU=Personal
              Certificate/L=INFN/CN=Emidio
              Giorgio/Email=emidio.giorgio@ct.infn.it
identity     : /C=IT/O=GILDA/OU=Personal
              Certificate/L=INFN/CN=Emidio
              Giorgio/Email=emidio.giorgio@ct.infn.it
type         : proxy
strength     : 512 bits
path         : /tmp/x509up_u513
timeleft    : 20:59:53
VO           : gildav
subject      : /C=IT/O=GILDA/OU=Personal
              Certificate/L=INFN/CN=Emidio
              Giorgio/Email=emidio.giorgio@ct.infn.it
issuer       : /C=IT/O=INFN/OU=Host/L=CNAF/CN=cert-voms-
              01.cnaf.infn.it
attribute    : /gildav/Role=NULL/Capability=NULL
timeleft    : 20:58:28
```

- **myproxy server:**
  - myproxy-init
    - Allows to create and store a long term proxy certificate:
  - myproxy-info
    - Get information about stored long living proxy
  - myproxy-get-delegation
    - Get a new proxy from the MyProxy server
  - myproxy-destroy
  - Check out them with myproxy-xxx --help option
- **A dedicated service on the RB can renew automatically the proxy**
  - contacting the myproxy server
- **File Transfer Services in gLite (< 1.5) validates user request contacting myproxy server**

```
[giorgio@glite-tutor:~]$ myproxy-init -s grid001.ct.infn.it
Your identity: /C=IT/O=GILDA/OU=Personal
Certificate/L=INFN/CN=Emidio
Giorgio/Email=emidio.giorgio@ct.infn.it
Enter GRID pass phrase for this identity:
Creating proxy .....
Done
Proxy Verify OK
Your proxy is valid until: Sun Jun 19 21:18:27 2005
Enter MyProxy pass phrase:
Verifying password - Enter MyProxy pass phrase:
A proxy valid for 168 hours (7.0 days) for user giorgio now exists
on grid001.ct.infn.it.
```

- **Principal options**
- **-c** hours specifies lifetime of stored credentials
- **-t** hours specifies the maximum lifetime of credentials when retrieved
- **-s** <hostname> specifies the myproxy server where to store credentials
- **-d** stores credential with the distinguished name in proxy, instead of user name (mandatory for some data management services and proxy renewal)
- For proxy renewal it's also mandatory **-n** (no passphrase). You've to specify also subject of principals that can renew a delegation (**-R** subject, or **-A** for any principal)

- Useful to retrieve info on stored credentials
- Need local credentials to be performed
- If credentials have been **initialized** with **-d** switch, you have also to specify it there

```
[giorgio@glite-tutor:~]$ myproxy-info -s grid001.ct.infn.it
username: giorgio
owner: /C=IT/O=GILDA/OU=Personal Certificate/L=INFN/CN=Emidio
Giorgio/Email=emidio.giorgio@ct.infn.it
timeleft: 167:55:34 (7.0 days)
```

- This command is used to retrieve a delegation from a long lived proxy stored on myproxy server
- It is independent by the machine ! You don't need to have your certificate on board
- If credentials have been initialized with `-d` switch, you have to specify it also in myproxy-get-delegation request

```
[giorgio@glite-tutor:~]$ myproxy-get-delegation \  
-s grid001.ct.infn.it  
Enter MyProxy pass phrase:  
A proxy has been received for user giorgio in /tmp/x509up_u513
```

- Delete, if existing, the long lived credentials on the specified myproxy server

```
[glite-tutor] /home/giorgio > myproxy-destroy \  
-s grid001.ct.infn.it  
Default MyProxy credential for user giorgio was successfully  
removed.
```

- **Create a myproxy on the server `grid001.ct.infn.it`**
- **Visualize information on that**
- **Create a myproxy with `-d` option**
- **Which differences you note ?**
- **Destroy both**







# Explore the GILDA Testbed

Giuseppe La Rocca



- In order to query directly the IS elements two higher level tools are presented.

lcg-infosites

lcg-info

- These tools should be enough for most common user needs and will usually avoid the necessary of raw LDAP queries.

- The **lcg-infosites** command can be used as an easy way to retrieve information on Grid resources for the most use cases.

**USAGE: lcg-infosites --vo <vo name> options -v <verbose level> --is <BDII to query>**

<b>ce</b>	The information related to number of CPUs, running jobs, waiting jobs and names of the CEs are provided. All these data group all VOs together. With "-v 1" only the names of the queues will be printed while with "-v 2" The RAM Memory together with the operating system and its version and the processor included in each CE are printed.
<b>se</b>	The names of the SEs supported by the user's VO together with the kind of Storage System, the used and available space will be printed. With "-v 1" only the names of the SEs will be printed.
<b>closeSE</b>	The names of the CEs where the user's VO is allowed to run together with their corresponding closest SEs are provided.
<b>lfc</b>	Name of the lfc Catalog for the user's VO.
<b>tag</b>	The names of the tags relative to the software installed in site is printed together with the corresponding CE.
<b>all</b>	It groups together the information provided by ce, se, lrc and rmc.
<b>is</b>	If not specified the BDII defined in default by the variable LCG GFAL INFOSYS will be queried. However the user may want to query any other BDII without redefining this environment variable. This is possible specifying this argument followed by the name of the BDII which the user wants to query. All options admits this argument.

# Exercise 1

## Obtaining information about CE



```
$ lcg-infosites --vo gilda ce
```

These are the related data for gilda: (in terms of queues and CPUs)

\*\*\*\*\*

#CPU	Free	Total Jobs	Running	Waiting	ComputingElement
4	3	0	0	0	cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-long
4	3	0	0	0	cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short
34	33	0	0	0	grid010.ct.infn.it:2119/jobmanager-lcgpbs-long
16	16	0	0	0	grid011f.cnaf.infn.it:2119/jobmanager-lcgpbs-long
1	1	0	0	0	grid006.cecalc.ula.ve:2119/jobmanager-lcgpbs-log



[..]

```
$ lcg-infosites --vo gilda ce -v 2
```

\*\*\*\*\*

These are the related data for gilda: (in terms of queues and CPUs)

\*\*\*\*\*

#CPU	Free	Total Jobs	Running	Waiting	ComputingElement
4	3	0	0	0	cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-long
4	3	0	0	0	cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short
34	33	0	0	0	grid010.ct.infn.it:2119/jobmanager-lcgpbs-long
16	16	0	0	0	grid011f.cnaf.infn.it:2119/jobmanager-lcgpbs-long
1	1	0	0	0	grid006.cecalc.ula.ve:2119/jobmanager-lcgpbs-log

[..]

## Exercise 2

### Obtaining information about SE



```
$ lcg-infosites --vo gilda se
```

```
*****
```

These are the related data for gilda: (in terms of SE)

```
*****
```

Avail Space(Kb)	Used Space(Kb)	Type	SEs
143547680	2472756	disk	cn02.be.itu.edu.tr
168727984	118549624	disk	grid009.ct.infn.it
13908644	2819288	disk	grid003.cecalc.ula.ve
108741124	2442872	disk	gildase.oact.inaf.it
28211488	2948292	disk	testbed005.cnaf.infn.it
349001680	33028	disk	gilda-se-01.pd.infn.it
31724384	2819596	disk	cna03.cna.unicamp.br
387834656	629136	disk	grid-se.bio.dist.unige.it





# Exercise 3

## Listing the closeSE



```
$ lcg-infosites --vo gilda closeSE
```

**Name of the CE: cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-long**

**Name of the close SE: cn02.be.itu.edu.tr**

**Name of the CE: cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short**

**Name of the close SE: cn02.be.itu.edu.tr**

**Name of the CE: grid010.ct.infn.it:2119/jobmanager-lcgpbs-long**

**Name of the close SE: grid009.ct.infn.it**

**Name of the CE: grid011f.cnaf.infn.it:2119/jobmanager-lcgpbs-long**

**Name of the close SE: testbed005.cnaf.infn.it**



# Exercise 4

## Listing tag of installed software



```
$ lcg-infosites --vo gilda tag
```

```
*****  
Information for gilda relative to their software tags included in each CE  
*****
```

```
Name of the TAG: VO-gilda-GEANT  
Name of the TAG: VO-gilda-GKS05  
Name of the CE:cn01.be.itu.edu.tr
```

```
Name of the TAG: VO-gilda-slc3_ia32_gcc323  
Name of the TAG: VO-gilda-CMKIN_5_1_1  
Name of the TAG: VO-gilda-GEANT  
Name of the TAG: VO-gilda-GKS05  
Name of the CE:grid010.ct.infn.it
```

```
[..]
```



This command can be used to list either CEs or the SEs that satisfy a given set of conditions, and to print the values of a given set of attributes.

The information is taken from the BDII specified by the **LCG\_GFAL\_INFOSYS** environment variable.

The query syntax is like this:

```
attr1 op1 valueN, ... attrN opN valueN
```

where ***attrN*** is an attribute name

**op** is =, >= or <=, and the cuts are ANDed.

The cuts are comma-separated and spaces are not allowed.

## USAGE

**lcg-info --list-ce [--bdii bdii] [--vo vo] [--sed] [--query query] [--attrs list]**

**lcg-info --list-se [--bdii bdii] [--vo vo] [--sed] [--query query] [--attrs list]**

**lcg-info --list-attrs**

**lcg-info --help**

<b>--list-attrs</b>	Prints a list of the attributes that can be queried.
<b>--list-ce</b>	Lists the CEs which satisfy a query, or all the CEs if no query is given.
<b>--list-se</b>	Lists the SEs which satisfy a query, or all the SEs if no query is given.
<b>--query</b>	Restricts the output to the CEs (SEs) which satisfy the given query.
<b>--bdii</b>	Allows to specify a BDII in the form <code>[:]</code> . If not given, the value of the environmental variable <code>LCG_GFAL_INFOSYS</code> is used. If that is not defined, the command returns an error.
<b>--sed</b>	Print the output in a "sed-friendly" format.
<b>--attrs</b>	Specifies the attributes whose values should be printed.
<b>--vo</b>	Restricts the output to CEs or SEs where the given VO is authorized. Mandatory when VO-dependent attributes are queried upon.

# Exercise 5

**Get the list of supported attributes**





```
$ lcg-info --list-attrs
```

Attribute name	Glue object class	Glue attribute name
MaxTime	GlueCE	GlueCEPolicyMaxWallClockTime
CEStatus	GlueCE	GlueCEStateStatus
TotalJobs	GlueCE	GlueCEStateTotalJobs
CEVOs	GlueCE	GlueCEAccessControlBaseRule
TotalCPUs	GlueCE	GlueCEInfoTotalCPUs
FreeCPUs	GlueCE	GlueCEStateFreeCPUs
CE	GlueCE	GlueCEUniqueID
WaitingJobs	GlueCE	GlueCEStateWaitingJobs
RunningJobs	GlueCE	GlueCEStateRunningJobs
CloseCE	GlueCESEBindGroup	GlueCESEBindGroupCEUniqueID
CloseSE	GlueCESEBindGroup	GlueCESEBindGroupSEUniqueID
SEVOs	GlueSA	GlueSAAccessControlBaseRule
UsedSpace	GlueSA	GlueSAStateUsedSpace
AvailableSpace	GlueSA	GlueSAStateAvailableSpace
Type	GlueSE	GlueSEType
SE	GlueSE	GlueSEUniqueID
Protocol	GlueSEAccessProtocol	GlueSEAccessProtocolType
ArchType	GlueSL	GlueSLArchitectureType
Processor	GlueSubCluster	GlueHostProcessorModel
OS	GlueSubCluster	GlueHostOperatingSystemName
Cluster	GlueSubCluster	GlueSubClusterUniqueID
Tag	GlueSubCluster	GlueHostApplicationSoftwareRunTimeEnvironment
Memory	GlueSubCluster	GlueHostMainMemoryRAMSize



## Exercise 6

**List all the CE(s) in the BDII satisfying given conditions**



## List all the CE(s) in the BDII satisfying given conditions

```
$ lcg-info --list-ce --query 'TotalCPUs>=30,OS=SL*' --attrs
  'RunningJobs,FreeCPUs'
```

- CE: grid010.ct.infn.it:2119/jobmanager-lcgpbs-long
  - RunningJobs      0
  - FreeCPUs         33
  
- CE: grid010.ct.infn.it:2119/jobmanager-lcgpbs-short
  - RunningJobs      0
  - FreeCPUs         33
  
- CE: grid010.ct.infn.it:2119/jobmanager-lcgpbs-infinite
  - RunningJobs      1
  - FreeCPUs         33
  
- CE: skurut1.cesnet.cz:2119/jobmanager-lcgpbs-long
  - RunningJobs      0
  - FreeCPUs         26

[..]

# Exercise 7

List all the CE(s) in the BDII satisfying given condition  $\text{FreeCPU} \geq 30$



List all the CE(s) which satisfying the condition FreeCPU >=30

```
$ lcg-info --list-ce --query 'FreeCPUs >= 30' --attrs 'FreeCPUs'
```

- CE: grid010.ct.infn.it:2119/jobmanager-lcgpbs-long
  - FreeCPUs 33
- CE: grid010.ct.infn.it:2119/jobmanager-lcgpbs-short
  - FreeCPUs 33
- CE: grid010.ct.infn.it:2119/jobmanager-lcgpbs-infinite
  - FreeCPUs 33

[..]



## Exercise 8

**Print all the tags published by a specific CE**



```
$ lcg-info --list-ce --query 'CE=*grid010.ct.infn.it:2119*' --
  attrs 'Tag'
```

**PBS**  
**INFN**  
**CATANIA**  
**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**  
**R-GMA**  
**AFS**  
**CMS-1.1.0**  
**ATLAS-6.0.4**  
**GATE-1.0.0-3**  
**LHCb-1.1.1**  
**IDL-5.4**  
**CMSIM-125**  
**ALICE-4.01.00**  
**ALIEN-1.32.14**  
**POVRAY-3.5**  
**DEMTTOOLS-1.0**

**CMKIN-VALID**  
**CMKIN-1.1.0**  
**CMSIM-VALID**  
**CSOUND-4.13**  
**MPICH**  
**VIRGO-1.0**  
**CMS-OSCAR-2.4.5**  
**LHCb\_dbase\_common-v3r1**  
**GEANT4-6**  
**VLC-0.7.2**  
**EGEODE-1.0**  
**RASTER3D**  
**SCILAB-2.6**  
**G95-3.5.0**  
**MAGIC-6.19**  
**CODESA3D-1.0**  
**VO-gilda-slc3\_ia32\_gcc323**  
**VO-gilda-CMKIN\_5\_1\_1**  
**VO-gilda-GEANT**  
**VO-gilda-GKS05**



# Exercise 9

**List the CEs with a particular Software**





# List the CEs with a particular SW

```
$ lcg-info -vo gilda --list-ce --query 'Tag=*MPICH*' --attrs 'CE'
```

- CE: cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-long
- CE           cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-long
  
- CE: cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short
- CE           cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short
  
- CE: grid010.ct.infn.it:2119/jobmanager-lcgpbs-long
- CE           grid010.ct.infn.it:2119/jobmanager-lcgpbs-long
  
- CE: grid011f.cnaf.infn.it:2119/jobmanager-lcgpbs-long
- CE           grid011f.cnaf.infn.it:2119/jobmanager-lcgpbs-long
  
- CE: ced-ce0.datagrid.cnr.it:2119/jobmanager-lcgpbs-long
- CE           ced-ce0.datagrid.cnr.it:2119/jobmanager-lcgpbs-long

[..]



# Exercise 10

**List the SEs satisfying given query**



```
$ lcg-info -vo gilda --list-se --query 'AvailableSpace>=100000'
  --attrs 'CloseCE'
```

- SE: cn02.be.itu.edu.tr

- CloseCE           cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-long  
                   cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-short  
                   cn01.be.itu.edu.tr:2119/jobmanager-lcglsf-infinite

- SE: grid009.ct.infn.it

- CloseCE           grid010.ct.infn.it:2119/jobmanager-lcgpbs-long  
                   grid010.ct.infn.it:2119/jobmanager-lcgpbs-short  
                   grid010.ct.infn.it:2119/jobmanager-lcgpbs-infinite

- SE: ced-se0.datagrid.cnr.it

- CloseCE           ced-ce0.datagrid.cnr.it:2119/jobmanager-lcgpbs-long  
                   ced-ce0.datagrid.cnr.it:2119/jobmanager-lcgpbs-short  
                   ced-ce0.datagrid.cnr.it:2119/jobmanager-lcgpbs-infinite

- SE: grid003.cecalc.ula.ve

- CloseCE           grid006.cecalc.ula.ve:2119/jobmanager-lcgpbs-cert  
                   grid006.cecalc.ula.ve:2119/jobmanager-lcgpbs-long  
                   grid006.cecalc.ula.ve:2119/jobmanager-lcgpbs-short  
                   grid006.cecalc.ula.ve:2119/jobmanager-lcgpbs-infinite

[..]





# R-GMA Practical

Valeria Ardizzone

- To Start the R-GMA command line tool run the following command:

```
>rgma
```

- On startup you should receive the following message:

```
Welcome to the R-GMA virtual database for Virtual Organisations.  
You are connected to the R-GMA registry service at
```

```
http://<registry-host>:8080/R-GMA/RegistryServlet
```

```
Type "help" for a list of commands.
```

```
rgma>
```

- **Commands** are entered by typing at the **rgma>** prompt and hitting 'enter' to execute the command.
- A **history** of the commands executed can be accessed using the Up and Down arrow keys.
- To **search a command from history** use CTRL-R and type the first few letters of the command to recall.
- **Command autocompletion** is supported (use Tab when you have partly entered a command).

## General Commands

- **help**

Display general help information.

- **help <command>**

Display help for a specific command.

- **exit or quit**

Exit from R-GMA command line interface.

- **Show tables**

Display the name of all tables existing in the Schema

- **Describe <tablename>**

Show all information about the structure of a table



- Querying data uses the standard SQL SELECT statement, e.g.:

```
rgma> SELECT * FROM GlueService
```

The behaviour of SELECT varies according to the type of query being executed. In R-GMA there are three basic types of query:

- **LATEST Queries** only the most recent tuple for each primary key
- **HISTORY Queries** all historical tuples for each primary key
- **CONTINUOUS Queries** returns tuples continuously as they are inserted.

- The type of query can be changed using the **SET QUERY** command as follow:

```
rgma> SET QUERY LATEST
```

or

```
rgma> SET QUERY CONTINUOUS
```

- The current query type can be displayed using **rgma> SHOW QUERY**

**1. Display all the table of the Schema**

```
rgma>show tables
```

**2. Display information about GlueSite table**

```
rgma>describe GlueSite
```

**3. Basic select query on the table named GlueSite**

```
rgma>set query latest
```

```
rgma>show query
```

```
rgma>select Name,Latitude,Longitude from  
GlueSite
```

- The maximum age of tuples to return can also be controlled. To limit the age of latest or historical tuples use the **SET MAXAGE** command. The following are equivalent:

```
rgma> SET MAXAGE 2 minutes
```

```
rgma> SET MAXAGE 120
```

- The current maximum tuple age can be displayed using **rgma> SHOW MAXAGE**
- To disable the maximum age, set it to none:  

```
rgma> SET MAXAGE none
```

- **The final property affecting queries is timeout.**
  - For a latest or history query the timeout exists to prevent a problem (e.g. network failure) from stopping the query from completing.
  - For a continuous query, timeout indicates how long the query will continue to return new tuples. Default timeout is 1 minute and it can be changed using

**rgma>SET TIMEOUT 3 minutes or SET TIMEOUT 180**

- **The current timeout can be displayed using**  
**rgma>SHOW TIMEOUT**

- The SQL INSERT statement may be used to add data to the system:

```
rgma> INSERT INTO userTable VALUES ('a', 'b', 'c', 'd')
```

- In R-GMA, data is inserted into the system using a **Producer** component which handles the INSERT statement.
- Using the command line tool you may work with one producer at a time.
- The current producer type can be displayed using:  

```
rgma>show producer
```
- The producer type can be set using:  

```
rgma>set producer latest
```

## 1. Insert and Select using Primary Producer to support Continuous + History query

```
rgma>set producer continuous
```

```
rgma>insert into userTable values('cod','string',1.4,66)
```

```
rgma>set query continuous
```

```
rgma>set maxage 1 minutes
```

```
rgma>set timeout 5 seconds
```

```
rgma>select * from userTable
```

- To instruct the secondary producer to consume from table MyTable:

```
rgma> SECONDARYPRODUCER userTable
```

- Like the producer, the secondary producer may be configured to answer latest and/or history queries:

```
rgma> SET SECONDARYPRODUCER latest
```

- (By default the secondary producer can answer both latest and history queries. )
- The current secondary producer type can be displayed using:

```
rgma> SHOW SECONDARYPRODUCER
```



## 2. Insert and Select using the Secondary Producer to support the latest query.

```
rgma>set secondaryproducer latest  
rgma>secondaryproducer userTable  
rgma>show producers of userTable  
rgma>set producer continuous  
rgma>insert into userTable values ('cod','string',5.2,44)  
rgma>set query latest  
rgma>select * from userTable
```

THE END