**SAGA-NAREGI Adaptor**

**Setup Guide**

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January 5, 2010

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# Introduction

This document is the SNA (SAGA-NAREGI Adaptor for Job Management) environment setup guide.

# SNA environment

SNA application host is located out of NAREGI middleware environment. Users can submit a job by SAGA application to the specified NAREGI middleware that is chosen by the user from several NAREGI middleware environments.

# Setup procedure of SNA environment

This chapter describes how to setup SNA environment.

## Setup NAREGI cluster system

Please refer to the install/setup instruction guide of NAREGI.

## Setup SNA Application Host

This section describes how to setup SNA application host. The following software is required. Each setup procedure shows in the next.

* Globus Toolkit
* NAREGI command line tool
* Boost C++ libraly
* SAGA C++ API
* SNA

### Software requirements

The following is required to setup SNA application host.

|  |  |
| --- | --- |
| OS | Linux distribution |
| Apache Ant | Ant 1.6.1 or later |
| Compiler | GCC C/C++ 3.4.6 or later |
| Java SE SDK | Sun Java SE JDK 1.5 or later.  (Strongly recommended Sun Java SE JDK 1.6 or later) |
| JDBC Compliant DB | PostgreSQL 8.0 or later |
| Perl | Perl 5.005 or later |
| xinetd | Don’t care versions. |

### Globus Toolkit

SNA requires Globus Toolkit on the SNA application host.

|  |  |
| --- | --- |
| Globus Toolkit | Globus Toolkit 3.2.1 or later |

The following is the steps to install Globus Toolkit.

(1) Create a user “globus”.

# useradd globus

(2) Create the directory to which Globus Toolkit is installed. The install directory is /usr/local/globus-4.0.8 in this example.

# mkdir –p /usr/local/globus-4.0.8

# chown globus:globus /usr/local/globus-4.0.8

(3) Extract the source archive of Globus Toolkit. The Globus source directory is /usr/local/src in this example.

globus$ tar jxvf gt4.0.8-all-source-installer.tar.bz2

globus$ su

# mv gt4.0.8-all-source-installer /usr/local/src/

(4) Compile and install the Globus Toolkit

globus$ cd gt4.0.8-all-source-installer

globus$ configure --prefix=/usr/local/globus-4.0.8

globus$ make

globus$ make install

(5) Put the host certification and host key in the directory, /etc/grid-security/.

|  |  |  |
| --- | --- | --- |
| **File Name** | **Owner** | **Permission** |
| hostcert.pem | root:root | -rw-r-r- |
| hostkey.pem | root:root | -rw----- |

(6) Put the CA certification, signing\_policy file, certificate request file in the directory, /etc/grid-security/certificate. And specify the default CA.

|  |  |  |
| --- | --- | --- |
| **File Name** | **Owner** | **Permission** |
| *cert\_hash*.0 | root:root | -rw-r-r- |
| *cert\_hash*.signing\_policy | root:root | -rw-r-r- |
| globus-host-ssl.conf.*cert\_hash* | root:root | -rw-r-r- |
| globus-user-ssl.conf.*cert\_hash* | root:root | -rw-r-r- |
| grid-security.conf.*cert\_hash* | root:root | -rw-r-r- |

# /usr/local/globus-4.0.8/bin/grid-default-ca -ca *cert\_hash*

The above *cash\_hash* can be verified by the following command.

$ openssl x509 -in *CA\_certificate* -noout -hash

(7) Configure the gridftp server.

(a) Create the gridftp configuration file, /etc/xinetd.d/gridftp

service gsiftp

{

instances = 1000

socket\_type = stream

wait = no

user = root

env += GLOBUS\_LOCATION=/usr/local/globus-4.0.8

env += LD\_LIBRARY\_PATH=/usr/local/globus-4.0.8/lib

env += PATH=/usr/local/globus-4.0.8/sbin:)

/usr/local/globus-4.0.8/bin

server = /usr/local/globus-4.0.8/sbin/globus-gridftp-server

server args = -i -l /usr/local/globus-4.0.8/var/gridftp.log

log\_on\_success += DURATION USERID

log\_on\_failure += USERID

per\_source = 100

nice = 10

disable = no

}

(b) Enable xinetd and gridftp server, and start xinetd

# /sbin/chkconfig xinetd on

# /sbin/chkconfig gridftp on

# /sbin/chkconfig --list xinetd

xinetd 0:off 1:off 2:on 3:on 4:on 5:on 6:off

# /sbin/chkconfig --list gridftp

gridftp on

# /etc/rc.d/init.d/xinetd start

(8) Create profile.d script for environment variables of Globus Toolkit

* /etc/profile.d/globus-4.0.8.sh

#!/bin/bash

export GLOBUS\_LOCATION=/usr/local/globus-4.0.8

export GPT\_LOCATION=/usr/local/globus-4.0.8

$GLOBUS\_LOCATION/etc/globus-user-env.sh

$GLOBUS\_LOCATION/etc/globus-devel-env.sh

export PATH=$GLOBUS LOCATION/bin${PATH:+:$PATH}

* /etc/profile.d/globus-4.0.8.csh

#!/bin/csh

setenv GLOBUS\_LOCATION /usr/local/globus-4.0.8

setenv GPT\_LOCATION /usr/local/globus-4.0.8

source $GLOBUS\_LOCATION/etc/globus-user-env.csh

source $GLOBUS\_LOCATION/etc/globus-devel-env.csh

set path=($GLOBUS\_LOCATION/bin $path)

### NAREGI command line tool

SNA requires NAREGI command line tool on the SNA application host.

|  |  |
| --- | --- |
| NAREGI command line tool | NAREGI V1.1 command line tool |

The following is the steps to install NAREGI command line tool.

(1) Create a directory, /usr/naregi.

# mkdir –p /usr/naregi

(2) Extract the binary code, naregi-v1.1-CLT-081009.tar.gz. The install directory of the NAREGI command line tool is /usr/naregi in this example.

# cd /usr/naregi

# tar zxvf /*somewhere*/naregi-v1.1-CLT-081009.tar.gz

(3) The NAREGI command line tool requires /.java/deployment/deployment.properties file in its executing. Create the following files in the directory, /etc/skel.

# mkdir /etc/skel/.java/deployment

# touch /etc/skel/.java/deployment/deployment.properties

(4) Create profile.d script for environment variables of NAREGI command line tool.

* //etc/profile.d/naregi-ctl.sh

#!/bin/bash

NAREGI\_HOME=/usr/naregi ; export NAREGI\_HOME

PATH=$NAREGI\_HOME/bin${PATH:+:$PATH} ; export PATH

* /etc/profile.d/globus-4.0.8.csh

#!/bin/csh

setenv NAREGI\_HOME /usr/nareg

set path=($NAREGI\_HOME/bin $path)

### Boost C++ libraly

Boost C++ library is required to compile SAGA. The following is the requirement of Boost C++ library.

|  |  |
| --- | --- |
| Boost C++ library | Boost C++ library 1.34.1 or later |

The following is the steps to install the Boost C++ library.

1. Extract Boost C++ library package. The source directory is /usr/local/src in this example.

$ tar jxvf boost\_1\_34\_1.tar.bz2

$ su

# mv boost\_1\_34\_1 /usr/local/src/

(2) Compile and install Boost C++ library. The install directory is /usr/local/ in this example.

$ cd boost\_1\_34\_1

$ ./configure --prefix=/usr/local

$ make

$ su

# make install

If you have some error messages that Boost Python cannot be detected at the next step (3), please try the following configure options. The Python install directory is /usr/local/python in this example.

$ ./configure --prefix=/usr/local --with-python=/usr/local/python/b

in/python

### SAGA C++ API

SAGA C++ API is required to use SNA. The following is a requirement of SAGA C++ API.

|  |  |
| --- | --- |
| SAGA C++ | SAGA C++ 1.1.1 or later |

The following is the steps to install the SAGA C++ API.

(1) Extract SAGA C++ package. The source directory is /usr/local/src in this example.

$ tar jxvf saga-cpp-1.1.1.src.tar.bz2

$ su

# mv saga-cpp-1.1.1.src /usr/local/src/

(2) Compile and install SAGA C++ API. The install directory is /usr/local/saga in this example.

$ cd saga-cpp-1.1.1-src

$ ./configure --prefix=/usr/local/saga

$ make

$ su

# make install

If you have some error messages that Boost Python cannot be detected, please try the following configure options. The Python install directory is /usr/local/python and the Boost C++ library is located at /usr/local in this example.

$./configure --prefix=/usr/local/saga --with-python=/usr/local/pyt

hon --with-boost= /usr/local

### SNA

The document, "SNA Installation Guide", describes how to install SNA.

## Management of SAGA Application Host

### User additions

Add the certification DN(Distinguished Name) of the new additional user and the user name to the /etc/grid-security/grid-mapfile file.

# useradd newuser

# /usr/naregi/globus-4.0.8/sbin/grid-mapfile-add-entry -dn *DN\_of\_us*

*er\_certificate* -ln *newuser*