**SAGA-PBSPro Adaptor**

**Setup Guide**

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# Introduction

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

# SPA environment

SPA uses PBSPro (Portable Batch System Professional Edition) as job manager.

PBSPro cluster consists of PBS server and PBS compute nodes. The PBS server manages a scheduler to control job queues and the PBS compute nodes execute each job. SPA adaptor host that SPA is installed on should need to access all of the PBS nodes. /home directory is shared among PBS server and PBS compute nodes in the typical PBSPro cluster system. SPA adaptor host does not be required to have such shared directories with the cluster.

# Setup procedure of SPA environment

This chapter describes how to setup SPA environment.

## Setup PBSPro cluster system

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

## Setup SPA Application Host

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

* PBSPro client
* Boost C++ libraly
* SAGA C++ API
* SPA

### Software requirements

The following is required to setup SPA application host.

|  |  |
| --- | --- |
| OS | Linux distribution |
| Compiler | GCC C/C++ 3.4.6 or later |

### PBSPro client

SPA requires PBSPro client on the SPA application host.

|  |  |
| --- | --- |
| PBSPro | PBSPro 9.2.2 or later |

The following is the steps to install PBSPro client.

1. Extract PBSPro package. The installation directory is /usr/local/src in this example.

$ tar zxvf PBSPro\_9.2.2-RHEL5\_x86.tar.gz

$ su

# mv PBSPro\_9.2.2 /usr/local/src/

(2) Install PBSPro commands for PBSPro client

# cd PBSPro\_9.2.2

# ./INSTALL

Then, the INSTALL script will ask you several questions to setup for your environments. Choose install type 3 as the PBSPro client installation.

(3) Set setuid bit of pbs\_iff

# chmod u+s /usr/local/torque/sbin/pbs\_iff

(4) Create profile.d script for environment variables of PBSPro

. /etc/profile.d/torque.sh

#!/bin/bash

export PBS\_EXEC=/usr/local/pbs

export PATH=$PATH:$PBS\_EXEC/bin

The $PBS\_EXEC should be same as the install directory you specified at the step (2).

(5) Modify PBSPro server configuration to accept jobs from SPA application host.

(a) Add SPA application host in /etc/hosts.equiv on PBSPro server

(b) Configure ACL of PBSPro server. For example,

# qmgr -c 'set server acl\_host\_enable = True'

# qmgr -c 'set server acl\_hosts += sg01.cc.kek.jp'

### 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/bin/python

### SAGA C++ API

SAGA C++ API is required to use SPA. 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/python --with-boost= /usr/local

### SPA

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