

# SAGA-PBSPro Adaptor

## Setup Guide

High Energy Accelerator Research Organization (KEK)  
Computing Research Center

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## **1 Introduction**

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

## **2 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.

## **3 Setup procedure of SPA environment**

This chapter describes how to setup SPA environment.

### **3.1 Setup PBSPro cluster system**

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

### **3.2 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++ library
- SAGA C++ API
- SPA

### 3.2.1 Software requirements

The following is required to setup SPA application host.

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

### 3.2.2 PBSPPro client

SPA requires PBSPPro client on the SPA application host.

PBSPPro	PBSPPro 9.2.2 or later
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The following is the steps to install PBSPPro client.

- (1) Extract PBSPPro package. The installation directory is /usr/local/src in this example.

```
$ tar zxvf PBSPPro_9.2.2-RHEL5_x86.tar.gz
$ su
# mv PBSPPro_9.2.2 /usr/local/src/
```

- (2) Install PBSPPro commands for PBSPPro client

```
# cd PBSPPro_9.2.2
# ./INSTALL
```

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

```

./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'

```

### 3.2.3 Boost C++ library

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
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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
```

### 3.2.4 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
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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
```

### **3.2.5 SPA**

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