Creating a BES Container

(Supplying Compute Resources to the XCG)

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Abstract

This document describes the process for creating and supplying compute resources to the XCG grid. This provisioning is done using a service called the BES (Basic Execution Service) and its associate client tool, the `bes-manager` tool.

Pre-requisites

In order to create a BES service resource and provide it to the XCG, you must first have a valid installation of the XCG software and you must have installed that software by selecting the XCG Full Container Installation (i.e., not the Client only installation). Further, your container must be running at the time that you run the configuration tool described below. Finally, you must run the grid tool from the same machine that you did the install on and from which you want to supply compute resources (i.e., logging into to the grid from a different machine will not allow you to configure a BES container on your target machine).

Finally, this document assumes a basic familiarity with the XCG grid in general (concepts such as grid namespace directories or RNS, grid shell interactions, etc.).

Shell Login

To start, you need to run the grid shell program, either from the command line, or from a shortcut created at installation time. In this shell, make sure that you are logged in as the owner of the XCG container service. Figure 1 shows an example session where this log in information was confirmed.

Figure 1: Shell Login Confirmation

Running the BES Manager Tool

Once logged in, run the bes-manager tool by typing in `bes-manager` and enter from the prompt. This will bring up a GUI that shows you the list of currently configured BES containers already running (at first this list will be empty). Figure 2 shows this dialog.
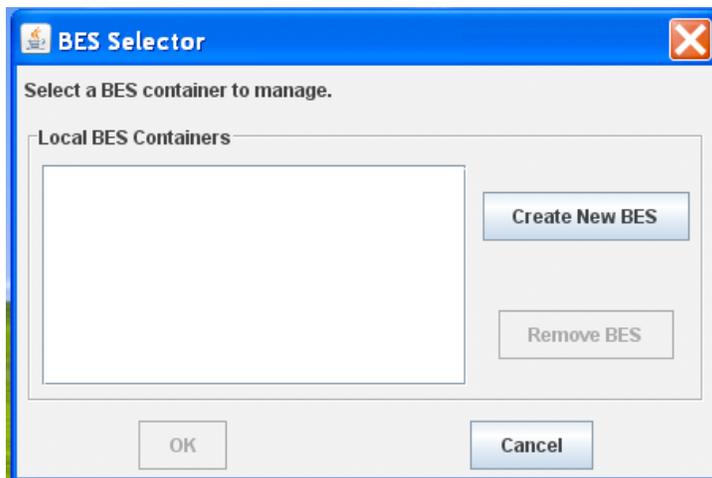

Figure 2: Initial BES Manager GUI Window

Create a New BES

To add a new BES container to the XCG (i.e., to start supplying compute resource for jobs), click on the "Create New BES" button. This will bring up the dialog box shown in Figure 3 that asks for a grid RNS path (not a local directory path) where the BES container should reside. This path is necessary as it provides a mechanism for referring to the new BES container inside of the grid. The information provided here will need to be given to an administrator later.

Note that in order for this step to succeed, the XCG grid must be up and running and you must be able to connect to it from your computer (i.e., you must have network support). Further, you must have grid permissions to write into the directory you specify. Generally speaking, the best place to link the BES container into the grid is inside of a grid directory located somewhere at or below your home directory in the grid.

Figure 3: New BES Name

Finishing the BES Creation

Once you have the grid directory named, clicking on OK will submit the request to the XCG and will perform the necessary operations to make the new BES available through the grid namespace. Figure 4 shows this final screen.
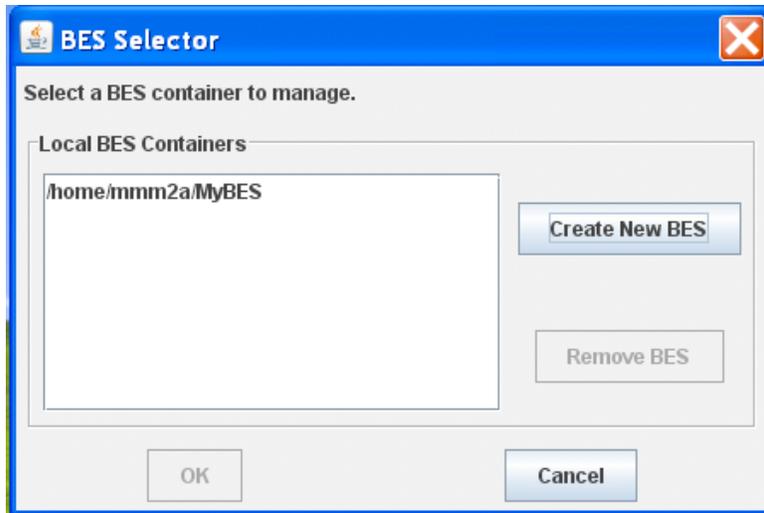
Figure 4: New Container Added

At this point, the BES container has been created and linked into the path that you specified, but the container is not yet generally available for jobs to run on. That final step requires the intervention of an XCG administrator who will perform the necessary steps to put it into the grid queue and give the container the necessary access control lists. Once you have created the container, please email the UVA-CSE group at uva-cse@virginia.edu and request that your BES container be added into the grid. At a minimum, please supply the following information:

- Your name and XCG grid account path
- Where the machine is located (e.g., "my desk in Olsson Hall in the Computer Science Department at the Univertsity of Virginia")
- The path that you linked the BES container into
- How many slots (jobs) you would like to make available to the grid at any given time
- Whether or not you require that jobs be killed on the machine when you log in to your machine