

# CNGrid (GOS v2)应用封装

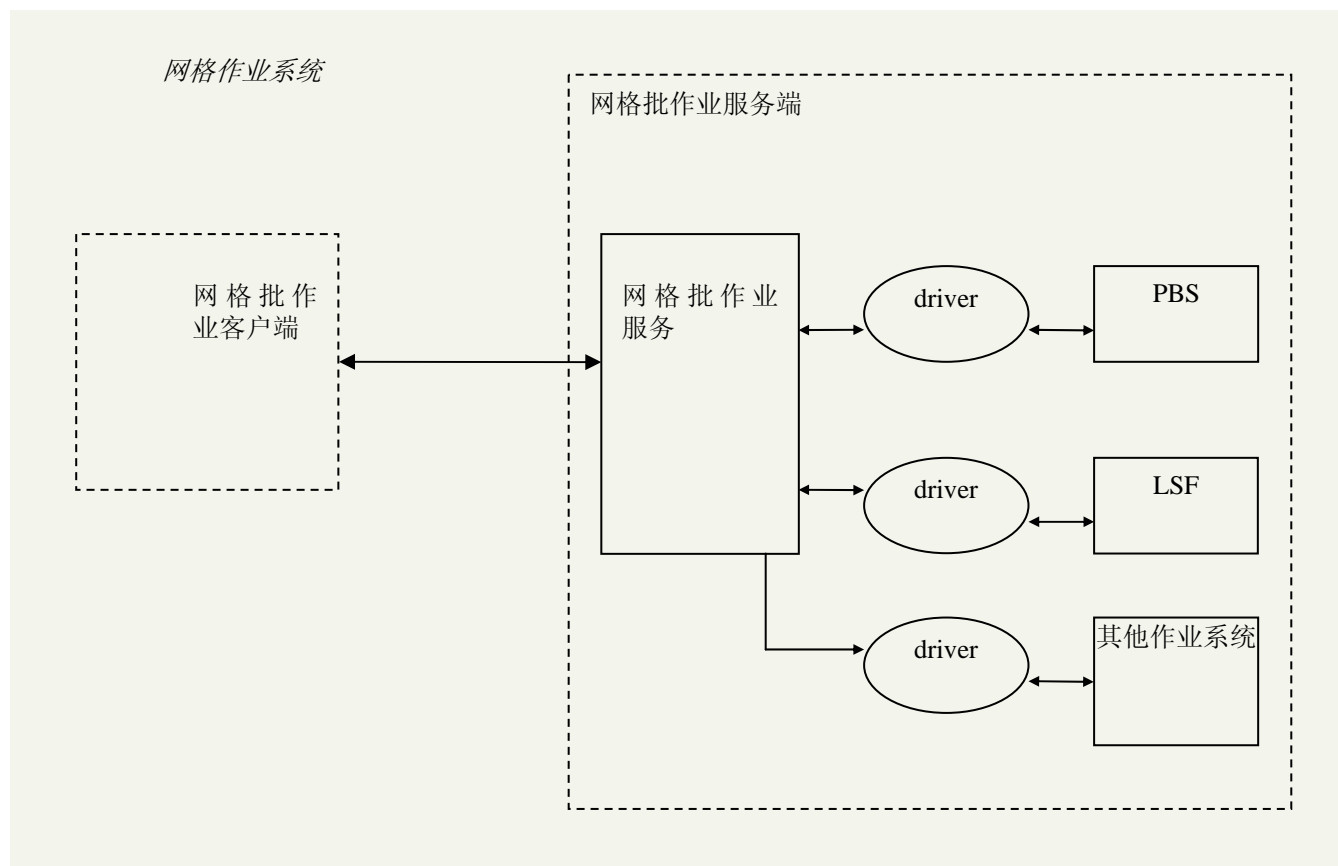
超级计算中心网格组  
2005年7月20日

# 参考资料

- GOS相关文档、常见问题、教程、下载
  - <http://vega.ict.ac.cn:8080/>
- GOS开发者论坛
  - <http://vega.ict.ac.cn:8080/chat>
- 两个培训资料
  - 郑州培训\_batch\_account
  - 基于GOS批作业服务的Blast实例开发

# 网格批作业系统---实现

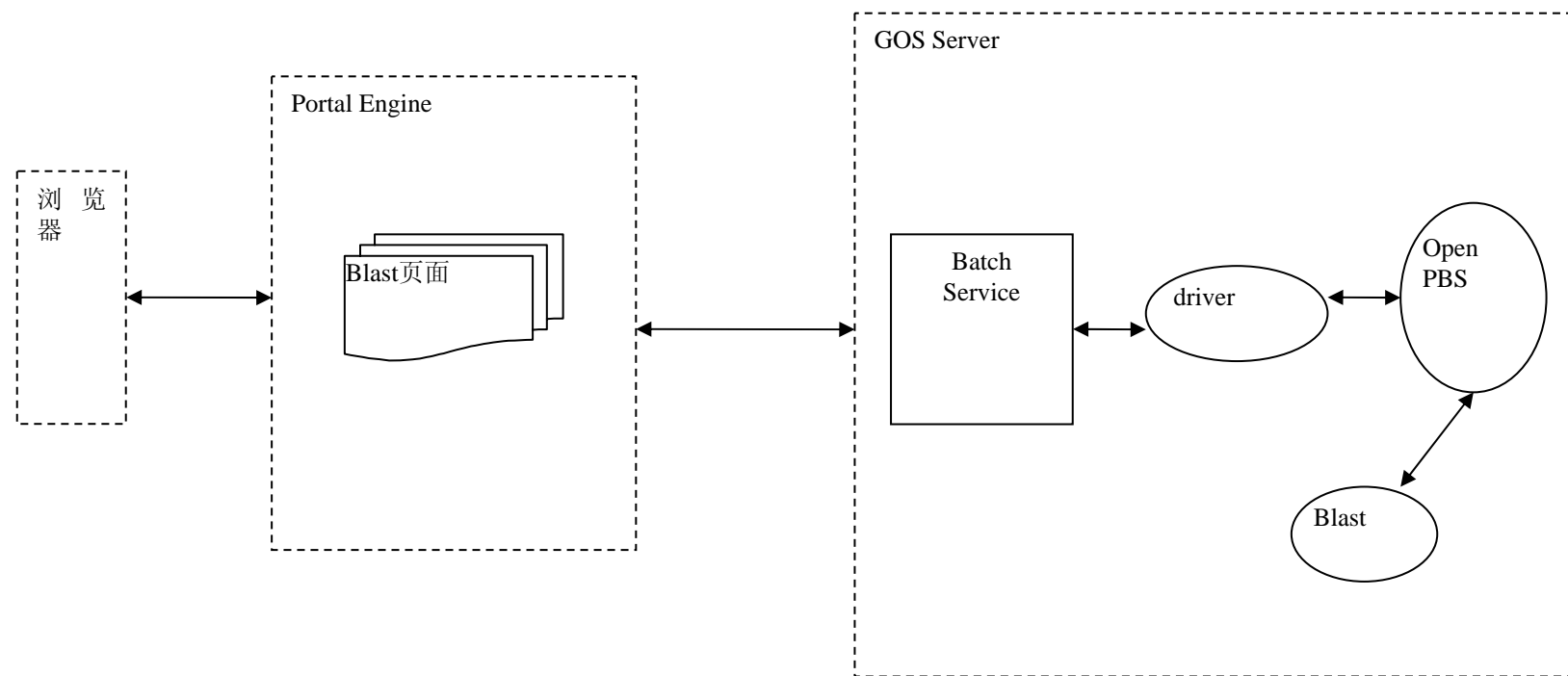
## ● 结构



# 网格批作业系统---功能

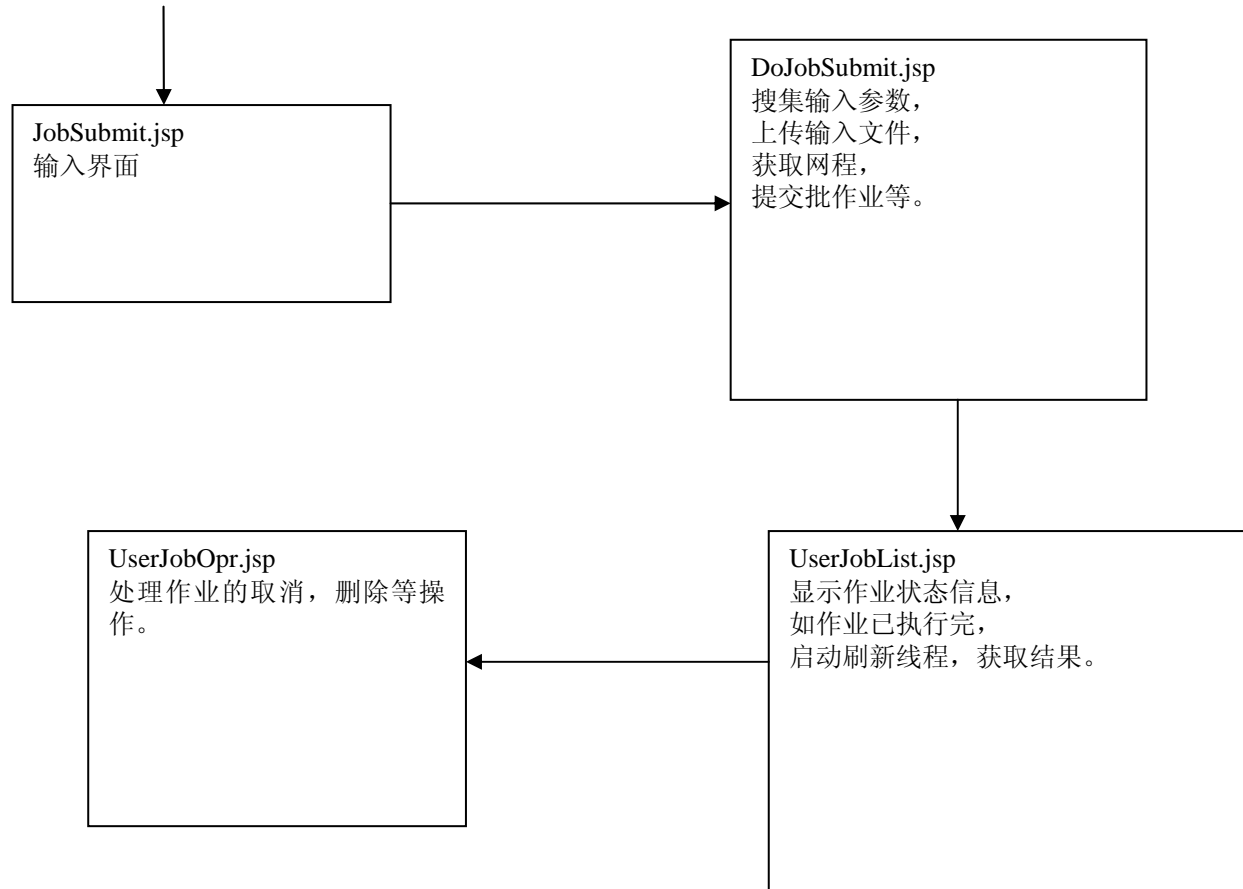
- 网格批作业驱动程序  
接受批作业服务的调用，生成辅助文件并调用批作业系统。
- 网格批作业服务  
通过对底层批作业系统（PBS等）的服务化封装，为客户端提供统一、通用的批作业处理功能，包括：作业提交、状态查询、作业取消、获取标准输入/输出，数据的stagein/stageout等。
- 网格批作客户端  
通过网程与网格批作业服务之间进行交互，屏蔽底层服务的访问细节，为用户（应用）提供方便、易用的批作业处理接口，包括：作业提交、状态查询、作业取消、获取标准输入/输出等。

# Blast实例的结构及功能



摘自ICT Blast实例开发

# Blast实例的结构及功能



摘自ICT Blast实例开发

# FAQ

- **Q: 开发好的Web应用怎么集成到GPE中?**
- **A: 所有应用部署在`${gpe.webapp}/app`目录下, 每个应用一个子目录, 例如, 批作业应用部署在`${gpe.webapp}/app/batch`目录下; 在每个应用的目录中有一个名为`portal-app.xml`的文件仅提供该应用的配置信息**

# FAQ

- Q: 为什么我提交批作业时看不到作业状态和结果?
- A: 提交作业后, 如果作业状态没有立即出现, 多刷新几次即可。因为从作业提交到相关信息入库有一定时间。如果多次刷新后依然没有出现, 请查看GOS v2的批作业日志信息, 该日志位于  
`$GOS_HOME/work/batch/logs/batch.log`

# FAQ

- Q: 为什么提交批作业后作业历史记录中始终查不到，数据库中也没有该项记录？
- A: who can tell me?

作业提交之后要等到driver返回作业号之后才记入数据库，这个过程如果出错就没有记录？但是为什么提交失败的作业也是有记录的呢？而且这个现象时有时无，开始还以为是页面的错误，一直在改页面。可能与6800最近不稳定有关系，改到98之后就好了

# FAQ

- **Q:** 为什么作业历史记录中没有列出程序所有的结果文件？
- **A:** **Blast**实例把结果文件压缩在一个文件中，显示的时候也做了相应处理。如果你的提交的脚本不包含压缩文件的命令，显示的时候也不需要专门针对压缩文件来处理

# 提示

- GOS v2 开发人员手册
  - gos\_20\_b\_programer\_guide\_20050519.pdf
  - 草案，可能会有变化
  - GOS异常表，比如
    - SYS\_EXTEND\_EXP.109.3F
    - 对应“网格批作业系统异常”

# 提示

- 应用封装过程有变化
  - 在GOS开发者论坛里可以看到两个“如何在GOS v2 Portal中添加应用”
  - 以新版“bulid20050613”为准

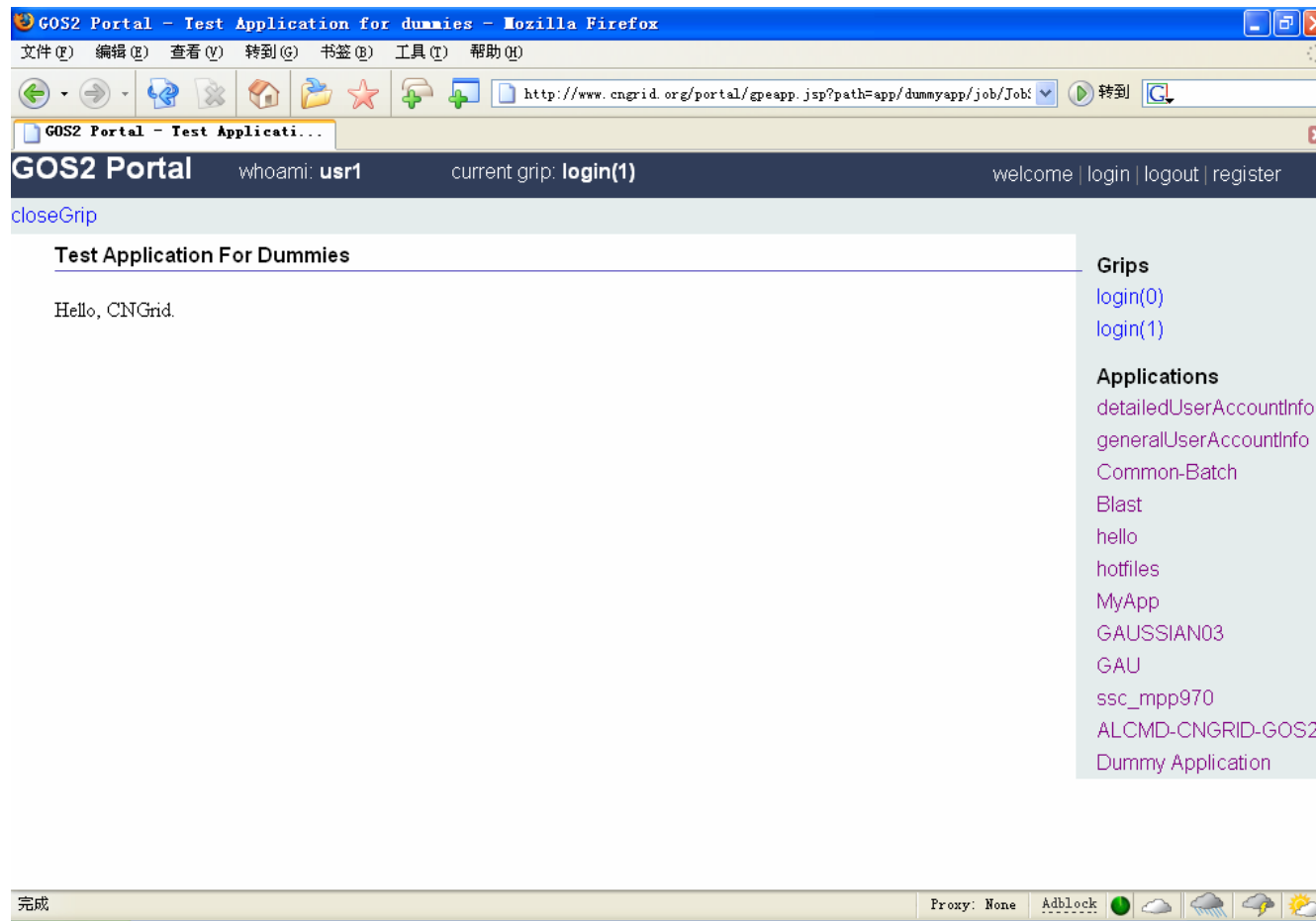
# For dummies – Step 0

- GOS v1
  - portal@49.98
  - /home/portal/portal/jakarta-tomcat-5.0.28/webapps/Portal/page/job
- GOS v2
  - gos2@49.98
  - /home/gos2/GOS2/jakarta-tomcat-5.0.28/webapps/gpe/app

# For dummies – Step 1

```
[gos2@cncgrid app]$ mkdir dummyapp
[gos2@cncgrid app]$ cd dummyapp/
[gos2@cncgrid dummyapp]$ cp ../myapp/portal-app.xml .
[gos2@cncgrid dummyapp]$ vi portal-app.xml
<?xml version="1.0"?>
<portal-app>
  <application>
    <name>dummyapp</name>
    <display-name>Dummy Application</display-name>
    <description>Test Application for dummies</description>
    <home-page>job/JobSubmit.jsp</home-page>
  </application>
</portal-app>
[gos2@cncgrid dummyapp]$ mkdir job
[gos2@cncgrid dummyapp]$ echo "Hello, CNGrid." > job/JobSubmit.jsp
```

# For dummies – Step 1



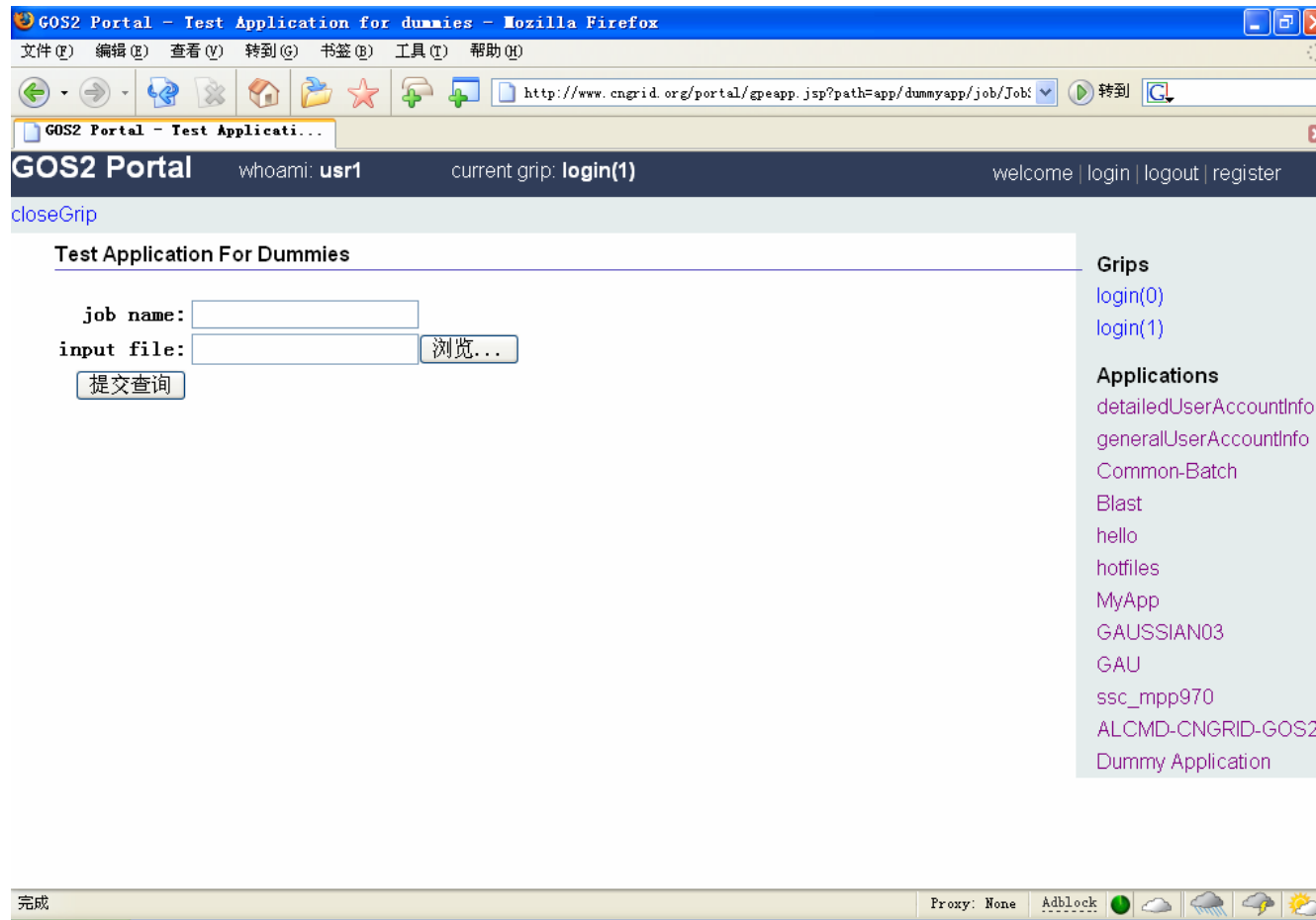
## For dummies – Step 2

- [gos2@cngriid job]\$  
cp ../../myapp/job/JobSubmit.jsp .
- 把<html> </html>之间的内容删掉
- 用GOS v1应用封装的JobSubmit.jsp页面中的<html> </html>内容替换

## For dummies – Step 2

- 如果没有**GOS v1**的应用封装可用，或者按上面步骤出错，注意：
  - 作业名：jobname
  - 命令：cmd\_#
  - 参数：para\_NAME
  - StageIn: stagein\_src\_#, stagein\_dst\_#
  - StageOut: stageout\_src\_#
  - 上面的“#”要从0开始递增

# For dummies – Step 2



# For dummies – Step 3

JobSubmit.jsp文件<html></html>多;  
DoJobSubmit.jsp文件<% %>多, 主要是逻辑处理

获取网程, 不用动

```
PicoContainer publicPico =  
    (PicoContainer)  
    request.getAttribute(Gpe.PUBLIC_CONTAINER_ATTRIBUTE);
```

改成自己应用的名称

```
String appName = "dummyapp";
```

.....

定义作业描述, 不用动

```
BatchJobDesc jobDesc = new BatchJobDesc();  
jobDesc.setAppName(appName);
```

# For dummies – Step 3

处理页面参数

```
Enumeration e =req.getParameterNames();  
while (e.hasMoreElements()) {  
    .....  
}
```

处理stagein/stageout

```
jobDesc.addStageIn(jobDir + " ... ", " ... ");  
jobDesc.addStageOut(" ... ", jobDir + " ... ");  
CommonBatchJobManager.uploadStageIns(myUpload, jobDir);
```

生成作业脚本

```
String script = "";  
script += " ... ";  
jobDesc.setScript(script);
```

# For dummies – Step 3

生成作业描述文件，不用动

```
BatchUtils.string2File(jobDesc.toXML(), jobDir + "job.xml");  
BatchJobDesc[]bandp = CommonBatchJobManager.originConvert(jobDesc);  
BatchUtils.string2File(bandp[0].toXML(), jobDir + "batch_job.xml");  
BatchUtils.string2File(bandp[1].toXML(), jobDir + "portal_job.xml");
```

下面的也不用动

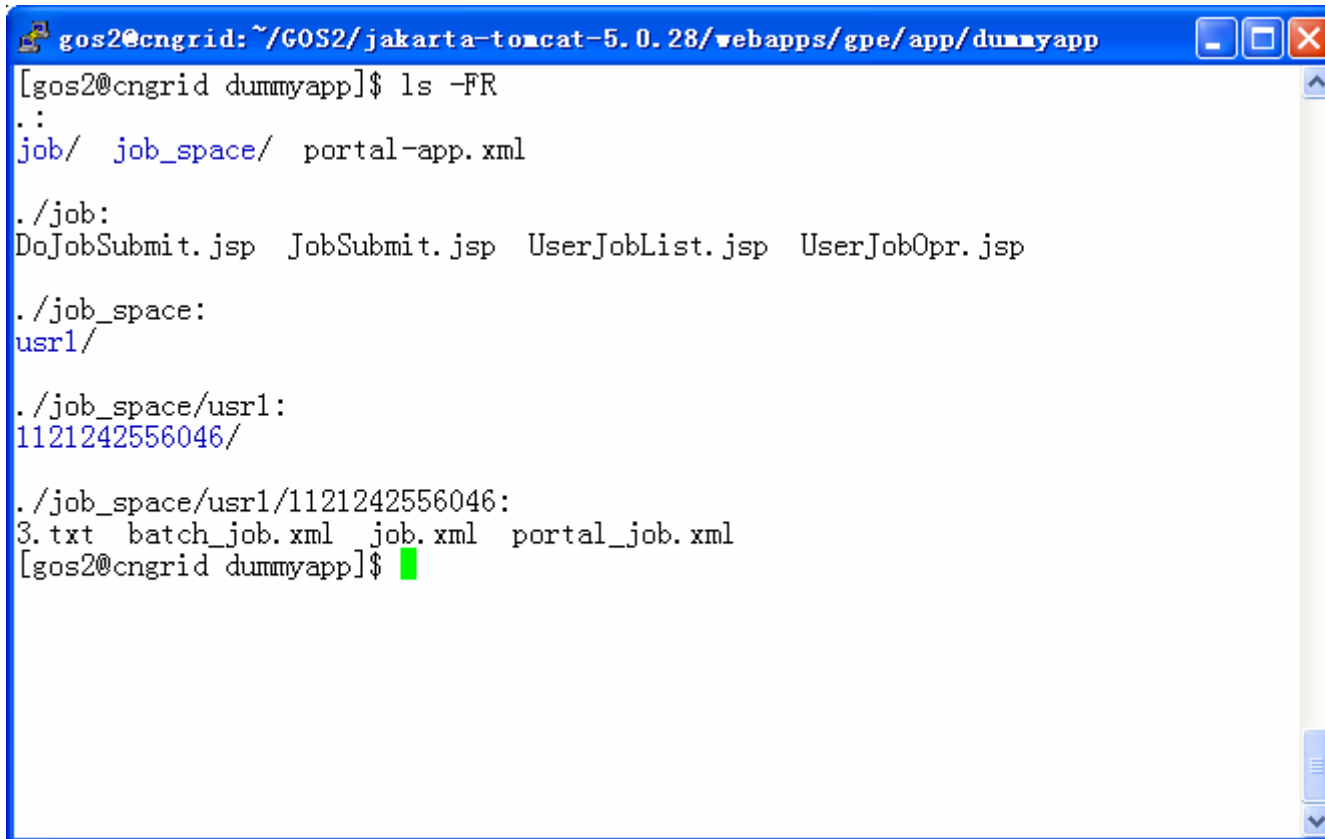
```
GripClient gc = grip.getGripClient();  
.....  
HashMap map = new HashMap();  
map.put("index", new Integer(gc.bind(batchAddr, userHandle)));  
new Launcher(gc, userHandle, agora_service_address, agorald, EDS,  
             EMSName, batchAddr, userName, bandp[0], bandp[1].toXML(),  
             jobDir).start();
```

## For dummies – Step 3

正确提交作业后

- 在dummyapp目录下生成  
`job_space/$(username)/$(timeString)`
- 该目录下应该选择上传的文件，三个作业描述XML文件
- `$(GOS2)/work/batch/logs/batch.log`
- `$(GOS2)/work/batch/data/home`

# For dummies – Step 3



```
gos2@cngriid: ~/GOS2/jakarta-tomcat-5.0.28/webapps/gpe/app/dummyapp
[gos2@cngriid dummyapp]$ ls -FR
.:
job/  job_space/  portal-app.xml

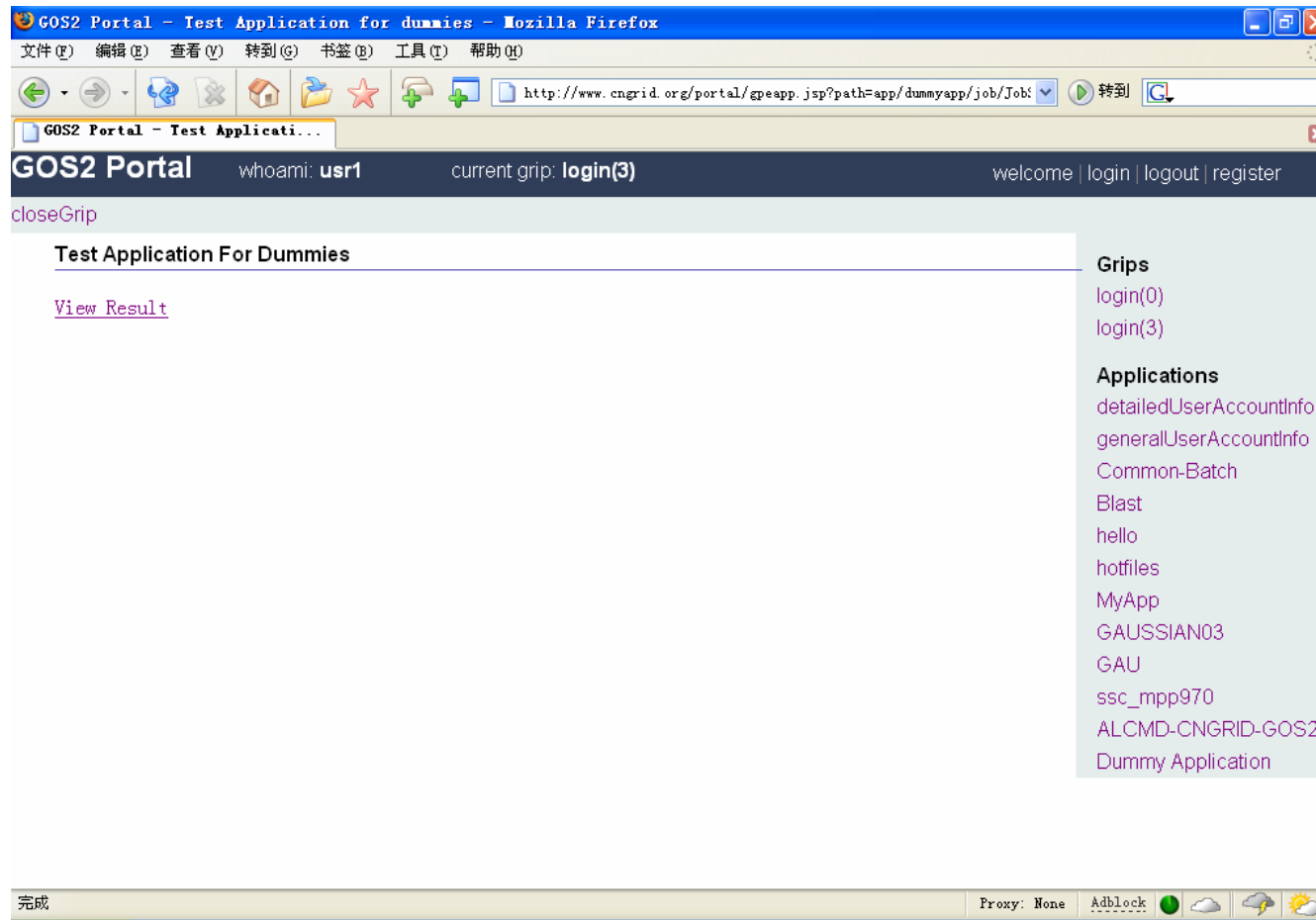
./job:
DoJobSubmit.jsp  JobSubmit.jsp  UserJobList.jsp  UserJobOpr.jsp

./job_space:
usr1/

./job_space/usr1:
1121242556046/

./job_space/usr1/1121242556046:
3.txt  batch_job.xml  job.xml  portal_job.xml
[gos2@cngriid dummyapp]$
```

# For dummies – Step 3



# For dummies – Step 4, 5, 6

- `cp ../../myapp/job/UserJobList.jsp .`
- `sed -s "s/myapp/dummyapp/g" UserJobList.jsp > tmp`
- `mv tmp UserJobList.jsp`
  
- `cp ../../myapp/job/UserJobOpr.jsp .`
- `sed -s "s/myapp/dummyapp/g" UserJobOpr.jsp > tmp`
- `mv tmp UserJobOpr.jsp`
  
- `cp ../../myapp/job/result.jsp .`

# For dummies – Step 4, 5, 6

The screenshot shows the GOS2 Portal web application. The browser title is "GOS2 Portal - Test Application for dummies - Mozilla Firefox". The address bar shows the URL: <http://www.cngrid.org/portal/gpeapp.jsp?path=app/dummyapp/job/Job>. The page header includes "GOS2 Portal" and user information: "whoami: usr1", "current grip: login(1)", and navigation links: "welcome | login | logout | register".

The main content area is titled "Test Application For Dummies" and contains a "Task List" with the following table:

Job Name	Application Name	Target	Submit Time	End Time	Status	Results	Operation
<a href="#">1</a>	dummyapp	eres://agoral:BatchService	2005-07-19 12:21:50	null	unknown		<input type="checkbox"/> Cancel
<a href="#">34</a>	dummyapp	eres://agoral:BatchService	2005-07-19 15:41:28	2005-07-19 15:44:17	Done	<a href="#">stdout</a> <a href="#">stderr</a> <a href="#">outfile2</a> <a href="#">outfile1</a>	<input type="checkbox"/> Del
<a href="#">abc</a>	dummyapp	eres://agoral:BatchService	2005-07-20 12:11:16	null	Submitted		<input type="checkbox"/> Cancel

Below the table are three buttons: "Select Finished", "Unselect", and "OK".

The right sidebar contains two sections:

- Grips**
  - [login\(0\)](#)
  - [login\(1\)](#)
- Applications**
  - [detailedUserAccountInfo](#)
  - [generalUserAccountInfo](#)
  - [Common-Batch](#)
  - [Blast](#)
  - [hello](#)
  - [hotfiles](#)
  - [GAUSSIAN03](#)
  - [GAU](#)
  - [ssc\\_mpp970](#)
  - [ALCMD-CNGRID-GOS2](#)
  - [Dummy Application](#)

The status bar at the bottom shows "完成" (Completed) and "Proxy: None Adblock".

# For dummies – Step 4, 5, 6

GOS2 Portal - Test Application for dummies - Mozilla Firefox

文件(F) 编辑(E) 查看(V) 转到(G) 书签(B) 工具(T) 帮助(H)

http://www.cngrid.org/portal/gpeapp.jsp?path=app/dummyapp/job/Job:

GOS2 Portal - Test Applicati...

GOS2 Portal whoami: usr1 current grip: login(1) welcome | login | logout | register

closeGrip

### Test Application For Dummies

Task List [\[refresh\]](#) [\[back\]](#) [\[forward\]](#)

Job Name	Application Name	Target	Submit Time	End Time	Status	Results	Operation
<a href="#">1</a>	dummyapp	eres://agoral:BatchService	2005-07-19 12:21:50	null	unknown		<input type="checkbox"/> Cancel
<a href="#">34</a>	dummyapp	eres://agoral:BatchService	2005-07-19 15:41:28	2005-07-19 15:44:17	Done	<a href="#">stdout</a> <a href="#">stderr</a> <a href="#">outfile2</a> <a href="#">outfile1</a>	<input type="checkbox"/> Del
<a href="#">abc</a>	dummyapp	eres://agoral:BatchService	2005-07-20 12:11:16	2005-07-20 12:11:29	Done	<a href="#">stdout</a> <a href="#">stderr</a> <a href="#">outfile2</a> <a href="#">outfile1</a>	<input type="checkbox"/> Del

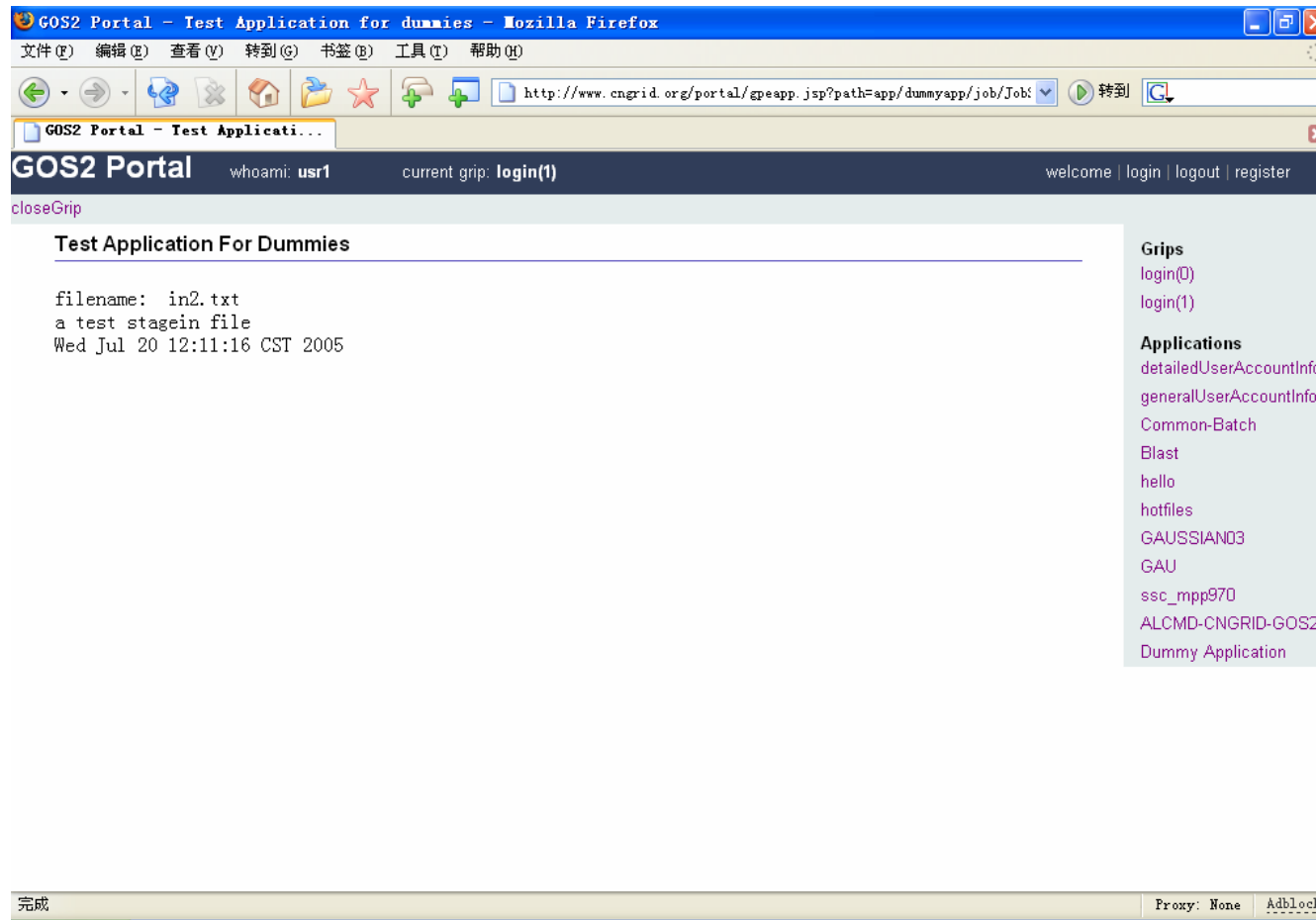
Select Finished Unselect OK

**Grips**  
login(0)  
login(1)

**Applications**  
detailedUserAccountInfo  
generalUserAccountInfo  
Common-Batch  
Blast  
hello  
hotfiles  
GAUSSIAN03  
GAU  
ssc\_mpp970  
ALCMD-CNGRID-GOS2  
Dummy Application

完成 Proxy: None AdBlock

# For dummies – Step 4, 5, 6



# For dummies – Step 7

- Test & Debug

- Portal

- `webapps/gpe/app/$(app)/portal-app.xml`
- `webapps/gpe/app/$(app)/job/`
- `webapps/gpe/app/$(app)/job_space/`
- `$(GOS2)/work/batch/logs/batch.log`

- HPC

- `$(GOS2)/work/batch/data/home/`