

GT 4.2.0 Component Guide to Public Interfaces: WS MDS UsefulRP

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Chapter 1. APIs

1. Programming Model Overview

TBD

2. Component API

- [RPProvider Framework API](http://www.isi.edu/~mdarcy/globus/ws-mds/javadocs/org/globus/mds/usefulrp/rpprovider/package-summary.html)¹

¹ <http://www.isi.edu/~mdarcy/globus/ws-mds/javadocs/org/globus/mds/usefulrp/rpprovider/package-summary.html>

UsefulRP Admin Command

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Name

`mds-gluerp-configure -- generate a GLUE resource property configuration file with default values`

`mds-gluerp-configure`

Tool description

`mds-gluerp-configure` is a simple utility tool for generating a configuration file for the GLUE resource property provider implementation. It can create a configuration with suitable default values for both cluster and scheduler information providers.

Command syntax

The basic syntax for **mds-gluerp-configure** is:

```
mds-gluerp-configure [scheduler info provider name | keyword none]
                    [cluster info provider name | keyword none] [outputFile - defaults to
                    gluerp-config.xml in the current dir]
```

where:

[scheduler info provider name]	One of the following keywords (ignoring case): fork, pbs, or none
[cluster info provider name]	One of the following keywords (ignoring case): ganglia, clumon, nagios, or none
[outputFile]	If this argument is specified, mds-gluerp-configure will write the configuration to file name and path, instead of the default.

Limitations

This command does not generate the correct configuration file for Nagios. However, you can use this command for HawkEye or Ganglia and modify for Nagios. Details are found [here](#).

Chapter 2. Configuring UsefulRP

1. Configuration overview

The system administrator first enables a given service or service resource to use the `org.globus.mds.usefulrp.rpprovider.ResourcePropertyProviderCollection` operation provider by adding the fully qualified Java class name to the provider's parameter value in the service descriptor of a service or resource's `server-config.wsdd` file.

Lastly, the administrator must add a new parameter named `rpProviderConfigFile` and for its corresponding value, specify a full (absolute) OS-native file path to a valid `ResourcePropertyProviderConfig` configuration file. The `ResourcePropertyProviderConfig` file contains all required information for generating one or more Resource Properties for the hosting service or resource.

At service startup, the `ResourcePropertyProviderCollection` operation provider code is initialized and attempts to process the configuration entries found in the file specified by the `rpProviderConfigFile` parameter into a set of one or more background execution tasks (threads) that periodically update the contents of configured Resource Properties with the results of the executing information providers. By default, if there are errors that occur during the first execution of a provider, the timer that controls that provider will be canceled and a warning message output to the container log.

Seen below is a sample service descriptor for the WS MDS `DefaultIndexService` which shows how to configure the service to use the `ResourcePropertyProviderCollection` operation provider and specifies the `rpProviderConfigFile` location used for configuring the sample `GLUEResourceProperty` that the `ResourcePropertyProviderCollection` will process.

```
<service name="DefaultIndexService" provider="Handler" use="literal" style="document">
  <parameter name="providers"
    value="org.globus.mds.usefulrp.rpprovider.ResourcePropertyProviderCollection
    org.globus.wsrfl.impl.servicegroup.ServiceGroupRegistrationProvider
    GetRPPProvider
    GetMRPPProvider
    QueryRPPProvider
    DestroyProvider
    SetTerminationTimeProvider
    SubscribeProvider
    GetCurrentMessageProvider"/>
  <parameter name="rpProviderConfigFile" value="/YOUR-GLOBUS-LOCATION-HERE/etc/globus_ws
  <parameter name="scope" value="Application"/>
  <parameter name="allowedMethods" value="*/>
  <parameter name="handlerClass" value="org.globus.axis.providers.RPCProvider"/>
  <parameter name="className" value="org.globus.mds.index.impl.DefaultIndexService"/>
  <wsdlFile>share/schema/mds/index/index_service.wsdl</wsdlFile>
</service>
```

1.1. Configuration File Format

The configuration file format for the `ResourcePropertyProviderCollection` operation provider is simply the XML-serialized form of the `ResourcePropertyProviderConfig` stub object, as defined in the schema file [rpprovider.xsd](#)¹.

Below is a sample configuration file which configures the GLUE Resource Property provider with element producers using Ganglia to provide cluster information and PBS for scheduler information. This sample configures the provider to generate cluster information using Ganglia on the localhost with the default Ganglia port, and configures PBS as the scheduler information provider. The period of execution is set to 300 seconds for each element producer, but may be configured separately if desired. This configuration mirrors a common information provider setup in the GT4 GRAM `ManagedJobExecutable` service. Using the `RPProvider` Framework, it is possible to generate this information in other services as well.

```
<ns1:ResourcePropertyProviderConfigArray
  xsi:type="ns1:ResourcePropertyProviderConfigArray"
  xmlns:ns1="http://mds.globus.org/rpprovider/2005/08"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <ns1:resourcePropertyProviderConfiguration xsi:type="ns1:resourcePropertyProviderConfi
    <ns1:resourcePropertyName xsi:type="xsd:QName" xmlns:mds="http://mds.globus.org/gl
    <ns1:resourcePropertyImpl xsi:type="xsd:string">org.globus.mds.usefulrp.rpprovider.G
    <ns1:resourcePropertyElementProducers xsi:type="ns1:resourcePropertyElementProduce
      <ns1:className xsi:type="xsd:string">org.globus.mds.usefulrp.glue.GangliaElementPr
      <ns1:arguments xsi:type="xsd:string">localhost</ns1:arguments>
      <ns1:arguments xsi:type="xsd:string">8649</ns1:arguments>
      <ns1:period xsi:type="xsd:int">300</ns1:period>
      <ns1:transformClass xsi:type="xsd:string">org.globus.mds.usefulrp.rpprovider.trans
    </ns1:resourcePropertyElementProducers>
    <ns1:resourcePropertyElementProducers xsi:type="ns1:resourcePropertyElementProduce
      <ns1:className xsi:type="xsd:string">org.globus.mds.usefulrp.rpprovider.producers.
      <ns1:arguments xsi:type="xsd:string">libexec/globus-scheduler-provider-pbs</ns1:ar
      <ns1:transformClass xsi:type="xsd:string">org.globus.mds.usefulrp.rpprovider.trans
      <ns1:period xsi:type="xsd:int">300</ns1:period>
    </ns1:resourcePropertyElementProducers>
  </ns1:resourcePropertyProviderConfiguration>
</ns1:ResourcePropertyProviderConfigArray>
```

It is possible to configure the `GLUEResourceProperty` provider to use alternate mechanisms for providing scheduler information by changing the `arguments` field that follows the `SchedulerInfoElementProducer` parameter to a string with a `GLOBUS_LOCATION` relative-path that indicates the GRAM scheduler adapter to use, for example, `libexec/globus-scheduler-provider-fork`.

TBD: It is also possible to pass parameters to the `GLUESchedulerElementTransform` that control even more advanced post-processing and sorting of results when generating GLUE 1.1 XML, e.g. Teragrid resorting code.

¹ http://viewcvs.globus.org/viewcvs.cgi/ws-mds/usefulrp/schema/schema/mds/usefulrp/rpprovider.xsd?rev=1.2.6.1&only_with_tag=wsmds_usefulrp_update_4_0_branch&content-type=text/vnd.viewcvs-markup

Chapter 3. Domain-specific interface for UsefulRP/RPPProvider

TBD - describe domain-specific interface for usefulrp

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Chapter 4. Environment variable interface

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