

# **OGSA Hosting Environment Management Service**

## **Contribution to Globus Toolkit 3.0 Core**

Mike Williams (mdw@us.ibm.com)  
Tom Seelbach (seelbach@us.ibm.com)

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### **Preface**

A grid service is needed within every OGSA hosting environment instance for the purpose of performing administration and management of the services within the hosting environment. This service will be used by a hosting environment management application such as the IBM OGSA Management UI.

This service will be built using Java objects such that it is capable of running in all of the supported Globus runtime environments. In the future an EJB version may be considered.

### **Requirements**

The scope of the OGSA Management Service has been re-factored from its original definition. Service installation and deployment, and hosting environment logging are no longer within the scope of this service.

The current requirements for this service include:

1. Visibility (as service data) to the services within the OGSA hosting environment along with the current state or status of each service and type (i.e. transient vs. persistent).
2. Visibility (as service data) to specific runtime attributes.
3. The ability to change the current state of a given service.
  - a. Activate a currently deactivated service.
  - b. Deactivate a currently activated service.
  - c. Kill (forced stop) of a service.

In the future, additional management functions and capabilities may be added to this service.

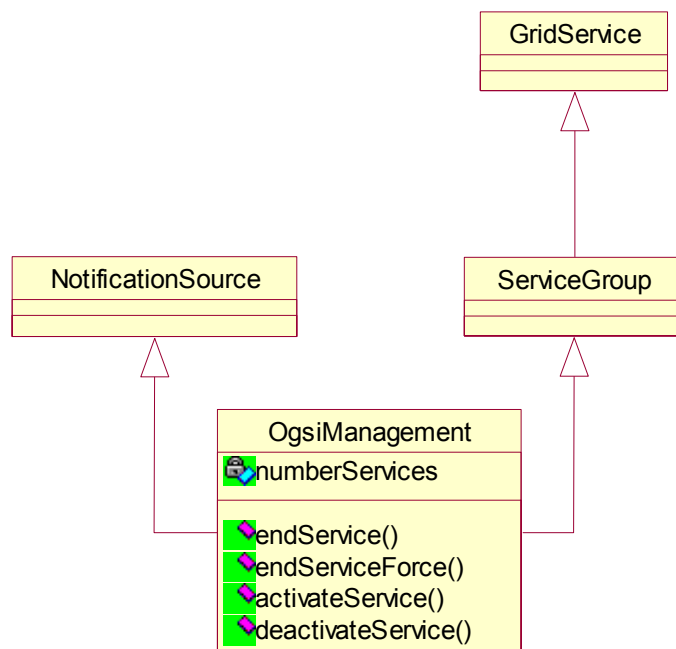
## Design Details

The OGSA hosting environment management service is a persistent service that implements the OgsiManagementPortType. The OgsiManagementPortType exposes the services within the runtime environment along with the operations to end, activate and deactivate those services. This portType is described in more detail below.

## Models and Diagrams

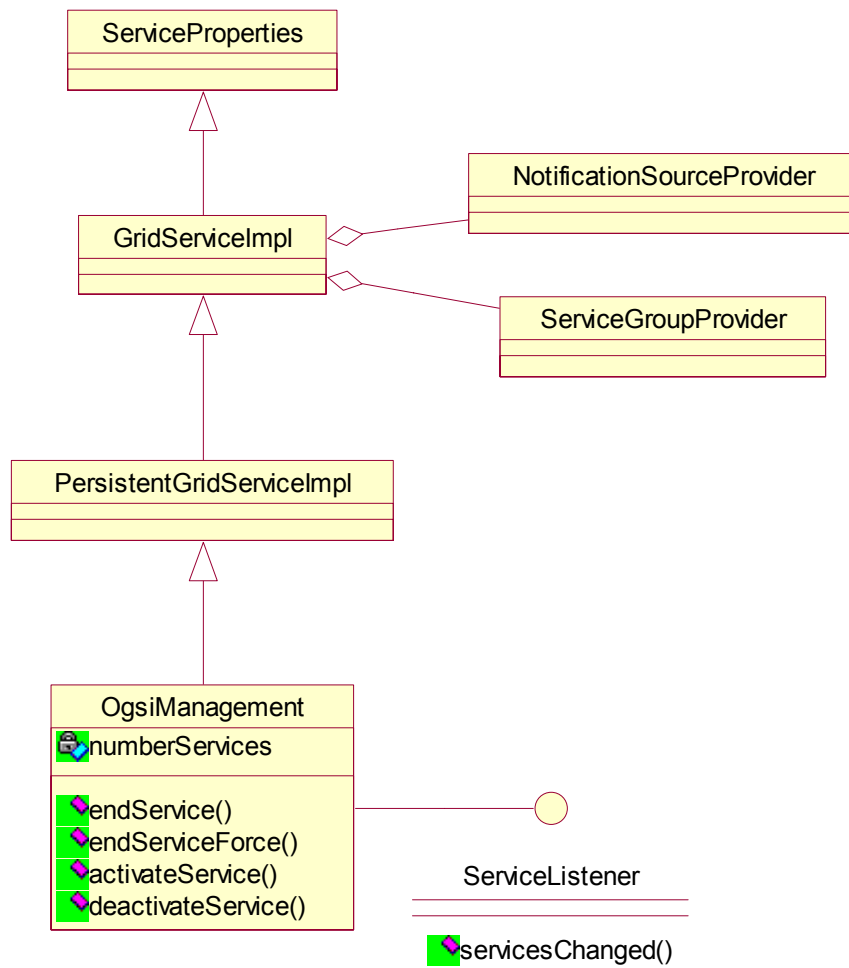
### Logical Object Model

The following diagram is the logical object model as described via the gwsdl:portType for the management service. The management service portType extends both NotificationSource and ServiceGroup. Note, the entire gswdl portType for this service is included later in the document.

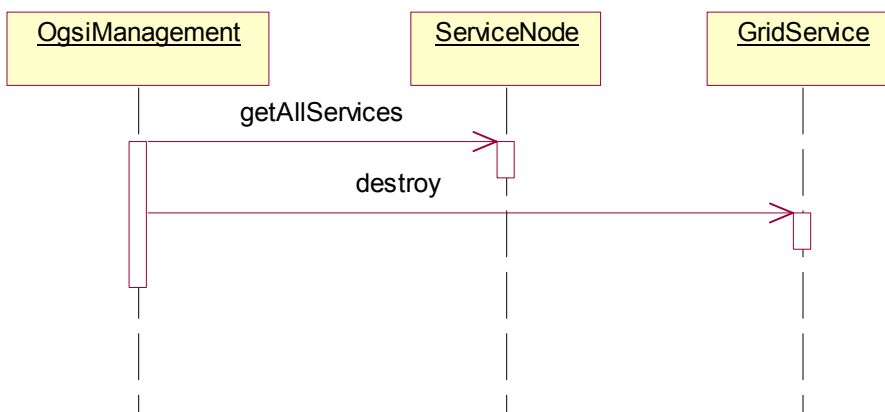


### Class Diagram

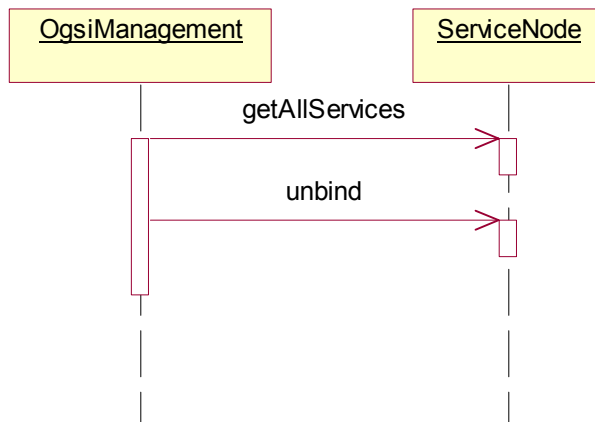
In support of the logical diagram above, the following represents the actual implementation class diagram. In this case, the OgsiManagement implementation is an extension of the PersistentGridServiceImpl.



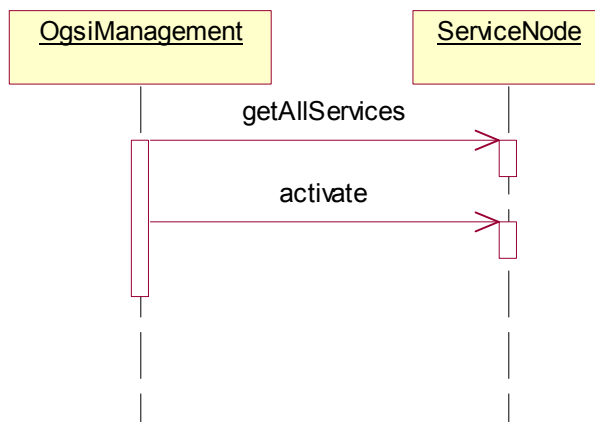
## endService Interaction



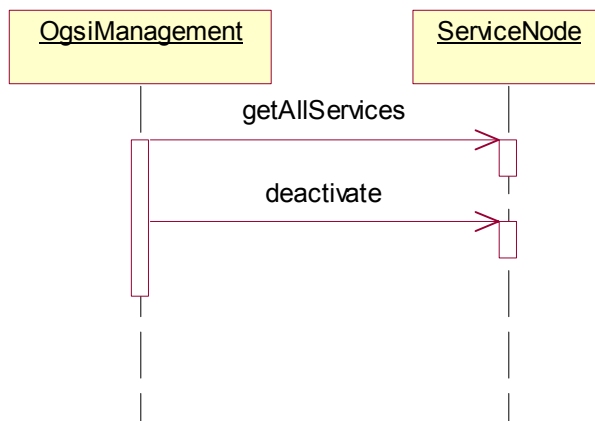
### endServiceForce Interaction



### activateService Interaction



### deactivateService Interaction



## ***OgsiManagementPortType***

The following describes the OgsiManagementPortType service data and operations.

### **OgsiManagementPortType: Service Data Declarations**

The OgsiManagementPortType includes the following serviceData elements.

- numberServices

```
<sd:serviceData name="numberServices"
    type="tns:NumberServicesElementType"
    minOccurs="1"
    maxOccurs="1"
    mutability="mutable"
    modifiable="false"
    nillable="false"/>
```

NumberServices is a container for the NumberServiceElementType which is defined as:

```
<xsd:complexType name="NumberServicesElementType">
  <xsd:sequence>
    <xsd:element name="numberAvailableServices" type="xsd:int"/>
    <xsd:element name="numberDeployedServices" type="xsd:int"/>
    <xsd:element name="numberActiveServices" type="xsd:int"/>
    <xsd:element name="numberDeactiveServices" type="xsd:int"/>
  </xsd:sequence>
</xsd:complexType>
```

NumberAvailableServices contains the count of services that are currently available within the hosting environment. This number represents the total number of active and inactive services.

NumberDeployedServices contains the count of currently deployed services within the hosting environment.

NumberActiveServices is the count of services that are currently active within the hosting environment.

NumberDeactivatedServices is the count of services that are currently deactivated within the hosting environment.

### **OgsiManagementPortType: Operations**

#### ***OgsiManagementPortType::endService***

The endService operation is used to terminate a service that is either in the activated or deactivated state via destroy on the service itself allowing the service to perform any cleanup. After ending a service via this operation, the service will not be available until after the hosting environment is restarted.

**Input:**

- *Handle*: A Grid Service Handle (GSH) for the service to be terminated (ended).

**Output:**

- *None*

**Fault(s):**

- *UnknownHandleFault*: The handle is not known by the hosting environment instance.
- *InvalidHandleFault*: The handle or handle scheme is unrecognized.
- *ServiceNotDestroyedFaultType*: Thrown when an attempting to end a Persistent Service.

***OgsiManagementPortType::endServiceForce***

The endServiceForce operation is used to terminate a service that is either in the activated or deactivated state. After ending a service via this operation, the service will not be available until after the hosting environment is restarted.

**Input:**

- *Handle*: A Grid Service Handle (GSH) for the service to be terminated (ended).

**Output:**

- *None*

**Fault(s):**

- *UnknownHandleFault*: The handle is not known by the hosting environment instance.
- *InvalidHandleFault*: The handle or handle scheme is unrecognized.

***OgsiManagementPortType::activateService***

The activateService operation is used to activate a currently deactivated service.

**Input:**

- *Handle*: A locator containing a Grid Service Handle (GSH) for the service to be activated.

**Output:**

- *None*

**Fault(s):**

- *UnknownHandleFault*: The handle is not known by the hosting environment instance.
- *InvalidHandleFault*: The handle or handle scheme is unrecognized.
- *InvalidStateFault*: The service is currently not in a state that allows activation.

***OgsiManagementPortType::deactivateService***

The deactivateService operation is used to deactivate a currently activated service.

**Input:**

- *Handle*: A Grid Service Handle (GSH) for the service to be deactivated.

**Output:**

- *None*

**Fault(s):**

- *UnknownHandleFault*: The handle is not known by the hosting environment instance.

- *InvalidHandleFault*: The handle or handle scheme is unrecognized.
- *InvalidStateFault*: The service is currently not in a state that allows deactivation.

## Deployment Descriptor

```
<service name="core/management/OgsiManagementService"
  provider="Handler"
  style="wrapped"
  use="literal">
  <parameter name="allowedMethods" value="*" />
  <parameter name="className"
    value="org.globus.ogsa.core.management.OgsiManagementPortType" />
  <parameter name="baseClassName"
    value="org.globus.ogsa.impl.core.management.OgsiManagement" />
  <parameter name="persistent" value="true" />
  <parameter name="schemaPath"
    value="schema/core/management/management_service.wsdl" />
  <parameter name="handlerClass" value="org.globus.ogsa.handlers.RPCURIProvider" />
  <parameter name="operationProviders"
    value="org.globus.ogsa.impl.ogsi.NotificationSourceProvider
      org.globus.ogsa.impl.ogsi.ServiceGroupProvider" />
</service>
```

Per this deployment descriptor, this service's GSH will be well-known and defined as follows:

`http://fqdn:port/<OGSIInstanceName>/services/core/management/OgsiManagementService`

## Service Browser

For demonstration and debug purposes a panel has been added to the service browser specific to the `OgsiManagementPortType`. This panel exposes the service data and operations associated with this portType. An example of this is show below.

[http://127.0.0.1:8080/ogsa/services/core/registry/ContainerRegistryService] - OGSA Service Browser

Back Forward New Window Close Refresh ☐ Show dynamic gui

http://9.60.66.165:8080/ogsa/services/core/management/OgsiManagementService Go

Services WSDL Service Data

OGSI Management portType

Handle: http://9.60.66.165:8080/ogsa/services/core/admin/AdminService

endService endServiceForce activateService deactivateService

Deployed Services: 32 Available Services: 32 Active Services: 4 Deactive Services: 28

☐ Auto update Refresh

Service Group Entry Inspection

Name	Handle	State
core/admin/AdminService	http://9.60.66.165:8080/ogsa/services/core/admin/Adm...	INACTIVE
Management Service	http://9.60.66.165:8080/ogsa/services/core/manageme...	ACTIVE
Container Registry Service	http://9.60.66.165:8080/ogsa/services/core/registry/Co...	ACTIVE
core/jmsadapter/JMSAdapterFactoryService	http://9.60.66.165:8080/ogsa/services/core/jmsadapter...	INACTIVE
core/proxy/ProxyFactoryService	http://9.60.66.165:8080/ogsa/services/core/proxy/Proxy...	INACTIVE
core/notification/http/NotificationSubscriptionFactoryS...	http://9.60.66.165:8080/ogsa/services/core/notification/...	INACTIVE
samples/registry/VORRegistryService	http://9.60.66.165:8080/ogsa/services/samples/registr...	INACTIVE
samples/counter/secure/CounterFactoryService	http://9.60.66.165:8080/ogsa/services/samples/counte...	INACTIVE

☐ Auto update Refresh

Grid Service

Namespace: Name: Timeout:

XPath Expression: XPath Namespace Mappings:

Query Subscribe Unsubscribe