

GT 4.2.1 WS MDS Migration Guide

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Introduction

The following provides available information about migrating from previous versions of the Globus Toolkit.

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Chapter 1. Migrating MDS from GT4

Although the basic functionality remains the same for MDS in GT4, the architecture has changed from OGSi in GT3 to WSRF in GT4. In OGSi, services advertise *service data*; in WSRF, services advertise *resource properties*. Resource Properties and service data are very similar -- both provide a mechanism for expressing arbitrary data about grid resources in XML format, as well as query and notification/subscription interfaces to that data.

The GT4 *Index Service* provides the same functionality as the GT3 Index Service; however, the GT4 Index Service supports WSRF service group registration and resource property query and subscription/notification mechanisms, while the GT3 Index Service supported OGSi service group registration and service data query and subscription/notification mechanisms.

The following table shows a mapping of some GT3 concepts/tools to GT4.

Table 1.1. Comparison of MDS in GT3 and GT4

| Description | GT2 Version | GT4 Version |
|--|--|--|
| Query Operations | FindServiceData (to retrieve a single service data element by name or to perform an XPath query against a service's service data elements) | GetResourceProperty (to retrieve a single resource property by name), GetMultipleResourceProperties (to retrieve multiple resource properties by name), and QueryResourceProperties (to perform an XPath query against a service's resource properties). |
| APIs used for queries | OGSI (GT3) Core APIs | WS Core APIs |
| Command-line clients used for queries | <code>ogsi-find-service-data</code> | <code>wsrf-get-property</code> , <code>wsrf-get-properties</code> , <code>wsrf-query</code> |
| Available GUIs | globus-sdb (standalone client) and WebSDB (web interface) | WebMDS (web interface) |
| Operations for subscription/notification | OGSI NotificationSource / NotificationSink | WS-Notification |
| APIs used for subscription/notification | OGSI (GT3) Core APIs | WS Core APIs |
| Index registration mechanism | GT3 services can be configured to publish their service data to index services. | Index Servers maintain aggregating service groups that include registration information (timeout values, the mechanism to use to acquire information, and additional mechanism-specific parameters) The registration is accomplished by adding an entry to an aggregating service group via the <code>mds-servicegroup-add</code> command. In addition, services may be configured to register themselves to the default index server running in the same container. |

A more detailed mapping of OGSi concepts to WSRF concepts can be found [here](http://www-106.ibm.com/developerworks/library/ws-resource/ogsi_to_wsrf_1.0.pdf)¹.

¹ http://www-106.ibm.com/developerworks/library/ws-resource/ogsi_to_wsrf_1.0.pdf

Chapter 2. Migrating MDS from GT3

Although the basic functionality remains the same for MDS in GT4, the architecture has changed from OGSi in GT3 to WSRF in GT4. In OGSi, services advertise *service data*; in WSRF, services advertise *resource properties*. Resource Properties and service data are very similar -- both provide a mechanism for expressing arbitrary data about grid resources in XML format, as well as query and notification/subscription interfaces to that data.

The GT4 *Index Service* provides the same functionality as the GT3 Index Service; however, the GT4 Index Service supports WSRF service group registration and resource property query and subscription/notification mechanisms, while the GT3 Index Service supported OGSi service group registration and service data query and subscription/notification mechanisms.

The following table shows a mapping of some GT3 concepts/tools to GT4.

Table 2.1. Comparison of MDS in GT3 and GT4

| Description | GT2 Version | GT4 Version |
|--|--|--|
| Query Operations | FindServiceData (to retrieve a single service data element by name or to perform an XPath query against a service's service data elements) | GetResourceProperty (to retrieve a single resource property by name), GetMultipleResourceProperties (to retrieve multiple resource properties by name), and QueryResourceProperties (to perform an XPath query against a service's resource properties). |
| APIs used for queries | OGSI (GT3) Core APIs | WS Core APIs |
| Command-line clients used for queries | <code>ogsi-find-service-data</code> | <code>wsrf-get-property</code> , <code>wsrf-get-properties</code> , <code>wsrf-query</code> |
| Available GUIs | globus-sdb (standalone client) and WebSDB (web interface) | WebMDS (web interface) |
| Operations for subscription/notification | OGSI NotificationSource / NotificationSink | WS-Notification |
| APIs used for subscription/notification | OGSI (GT3) Core APIs | WS Core APIs |
| Index registration mechanism | GT3 services can be configured to publish their service data to index services. | Index Servers maintain aggregating service groups that include registration information (timeout values, the mechanism to use to acquire information, and additional mechanism-specific parameters) The registration is accomplished by adding an entry to an aggregating service group via the <code>mds-servicegroup-add</code> command. In addition, services may be configured to register themselves to the default index server running in the same container. |

A more detailed mapping of OGSi concepts to WSRF concepts can be found [here](http://www-106.ibm.com/developerworks/library/ws-resource/ogsi_to_wsrf_1.0.pdf)¹.

¹ http://www-106.ibm.com/developerworks/library/ws-resource/ogsi_to_wsrf_1.0.pdf

Chapter 3. Migrating MDS from GT2

Although the basic functionality remains the same for MDS in GT4, the architecture, standards used, and implementation have changed significantly in GT2. The following table shows a mapping of some GT2 concepts to GT4 concepts.

Table 3.1. Comparison of MDS in GT2 and GT4

| Description | GT2 Version | GT4 Version |
|---|---|---|
| Format of data describing a resource | LDAP data hierarchy | XML data document |
| Query language | LDAP queries | XPath queries |
| Wire protocol for queries | LDAP | WS-ResourceProperties |
| APIs used for queries | LDAP APIs | WS Core APIs |
| Command-line clients used for queries | <code>grid-info-search</code> | <code>wsrf-get-property</code> , <code>wsrf-get-properties</code> , <code>wsrf-query</code> |
| Available GUIs | Various LDAP browsers | WebMDS |
| Wire protocol for subscription/notification | Not supported | WS-Notification |
| APIs used for subscription/notification | Not supported | WS Core APIs |
| Security support | SAML-based security using X.509 user, proxy and host certificates | HTTPS-based security using X.509 user, proxy and host certificates |
| Queryable index of aggregated information | GIIS, which publishes data using the LDAP-related standards listed above | WS MDS Index Server, which publishes data using the WSRF-related standards listed above |
| Queryable source of non-aggregated information | GRIS, which uses <i>information providers</i> to gather data from services and then publishes that data the LDAP-related standards listed above | Individual web services, which publish data about their own resources using WSRF-related standards listed above. |
| Index registration mechanism | MDS servers (GRIS's and, in some cases, GIIS's) register themselves with a GIIS. An MDS server is configured to register itself to a remote index by editing the local MDS server's <code>grid-info-resource-register.conf</code> file, providing information about the location of the remote index to register to and timeout values for the registration | WS MDS Index servers maintain aggregating service groups that include registration information (timeout values, the mechanism to use to acquire information, and additional mechanism-specific parameters) The registration is accomplished by adding an entry to an aggregating service group via the <code>mds-servicegroup-add</code> command. In addition, services may be configured to register themselves to the default index server running in the same container. |
| Mechanism used by an index to collect information | GIIS's send LDAP queries to remote serves. | WS MDS Index servers use a plugin-based architecture to support several mechanisms to collect information. The Globus Toolkit supplies plugins that support collecting information via polling (resource property queries), subscription/notification, and by program execution. |

Glossary

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Index Service

An aggregator service in WS MDS that serves as a registry similar to UDDI, but much more flexible. Indexes collect information and publish that information as WSRF resource properties.

information provider

A "helper" software component that collects or formats resource information, for use in WS MDS by an aggregator source or by a WSRF service when creating resource properties.