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), GetMultipleResource-Properties (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	`ogsi-find-service-data`	`wsrf-get-property`, `wsrf-get-properties`, `wsrf-query`
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 `mds-servicegroup-add` 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[1].

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[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	`ogsi-find-service-data`	`wsrf-get-property`, `wsrf-get-properties`, `wsrf-query`
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 `mds-servicegroup-add` 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[1].

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[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	`grid-info-search`	`wsrf-get-property`, `wsrf-get-properties`, `wsrf-query`
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 _information providers_ 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 `grid-info-resource-register.conf` 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 `mds-servicegroup-add` 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.