G2 Data Source Manager

User's Guide

Version 2.3 Rev. 0

G2 Data Source Manager User's Guide, Version 2.3 Rev. 0

January 2014

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Although this software has been extensively tested, Gensym cannot guarantee error-free performance in all applications. Accordingly, use of the software is at the customer's sole risk.

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Contents Summary

Preface

Describes this guide and the conventions that it uses.

About this Guide

This guide describes the G2 Data Source Manager (GDSM) and related modules. This module provides functionality to manage network connections and create pools of network connections for improved throughput and scalability of applications.

Audience

This guide is for G2 developers who want to customize applications, using a set of standard application programmers' interface (API) procedures and methods, and built-in classes. It assumes familiarity with the G2 procedure language.

Conventions

This guide uses the following typographic conventions and conventions for defining system procedures.

Typographic

Convention Examples	Description
g2-window, g2-window-1, ws-top-level, sys-mod	User-defined and system-defined G2 class names, instance names, workspace names, and module names
history-keeping-spec, temperature	User-defined and system-defined G2 attribute names
true, 1.234, ok, “Burlington, MA”	G2 attribute values and values specified or viewed through dialogs
Main Menu > Start KB Workspace > New Object create subworkspace Start Procedure	G2 menu choices and button labels
conclude that the x of y ...	Text of G2 procedures, methods, functions, formulas, and expressions
new-argument	User-specified values in syntax descriptions
text-string	Return values of G2 procedures and methods in syntax descriptions
File Name, OK, Apply, Cancel, General, Edit Scroll Area	GUIDE and native dialog fields, button labels, tabs, and titles
File > Save Properties	GMS and native menu choices
workspace	Glossary terms

Convention Examples	Description
c:\Program Files\Gensym	Windows pathnames
/usr/gensym/g2/kbs	UNIX pathnames
spreadsh.kb	File names
g2 -kb top.kb	Operating system commands
public void main() *gsi_start*	Java, C and all other external code

Note Syntax conventions are fully described in the *G2 Reference Manual*.

Procedure Signatures

A procedure signature is a complete syntactic summary of a procedure or method. A procedure signature shows values supplied by the user in *italics*, and the value (if any) returned by the procedure *underlined*. Each value is followed by its type:

g2-clone-and-transfer-objects
(*list*: class item-list, *to-workspace*: class kb-workspace,
delta-x: integer, *delta-y*: integer)
-> *transferred-items*: g2-list

Related Documentation

G2 Core Technology

- *G2 Bundle Release Notes*
- *Getting Started with G2 Tutorials*
- *G2 Reference Manual*
- *G2 Language Reference Card*
- *G2 Developer? Guide*
- *G2 System Procedures Reference Manual*

- *G2 System Procedures Reference Card*
- *G2 Class Reference Manual*
- *Telewindows User? Guide*
- *G2 Gateway Bridge Developer? Guide*

G2 Utilities

- *G2 ProTools User? Guide*
- *G2 Foundation Resources User? Guide*
- *G2 Menu System User? Guide*
- *G2 XL Spreadsheet User? Guide*
- *G2 Dynamic Displays User? Guide*
- *G2 Developer? Interface User? Guide*
- *G2 OnLine Documentation Developer? Guide*
- *G2 OnLine Documentation User? Guide*
- *G2 GUIDE User? Guide*
- *G2 GUIDE/UIL Procedures Reference Manual*

G2 Developers' Utilities

- *Business Process Management System User? Guide*
- *Business Rules Management System User? Guide*
- *G2 Reporting Engine User? Guide*
- *G2 Web User? Guide*
- *G2 Event and Data Processing User? Guide*
- *G2 Run-Time Library User? Guide*
- *G2 Event Manager User? Guide*
- *G2 Dialog Utility User? Guide*
- *G2 Data Source Manager User? Guide*
- *G2 Data Point Manager User? Guide*
- *G2 Engineering Unit Conversion User? Guide*
- *G2 Error Handling Foundation User? Guide*
- *G2 Relation Browser User? Guide*

Bridges and External Systems

- *G2 ActiveXLink User? Guide*
- *G2 CORBALink User? Guide*
- *G2 Database Bridge User? Guide*
- *G2-ODBC Bridge Release Notes*
- *G2-Oracle Bridge Release Notes*
- *G2-Sybase Bridge Release Notes*
- *G2 JMail Bridge User? Guide*
- *G2 Java Socket Manager User? Guide*
- *G2 JMSLink User? Guide*
- *G2-OPC Client Bridge User? Guide*
- *G2 PI Bridge User? Guide*
- *G2-SNMP Bridge User? Guide*
- *G2-HLA Bridge User? Guide*
- *G2 WebLink User? Guide*

G2 JavaLink

- *G2 JavaLink User? Guide*
- *G2 DownloadInterfaces User? Guide*
- *G2 Bean Builder User? Guide*

G2 Diagnostic Assistant

- *GDA User? Guide*
- *GDA Reference Manual*
- *GDA API Reference*

Customer Support Services

You can obtain help with this or any Gensym product from Gensym Customer Support. Help is available online, by telephone, by fax, and by email.

To obtain customer support online:

➔ Access G2 HelpLink at *www.gensym-support.com*.

You will be asked to log in to an existing account or create a new account if necessary. G2 HelpLink allows you to:

- Register your question with Customer Support by creating an Issue.
- Query, link to, and review existing issues.
- Share issues with other users in your group.
- Query for Bugs, Suggestions, and Resolutions.

To obtain customer support by telephone, fax, or email:

➔ Use the following numbers and addresses:

	Americas	Europe, Middle-East, Africa (EMEA)
Phone	(781) 265-7301	+31-71-5682622
Fax	(781) 265-7255	+31-71-5682621
Email	*service@gensym.com*	*service-ema@gensym.com*

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Introduction to the G2 Data Source Manager

Describes the G2 Data Source Manager (GDSM) module, which provides functionality to manage network connections.

Introduction

G2 Data Source Manager (GDSM) defines classes and APIs related to managing network connections. GDSM provides a consistent approach for configuring, connecting, disconnecting, and monitoring network connections to and from remote G2 processes and bridges. GDSM monitors network connections, detects and reports problems to operators, and attempts automatic reconnection to the remote G2 process or G2 bridge when a connection is lost. In addition, GDSM also supports an option for automatically launching bridge processes.

For applications performing many exchanges with remote processes or bridges, GDSM provides a network pooling mechanism. Network pools are typically used to provide scalable throughput and be transparent to the application logic. Networking pooling enables you to have a pool of connections to a database, for example, and to perform multiple queries in parallel, picking the next available database connection.

GDSM animates network interfaces and pools to indicate their status and activity.

You use the gdsm-module-settings class to manage messages related to connections.

Network Interface Classes and APIs

GDSM implements the following network interface classes:

- gdsm-g2-to-g2-data-interface — Provides G2-to-G2 communication.
- gdsm-opc-interface — Provides communication with the G2 OPCLink bridge.
- gdsm-pi-interface — Provides communication with the G2-PI Bridge.
- gdsm-database-interface — Provides communication with the G2-ODBC Bridge, G2-Oracle Bridge, or G2-Sybase Bridge.
- gdsm-jmail-interface — Provides communication with the G2 Java Mail Bridge.
- gdsm-jms-interface — Provides communication with the G2 JMSLink bridge.

The basic APIs for network interfaces are:

- gdsm-network-interface-get-status — Gets the status of the interface. Typical status information: connected, not-connected, in-transition, timed-out, or connection-lost.
- gdsm-network-interface-connect-to-bridge — Connects to the bridge or remote G2 process, and optionally launches the bridge, posts error messages, and attempts to reconnect if the connection is lost. You can also use gdsm-network-interface-connect to connect to a bridge or remote G2 process on a specific host and port.
- gdsm-network-interface-disconnect — Disconnects from a bridge or remote G2 process. Note that if the auto-reconnect feature is enabled for a network interface, upon disconnect, this method attempts to reconnect to the bridge. Disable this feature on the interface if you do not want to auto-reconnect to the bridge.
- gdsm-handle-bridge-connection — Handles status changes detected by built-in rules
- gdsm-launch-bridge-process — Launches the bridge or remote G2 process. Typically, you launch the bridge process from gdsm-network-interface-connect-to-bridge.
- gdsm-kill-bridge-process — Shuts down the bridge or remote G2 process. Typically, the bridge process shuts down automatically when disconnecting by configuring a timeout in the interface.

Network Pools

GDSM provides built-in network pools for several connection types: G2-to-G2 communication, database communication, email communication, and communication with JMS providers. To use pools of communication interfaces, your application should perform the following tasks once the pool has been initialized and populated with network interfaces:

1. Get the next available network interface by calling gdsm-network-pool-get-an-interface.
2. Perform operations on the acquired network interface by using the APIs for that interface.
3. Release the network interface by calling gdsm-network-pool-release-an-interface.

For convenience, GDSM includes several utility procedures to locate connections and connection pools, and to get a list of network interfaces and pools, for example, to provide them in a dropdown list in the user interface. These APIs are:

- gdsm-generate-instance-sequence
- gdsm-get-network-connection-pool-by-label
- gdsm-get-network-connection-from-pool-by-label

Network Connection Management Utilities

GDSM provides a number of database utility procedures for dynamically creating SQL statements, based on G2 data structures.

Loading GDSM

To use the GDSM module, you must load or merge in *gdsm.kb*, which is located in the *g2i\kbs* directory.

The *gdsm-demo.kb* is located in the *g2i\examples* directory. On Windows, you can load the demo from the Start menu.

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Module Settings

Describes the G2 Data Source Manager (GDSM) module module settings.

Introduction

The gdsm-module-settings object inherits GFR module settings. Upon startup, GFR locates one module settings object as the active setting, which is typically the instance in the highest level module. The active module is determined when G2 is started. Several APIs take the active module settings object into account during execution.

gdsm-module-settings

Manages system configurations for the GDSM module.

Class Inheritance Path

gfr-module-settings, object, item

Attributes

Attribute	Description
network-connection-fault-category	The category of the errors generated in GDSM.
Allowable values:	text
Default value:	"Network Connection"
Notes:	See Configuration File.
create-message-upon-connection-success	If true and upon successful connection to the bridge process, causes an operator message to be generated.
Allowable values:	truth-value
Default value:	false
Notes:	See Configuration File.
minimum-persistence-interval	As rules detect changes, gdsm-handle-bridge-connection waits this amount of time to confirm the status change prior to posting messages. This delay might help avoid actions when states change rapidly.
Allowable values:	integer (formatted as an interval)
Default value:	15 seconds
Notes:	See Configuration File.

Attribute	Description
auto-connect-interval	As rules detect changes, gdsm-handle-bridge-connection waits this amount of time after the minimum-persistence-interval to confirm the status change prior to scheduling auto-recovery actions. This delay might help to clear states, for example, sockets in the OS or processes shutting down.
Allowable values:	integer (formatted as an interval)
Default value:	15 seconds
Notes:	See Configuration File.
debug-network-interface-monitoring	When true, if gdsm-handle-bridge-connection detects that it should attempt to reconnect to the bridge or remote G2, it reschedules the reconnection by starting gdsm-network-interface-connect-to-bridge after the auto-connect-interval.
Allowable values:	truth-value
Default value:	false
default-http-interface-is-g2-http-server	Whether the default HTTP interface is the G2 HTTP server.
Allowable values:	truth-value
Default value:	false
enable-default-opc-interface	Whether to enable the default OPC interface.
Allowable values:	truth-value
Default value:	false
Notes:	See Configuration File.

Attribute	Description
default-opc-server-interface-name	The default OPC server interface name.
Allowable values:	symbol
Default value:	default-opc-interface
enable-default-pi-interface	Whether to enable the default PI interface.
Allowable values:	truth-value
Default value:	false
Notes:	See Configuration File.
default-pi-server-interface-name	The default PI server interface name.
Allowable values:	symbol
Default value:	default-pi-interface
enable-default-sql-interface-pool	Whether to enable the default SQL interface pool.
Allowable values:	truth-value
Default value:	false
Notes:	See Configuration File.
default-sql-interface-pool-label	The default SQL interface pool name.
Allowable values:	symbol
Default value:	default-sql-interface-pool

Attribute	Description
enable-default-smtp-interface-pool	Whether to enable the default SMTP interface pool.
Allowable values:	truth-value
Default value:	false
Notes:	See Configuration File.
default-smtp-interface-pool-label	The default SMTP interface name.
Allowable values:	symbol
Default value:	default-smtp-interface-pool
enable-default-http-interface	Whether to enable the default HTTP interface.
Allowable values:	truth-value
Default value:	false
Notes:	See Configuration File.
default-http-interface-name	The default HTTP interface name.
Allowable values:	symbol
Default value:	default-http-interface-pool
enable-default-snmp-interface	Whether to enable the default SNMP interface.
Allowable values:	truth-value
Default value:	false
Notes:	See Configuration File.

Attribute	Description
default-snmp-server-interface-name	The default SNMP server interface name.
Allowable values:	symbol
Default value:	default-snmp-interface-pool
enable-default-snmp-trap-receiver-interface	Whether to enable the default SNMP trap receiver interface.
Allowable values:	truth-value
Default value:	false
Notes:	See Configuration File.
default-snmp-trap-receiver-interface-name	The default SNMP trap receiver interface name.
Allowable values:	symbol
Default value:	default-snmp-trap-receiver-interface
network-connection-monitoring-interval	The time interval, in minutes, for monitoring network connections for instances of gdsm-external-system-interface and gdsm-g2-to-g2-data-interface whose monitor-connection-and-process attribute is true.
Allowable values:	integer
Default value:	15

Configuration File

This table describes the settings in the configuration file (*config.txt*, by default), the associated group, and the attributes in the gdsm-module-settings object that they configure at startup:

Group	Configuration File Settings	GDSM Module Settings Attributes
GDSM	*NETWORK-CONNECTION-FAULT-CATEGORY="Network Connection"*	network-connection-fault-category
GDSM	*CREATE-MESSAGE-UPON-CONNECTION-SUCCESS=false*	create-message-upon-connection-success
GDSM	*MINIMUM-PERSISTENCE-INTERVAL=15*	minimum-persistence-interval
GDSM	*AUTO-CONNECT-INTERVAL=15*	auto-connect-interval
GDSM	*DEFAULT-HTTP-INTERFACE-IS-G2-HTTP-SERVER=false*	default-http-interface-is-g2-http-server
GDSM	*ENABLE-DEFAULT-OPC-INTERFACE=false*	enable-default-opc-interface
GDSM	*ENABLE-DEFAULT-PI-INTERFACE=false*	enable-default-pi-interface
GDSM	*ENABLE-DEFAULT-SQL-INTERFACE-POOL=false*	enable-default-sql-interface
GDSM	*ENABLE-DEFAULT-SMTP-INTERFACE-POOL=false*	enable-default-smtp-interface
GDSM	*ENABLE-DEFAULT-HTTP-INTERFACE=false*	enable-default-http-interface
GDSM	*ENABLE-DEFAULT-SNMP-INTERFACE=false*	enable-default-snmp-interface
GDSM	*ENABLE-DEFAULT-SNMP-TRAP-RECEIVER-INTERFACE=false*	enable-default-snmp-trap-receiver-interface

In addition, the following parameters appear in the configuration file for configuring the attributes of the various default network interfaces. The section name is the name of the default network interface as specified in the gdsm-module-settings, for example, default-opc-server-interface-name. The default value of each interface is listed below as the section name, for example, default-opc-interface.

```
[default-opc-interface]
BRIDGE-HOST-NAME=locahost
BRIDGE-HOST-PORT=22040
BRIDGE-CONNECTION-TIMEOUT=15
AUTO-CONNECT-TO-REMOTE-PROCESS=false
LAUNCH-REMOTE-PROCESS=false
SHUTDOWN-REMOTE-PROCESS-UPON-DISCONNECT=false

[default-pi-interface]
BRIDGE-HOST-NAME=locahost
BRIDGE-HOST-PORT=22041
BRIDGE-CONNECTION-TIMEOUT=15
AUTO-CONNECT-TO-REMOTE-PROCESS=false
LAUNCH-REMOTE-PROCESS=false
SHUTDOWN-REMOTE-PROCESS-UPON-DISCONNECT=false

[default-sql-interface-pool]
NETWORK-INITIAL-INTERFACE-COUNT=1
NETWORK-DEFAULT-HOST-NAME=locahost
NETWORK-BASE-PORT-NUMBER=22060
NETWORK-CONNECTION-TIMEOUT=15
AUTO-CONNECT-TO-REMOTE-PROCESS=false
LAUNCH-REMOTE-PROCESS=false
SHUTDOWN-REMOTE-PROCESS-UPON-DISCONNECT=false
USER-NAME=
USER-PASSWORD=
DATABASE-CONNECT-STRING=
DATABASE-MAXIMUM-DEFINABLE-CURSORS=100
DATABASE-BIND-VARIABLE-PREFIX=:

[default-smtp-interface-pool]
NETWORK-INITIAL-INTERFACE-COUNT=1
NETWORK-DEFAULT-HOST-NAME=locahost
NETWORK-BASE-PORT-NUMBER=22050
NETWORK-CONNECTION-TIMEOUT=15
AUTO-CONNECT-TO-REMOTE-PROCESS=false
LAUNCH-REMOTE-PROCESS=false
SHUTDOWN-REMOTE-PROCESS-UPON-DISCONNECT=false
USER-NAME=
USER-PASSWORD=
INCOMING-EMAIL-HOST=localhost
INCOMING-EMAIL-PROTOCOL=pop3
```

```
INCOMING-EMAIL-FOLDER=INBOX
INCOMING-EMAIL-DELETE-MESSAGES-ON-HOST=false
OUTGOING-EMAIL-HOST=localhost
OUTGOING-EMAIL-FROM-ADDRESS=g2@localhost

[default-http-interface]
BRIDGE-HOST-NAME=locahost
BRIDGE-HOST-PORT=22042
BRIDGE-CONNECTION-TIMEOUT=15
AUTO-CONNECT-TO-REMOTE-PROCESS=false
LAUNCH-REMOTE-PROCESS=false
SHUTDOWN-REMOTE-PROCESS-UPON-DISCONNECT=false
LOGGING-ENABLED=false
ADD-HTTP-REQUEST-ATTRIBUTES-TO-LOG=false
LOG-FILE=$APPLICATION-ROOT-DIRECTORY/logs/g2-http-server-log.txt
HTTP-SERVER-PORT=8085
HTTP-SERVER-SSL-ENABLED=false
HTTP-SERVER-SSL-CERTIFICATE-FILE=
HTTP-SERVER-ROOT-DIRECTORY=$APPLICATION-ROOT-DIRECTORY/http_root

[default-snmp-interface]
BRIDGE-HOST-NAME=locahost
BRIDGE-HOST-PORT=22043
BRIDGE-CONNECTION-TIMEOUT=15
AUTO-CONNECT-TO-REMOTE-PROCESS=false
LAUNCH-REMOTE-PROCESS=false
SHUTDOWN-REMOTE-PROCESS-UPON-DISCONNECT=false
REMOTE-PROCESS-INITIALIZATION-STRING=-p 2 -t 8 -d

[default-snmp-trap-receiver-interface]
BRIDGE-HOST-NAME=locahost
BRIDGE-HOST-PORT=22044
BRIDGE-CONNECTION-TIMEOUT=15
AUTO-CONNECT-TO-REMOTE-PROCESS=false
LAUNCH-REMOTE-PROCESS=false
SHUTDOWN-REMOTE-PROCESS-UPON-DISCONNECT=false
REMOTE-PROCESS-INITIALIZATION-STRING=-p 1 -v 2 -d
```

3

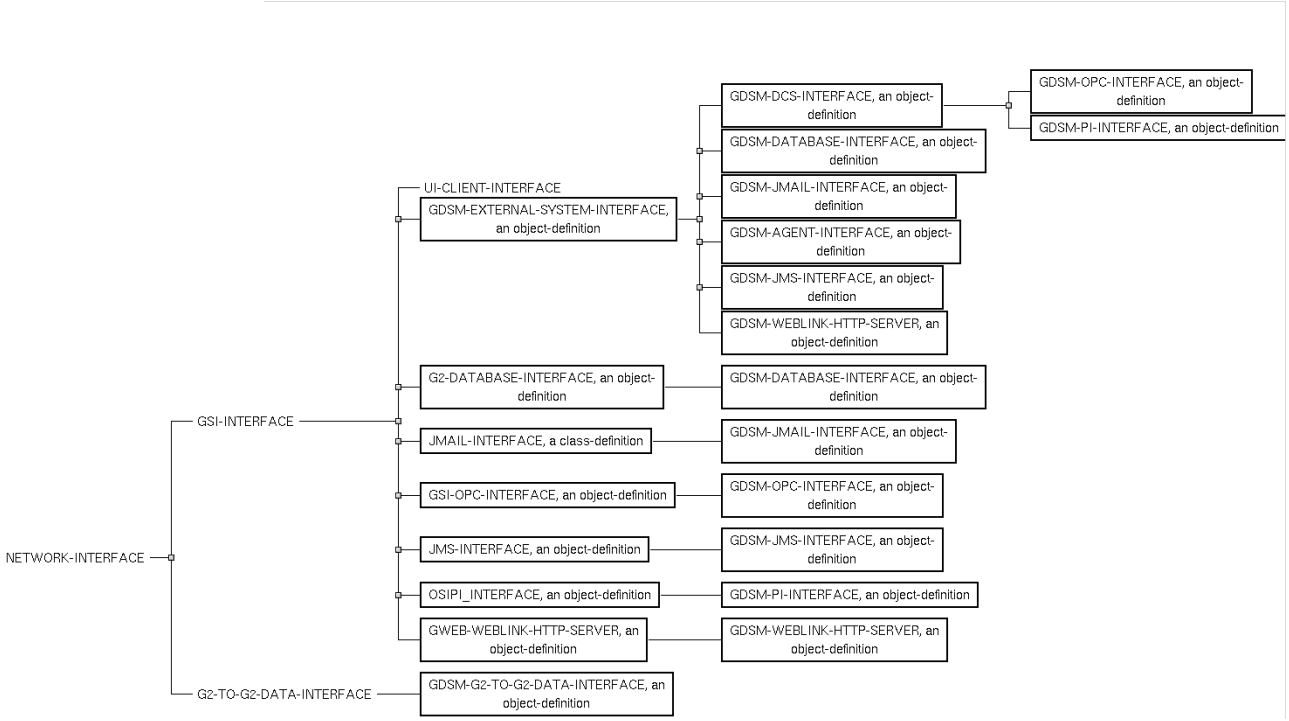
Network Connection Management

Describes the GDSM classes and APIs for managing network connections.

Introduction

This chapter describes the classes and APIs for managing network connections.

Here is the class hierarchy of the GDSM classes for network connection management:



For an overview of the APIs, see Network Interface Classes and APIs.

All GDSM network interface classes define the connect and disconnect menu choices for connecting and disconnecting the interface to and from the bridge, respectively. If the interface becomes disconnected, clicking the connect menu choice clears the status and attempts to reconnect. Clicking the disconnect menu choice clears the state, clears the connection configuration, and removes any operator messages that might exist.

The classes and associated APIs for the various types of network interfaces are located in the following modules, all of which require the gdsm module:

- gdsm-agent — Classes and APIs for managing remote resources.
- gdsm-db — Database interface classes and APIs.
- gdsm-jmail — G2 Java Mail Bridge interface classes and APIs.
- gdsm-jms — G2 JMSLink interface classes and APIs.
- gdsm-opc — G2 OPCLink interface classes and APIs.

- gdsm-pi — G2 PI Bridge interface classes and APIs.
- gdsm-snmp = G2 SNMP interface classes and APIs.
- gdsm-web — G2 WebLink interface classes and APIs.

G2-to-G2 Connection Management

Classes

gdsm-g2-to-g2-data-interface

Methods

g2-to-g2-data-interface::gdsm-network-interface-animate
g2-to-g2-data-interface::gdsm-network-interface-configure
g2-to-g2-data-interface::gdsm-network-interface-connect
g2-to-g2-data-interface::gdsm-network-interface-disconnect
g2-to-g2-data-interface::gdsm-network-interface-get-status
g2-to-g2-data-interface::gdsm-network-interface-handle-connection-failure
g2-to-g2-data-interface::gdsm-network-interface-handle-connection-timeout
g2-to-g2-data-interface::gdsm-kill-bridge-process
g2-to-g2-data-interface::gdsm-kill-bridge-process
g2-to-g2-data-interface::gdsm-launch-bridge-process
g2-to-g2-data-interface::gdsm-launch-bridge-process
g2-to-g2-data-interface::gdsm-network-interface-ping
g2-to-g2-data-interface::grtl-show-properties

gdsm-g2-to-g2-data-interface

Class Inheritance Path

object, item

Attributes

Attribute	Description
remote-host-name	The name of the remote host.
Allowable values:	text
Default value:	"localhost"
remote-host-port	The remote host port number.
Allowable values:	integer
Default value:	1111
connection-timeout	The number of seconds before the connection times out.
Allowable values:	interval
Default value:	15 seconds
auto-connect-to-remote-process	When true, automatically attempts to connect to the remote G2 process if the connection is lost.
Allowable values:	truth-value
Default value:	false

Attribute	Description
launch-remote-process	When true, automatically attempts to launch the bridge process when the interface attempts its first connection to it. It can start the process on the local G2 machine or remote machine as long the bundle is installed and G2 has access to that server via Telewindows.
Allowable values:	truth-value
Default value:	false
remote-process-launch-cmd	The path and filename of the command line or shell script used to launch the bridge process. It might start with $INSTALLATION-DIRECTORY which is resolved at runtime with the installation directory of the bundle, or $APPLICATION-DIRECTORY, which is an application root directory separate from the installation directory, also resolved at runtime. $APPLICATION-DIRECTORY is specified in the *config.txt* file
Allowable values:	text
Default value:	""
remote-process-pid	The process ID of the remote G2 process.
Allowable values:	quantity
Default value:	-1
shutdown-remote-process-upon-disconnect	When true, automatically shuts down the bridge process when the interface is disconnected.
Allowable values:	truth-value
Default value:	false

Attribute	Description
monitor-connection-and-process	Whether to monitor the connection status according to the network-connection-monitoring-interval of the gdsm-module-settings object.
Allowable values:	truth-value
Default value:	false

g2-to-g2-data-interface::gdsm-network-interface-animate

Synopsis

g2-to-g2-data-interface::gdsm-network-interface-animate
(*io*: g2-to-g2-data-interface, *allocated*: truth-value)

Argument	Description
io	The g2-to-g2 interface to animate.
allocated	True if allocated for communication.

Description

Animates a g2-to-g2 interface as it gets allocated and deallocated for communication via the bridge APIs.

g2-to-g2-data-interface::gdsm-network-interface-configure

Synopsis

g2-to-g2-data-interface::gdsm-network-interface-configure
(*io*: g2-to-g2-data-interface, *network-pool*: gdsm-network-connection-pool)

Argument	Description
io	The g2-to-g2 connection to configure.
network-pool	The network pool to use.

Description

Configures a g2-to-g2 interface to use a network pool.

g2-to-g2-data-interface::gdsm-network-interface-connect

Synopsis

g2-to-g2-data-interface::gdsm-network-interface-connect
(*io*: g2-to-g2-data-interface, *host*: text, *port*: integer,
connection-timeout: integer)

Argument	Description
io	The g2-to-g2 interface that should connect to the bridge process.
host	The host machine that is running the bridge.
port	The TCP/IP Port of the bridge process.
connection-timeout	The timeout to wait before testing a connection.

Description

Connects a bridge process through a g2-to-g2 interface at the specified host and port, with the given timeout. This procedure uses the default values of the gdsm-g2-to-g2-data-interface instance to build the connect string to the remote host if not specified in the arguments of the procedure.

g2-to-g2-data-interface::gdsm-network-interface-disconnect

Synopsis

g2-to-g2-data-interface::gdsm-network-interface-disconnect
(*io*: g2-to-g2-data-interface)

Argument	Description
io	The g2-to-g2 interface to disconnect.

Description

Disconnects a g2-to-g2 interface from the bridge process.

g2-to-g2-data-interface::gdsm-network-interface-get-status

Synopsis

g2-to-g2-data-interface::gdsm-network-interface-get-status
(*io*: g2-to-g2-data-interface)
-> *status*: symbol

Argument	Description
io	The g2-to-g2 interface connection whose status to get.

Return Value	Description
status	The state of the interface. The possible return values are: connected, not-connected, in-transition, timed-out, or connection-lost.

Description

Determines the status of the connection between a g2-to-g2 interface and the gateway process, refreshes the icon of the interface based on the status, and returns the status of the interface.

g2-to-g2-data-interface::gdsm-network-interface-handle-connection-failure

Synopsis

g2-to-g2-data-interface::gdsm-network-interface-handle-connection-failure
(*io*: g2-to-g2-data-interface)

Argument	Description
io	The g2-to-g2 interface that is attempting a connection.

Description

This method is called upon failure of a g2-to-g2 interface connection to a bridge.

g2-to-g2-data-interface::gdsm-network-interface-handle-connection-timeout

Synopsis

g2-to-g2-data-interface::gdsm-network-interface-handle-connection-timeout
(*io*: g2-to-g2-data-interface)

Argument	Description
io	The g2-to-g2 interface that is attempting a connection.

Description

This method is called upon timeout failure of a g2-to-g2 interface connection to a bridge.

g2-to-g2-data-interface::gdsm-kill-bridge-process

Synopsis

g2-to-g2-interface::gdsm-kill-bridge-process
(*io*: class gdsm-g2-to-g2-data-interface, *host*: text, *pid*: quantity)

Argument	Description
io	The g2-to-g2 interface that is connected to the bridge process to kill.
host	The host that is running the bridge to kill.
pid	The PID of the bridge process to kill.

Description

Kills a bridge process associated with a G2-to-G2 interface, given the network interface, host, and PID of the network interface.

Typically, you configure the shutdown-remote-process-upon-disconnect attribute in the network interface to automatically kill the bridge process when the network interface is disconnected.

g2-to-g2-data-interface::gdsm-kill-bridge-process

Synopsis

g2-to-g2-interface::gdsm-kill-bridge-process
(*io*: class gdsm-g2-to-g2-data-interface)

Argument	Description
io	The g2-to-g2 interface that is connected to the bridge process to kill.

Description

Kills the bridge process that is connected to the specified interface on the host specified in the gdsm-g2-to-g2-data-interface.

Typically, you configure the shutdown-remote-process-upon-disconnect attribute in the network interface to automatically kill the bridge process when the network interface is disconnected.

g2-to-g2-data-interface::gdsm-launch-bridge-process

Synopsis

g2-to-g2-data-interface::gdsm-launch-bridge-process
(*io*: class g2-to-g2-data-interface, *args*: text)
-> *pid*: float

Argument	Description
io	The G2-to-G2 interface that should connect to the bridge.
args	

Return Value	Description
pid	The PID of the launched process.

Description

Launches a bridge process from the specified G2-to-G2 interface, using the specified *args*. The bridge process starts on the host and port specified in the gdsm-g2-to-g2-data-interface.

The PID might be the PID of the shell script used to launch the process and not the PID of the bridge

Typically, you configure the launch-remote-process attribute in the network interface to automatically launch the bridge process when the network interface is connected by calling gdsm-network-interface-connect-to-bridge.

Here is an example of the full command line used to launch the bridge, where *localized-cmd* is the *cmd* argument with $APPLICATION-ROOT-DIRECTORY or $INSTALLATION-DIRECTORY used as text substitutions: "@"[*localized-cmd*]@" [*port*] [*args*]".

g2-to-g2-data-interface::gdsm-launch-bridge-process

Synopsis

g2-to-g2-data-interface::gdsm-launch-bridge-process
(*io*: class g2-to-g2-data-interface, *cmd*: text, *host*: text, *port*: integer, *args*: text)
-> *pid*: float

Argument	Description
io	The G2-to-G2 interface that should connect to the bridge.
cmd	The command line used to launch the bridge.
host	The host machine that is running the bridge.
port	The TCP/IP Port of the bridge process.
args	

Return Value	Description
pid	The PID of the launched process.

Description

Launches a bridge process through the specified G2-to-G2 interface, using the specified command line, host, port, and args.

The PID might be the PID of the shell script used to launch the process and not the PID of the bridge

Typically, you configure the launch-remote-process attribute in the network interface to automatically launch the bridge process when the network interface is connected by calling gdsm-network-interface-connect-to-bridge.

Here is an example of the full command line used to launch the bridge, where *localized-cmd* is the *cmd* argument with $APPLICATION-ROOT-DIRECTORY or $INSTALLATION-DIRECTORY used as text substitutions: "@"[*localized-cmd*]@" [*port*] [*args*]".

g2-to-g2-data-interface::gdsm-network-interface-ping

Synopsis

g2-to-g2-data-interface::gdsm-network-interface-ping
(*io*: g2-to-g2-data-interface)
-> *status*: symbol

Argument	Description
io	The g2-to-g2 interface to ping.

Return Value	Description
status	The status of the interface: connected, not-connected, in-transition, timed-out, or connection-lost.

Description

Calls gdsm-network-interface-get-status and returns the status.

g2-to-g2-data-interface::grtl-show-properties

Synopsis

g2-to-g2-data-interface::grtl-show-properties
(*io*: g2-to-g2-data-interface, *client*: ui-client-item)
-> *result*: truth-value

Argument	Description
io	The g2-to-g2 interface whose properties to view.
client	The client window in which to show the dialog.

Return Value	Description
result	True if the properties dialog exists.

Description

Opens the properties dialog of a g2-to-g2 interface, if it exists.

G2 Gateway Connection Management

gsi-interface::gdsm-network-interface-animate

Synopsis

gsi-interface::gdsm-network-interface-animate
    (*io*: gsi-interface, *allocated*: truth-value)

Argument	Description
io	The gsi-interface to animate.
allocated	True if the interface is allocated for communication.

Description

Animates a gsi-interface as it gets allocated and deallocated for communication via the bridge APIs.

gsi-interface::gdsm-network-interface-configure

Synopsis

gsi-interface::gdsm-network-interface-configure
(*io*: gsi-interface, *network-pool*: gdsm-network-connection-pool)

Argument	Description
io	The gsi-interface connection to configure.
network-pool	The network pool to use.

Description

Configures a gsi-interface to use a network pool.

gsi-interface::gdsm-network-interface-connect

Synopsis

gsi-interface::gdsm-network-interface-connect
(*io*: gsi-interface)

Argument	Description
io	The gsi-interface that should connect to the bridge process.

Description

Sets the gsi-connection-configuration of the gsi-interface to the host-post string, using the host and port specified in the gsi-interface. If the gsi-interface is not connected, this method runs indefinitely until the interface connects, is lost, or times out. This method monitors the status of the gsi-interface object.

gsi-interface::gdsm-network-interface-connect

Synopsis

gsi-interface::gdsm-network-interface-connect
(*io*: gsi-interface, *host*: text, *port*: integer, *connection-timeout*: integer)

Argument	Description
io	The gsi-interface that should connect to the bridge process.
host	The host running the bridge.
port	The TCP/IP port of the io process.
connection-timeout	Timeout to wait before testing a connection.

Description

Sets the gsi-connection-configuration of the gsi-interface to the host-post string. If the gsi-interface is not connected, this method runs indefinitely until the interface connects, is lost, or times out. This method monitors the status of the gsi-interface object.

gsi-interface::gdsm-network-interface-disconnect

Synopsis

gsi-interface::gdsm-network-interface-disconnect
(*io*: gsi-interface)

Argument	Description
io	The gsi-interface to disconnect.

Description

Disconnects a gsi-interface from the bridge process.

gsi-interface::gdsm-network-interface-get-status

Synopsis

gsi-interface::gdsm-network-interface-get-status
(*io*: gsi-interface)
-> *status*: symbol

Argument	Description
io	The gsi-interface connection whose status to get.

Return Value	Description
status	The status of the interface. The possible return values are: connected, not-connected, in-transition, timed-out, or connection-lost.

Description

Determines the state of the network connection between a gsi-interface and the gateway process, refreshes the icon of the interface based on the status, and returns the status of the interface.

gsi-interface::gdsm-network-interface-handle-connection-failure

Synopsis

gsi-interface::gdsm-network-interface-handle-connection-failure
(*io*: gsi-interface)

Argument	Description
io	The gsi-interface that is attempting a connection.

Description

This method is called upon failure of a gsi-interface connection to a bridge.

gsi-interface::gdsm-network-interface-handle-connection-timeout

Synopsis

gsi-interface::gdsm-network-interface-handle-connection-timeout
(*io*: gsi-interface)

Argument	Description
io	The gsi-interface that is attempting a connection.

Description

This method is called upon timeout failure of a gsi-interface connection to a bridge.

gsi-interface::gdsm-kill-bridge-process

Synopsis

gsi-interface::gdsm-kill-bridge-process
(*io*: class gsi-interface, *host*: text, *pid*: quantity)

Argument	Description
io	The gsi-interface that is connected to the bridge process to kill.
host	The host that is running the bridge to kill.
pid	The PID of the bridge process to kill.

Description

Kills a bridge process associated with a gsi-interface, given the network interface, host, and PID of the network interface.

Typically, you configure the shutdown-remote-process-upon-disconnect attribute in the network interface to automatically kill the bridge process when the network interface is disconnected.

gsi-interface::gdsm-kill-bridge-process

Synopsis

gsi-interface::gdsm-kill-bridge-process
(*io*: class gsi-interface)

Argument	Description
io	The gsi-interface that is connected to the bridge process to kill.

Description

Kills the bridge process that is connected to the specified interface on the host and port specified in the gsi-interface.

Typically, you configure the shutdown-remote-process-upon-disconnect attribute in the network interface to automatically kill the bridge process when the network interface is disconnected.

gsi-interface::gdsm-launch-bridge-process

Synopsis

gsi-interface::gdsm-launch-bridge-process
(*io*: class gsi-interface, *args*: text)
-> *pid*: float

Argument	Description
io	The gsi-interface that should connect to the bridge.
args	

Return Value	Description
pid	The PID of the launched process.

Description

Launches a bridge process from the specified gsi-interface, using the specified *args*. The bridge process starts on the host and port specified in the gsi-interface.

The PID might be the PID of the shell script used to launch the process and not the PID of the bridge

Typically, you configure the launch-remote-process attribute in the network interface to automatically launch the bridge process when the network interface is connected by calling gdsm-network-interface-connect-to-bridge.

Here is an example of the full command line used to launch the bridge, where *localized-cmd* is the *cmd* argument with $APPLICATION-ROOT-DIRECTORY or $INSTALLATION-DIRECTORY used as text substitutions: "@"[*localized-cmd*]@" [*port*] [*args*]".

gsi-interface::gdsm-launch-bridge-process

Synopsis

gsi-interface::gdsm-launch-bridge-process
(*io*: class gsi-interface, *cmd*: text, *host*: text, *port*: integer, *args*: text)
-> *pid*: float

Argument	Description
io	The gsi-interface that should connect to the bridge.
cmd	The command line used to launch the bridge.
host	The host machine that is running the bridge.
port	The TCP/IP Port of the bridge process.
args	

Return Value	Description
pid	The PID of the launched process.

Description

Launches a bridge process through the specified gsi-interface, using the specified command line, host, port, and args.

The PID might be the PID of the shell script used to launch the process and not the PID of the bridge

Typically, you configure the launch-remote-process attribute in the network interface to automatically launch the bridge process when the network interface is connected by calling gdsm-network-interface-connect-to-bridge.

Here is an example of the full command line used to launch the bridge, where *localized-cmd* is the *cmd* argument with $APPLICATION-ROOT-DIRECTORY or $INSTALLATION-DIRECTORY used as text substitutions: "@"[*localized-cmd*]@" [*port*] [*args*]".

gsi-interface::gdsm-network-interface-ping

Synopsis

gsi-interface::gdsm-network-interface-ping
    (*io*: gsi-interface)
    -> *status*: symbol

Argument	Description
io	The gsi-interface to ping.

Return Value	Description
status	The status of the interface: connected, not-connected, in-transition, timed-out, or connection-lost.

Description

Calls gdsm-network-interface-get-status and returns the status.

gsi-interface::grtl-show-properties

Synopsis

gsi-interface::grtl-show-properties
    (*itm*: gsi-interface, *client*: ui-client-item)
 -> *result*: truth-value

Argument	Description
io	The gsi-interface whose properties to view.
client	The client window in which to show the dialog.

Return Value	Description
result	True if the properties dialog exists.

Description

Opens the properties dialogs of a gsi-interface, if it exists.

Agent Management

The following class and APIs manage remote resources such as interacting with files, logging events, starting and killing processes, or performing RSH commands.

The executable is located in *g2i\g2agent\intelnt\bin\G2Agent.exe*. Use *StartG2Agent.bat* in the same location to start the agent process, or use the Start menu to start the bridge process.

This feature is only available on Windows operating systems. The source code of the bridge is available for adapting or porting to different platforms, as needed. The source code is located in *g2i\g2agent\scr*.

Class

gdsm-agent-interface

Methods

gdsm-agent-interface::gdsm-network-interface-configure
gdsm-agent-interface::gdsm-kill-bridge-process
gdsm-agent-interface::gdsm-network-interface-ping
gdsm-agent-interface::grtl-show-properties
gdsm-agent-interface::gdsm-agent-close-all-files
gdsm-agent-interface::gdsm-agent-close-file
gdsm-agent-interface::gdsm-agent-delete-file
gdsm-agent-interface::gdsm-agent-create-directory
gdsm-agent-interface::gdsm-agent-directory-exists
gdsm-agent-interface::gdsm-agent-file-exists
gdsm-agent-interface::gdsm-agent-file-stats
gdsm-agent-interface::gdsm-agent-length-of-file
gdsm-agent-interface::gdsm-agent-open-file-for-append
gdsm-agent-interface::gdsm-agent-open-file-for-read
gdsm-agent-interface::gdsm-agent-open-file-for-read-and-write
gdsm-agent-interface::gdsm-agent-open-file-for-write
gdsm-agent-interface::gdsm-agent-read-from-file
gdsm-agent-interface::gdsm-agent-readline-from-file
gdsm-agent-interface::gdsm-agent-rename-file
gdsm-agent-interface::gdsm-agent-seek-to-position-in-file
gdsm-agent-interface::gdsm-agent-write-to-file
gdsm-agent-interface::gdsm-agent-spawn-process
gdsm-agent-interface::gdsm-agent-kill-process
gdsm-agent-interface::gdsm-agent-process-exists
gdsm-agent-interface::gdsm-agent-add-log-event-source
gdsm-agent-interface::gdsm-agent-get-log-info
gdsm-agent-interface::gdsm-agent-get-log-entries

gdsm-agent-interface::gdsm-agent-log-error-event
gdsm-agent-interface::gdsm-agent-log-information-event
gdsm-agent-interface::gdsm-agent-log-warning-event

gdsm-agent-interface

Class Inheritance Path

gdsm-agent-interface, gdsm-external-system-interface, gsi-interface, network-interface, object, item

Attributes

Attribute	Description
agent-path-separator	The path separator for use for pathnames.
Allowable values:	text
Default value:	"\"
bridge-host-name	The host name for connecting to the bridge.
Allowable values:	inherited
Default value:	"localhost"
bridge-host-port	The port number for connecting to the bridge.
Allowable values:	inherited
Default value:	22041
bridge-connection-timeout	The timeout for connecting to the bridge.
Allowable values:	inherited
Default value:	15
auto-connect-to-remote-process	When true, automatically connects to the remote G2 process if the connection is lost.
Allowable values:	truth-value

Attribute	Description
Default value:	false
launch-remote-process	When true, automatically launches the bridge process when the interface is connected.
Allowable values:	truth-value
Default value:	false
remote-process-launch-cmd	The command line used to launch the bridge.
Allowable values:	text
Default value:	""
remote-process-pid	The PID of the remote G2 process.
Allowable values:	quantity
Default value:	-1
shutdown-remote-process-upon-disconnect	When true, automatically shuts down the bridge process when the interface is disconnected.
Allowable values:	truth-value
Default value:	false
monitor-connection-and-process	Whether to monitor the connection status according to the network-connection-monitoring-interval of the gdsm-module-settings object.
Allowable values:	truth-value
Default value:	false

gdsm-agent-interface::gdsm-network-interface-configure

Synopsis

gdsm-agent-interface::gdsm-network-interface-configure
(*io*: gdsm-agent-interface, *network-pool*: gdsm-network-connection-pool)

Argument	Description
io	The agent interface to configure.
network-pool	The network pool to use.

Description

Configures an agent interface to use a network pool.

gdsm-agent-interface::gdsm-kill-bridge-process

Synopsis

gdsm-agent-interface::gdsm-kill-bridge-process
(*io*: class gdsm-database-interface)

Argument	Description
io	The agent interface that is connected to the bridge process to kill.

Description

Kills the bridge process that is connected to the specified interface on the host specified in the gdsm-agent-interface by calling db-kill-bridge.

Typically, you configure the shutdown-remote-process-upon-disconnect attribute in the network interface to automatically kill the bridge process when the network interface is disconnected.

gdsm-agent-interface::gdsm-network-interface-ping

Synopsis

gdsm-agent-interface::gdsm-network-interface-ping
(*io*: gdsm-agent-interface)
-> *status*: symbol

Argument	Description
io	The agent interface to ping.

Return Value	Description
status	The status of the interface: connected, not-connected, in-transition, timed-out, or connection-lost.

Description

Calls db-ping to ping the bridge, then calls gdsm-network-interface-get-status and returns the status.

gdsm-agent-interface::grtl-show-properties

Synopsis

gdsm-agent-interface::grtl-show-properties
    (*io*: gdsm-agent-interface, *client*: ui-client-item)
 -> *result*: truth-value

Argument	Description
io	The agent interface whose properties to view.
client	The client window in which to show the dialog.

Return Value	Description
result	True if the properties dialog exists.

Description

Opens the properties dialogs of a agent interface, if it exists.

gdsm-agent-interface::gdsm-agent-close-all-files

Synopsis

gdsm-agent-interface::gdsm-agent-close-all-files
(*io*: class gdsm-agent-interface, *file-handle*: integer)
-> *status*: truth-value

Argument	Description
io	The agent interface.
file-handle	The integer handle for the file.

Return Value	Description
status	True if successful, false otherwise.

Description

Closes all files opened by the bridge process. Upon error it may signal gdsm-agent-not-connected.

gdsm-agent-interface::gdsm-agent-close-file

Synopsis

gdsm-agent-interface::gdsm-agent-close-file
(*io*: class gdsm-agent-interface, *file-handle*: integer)
-> *status*: truth-value

Argument	Description
io	The agent interface.
file-handle	The integer handle for the file.

Return Value	Description
status	True if successful, false otherwise.

Description

Closes a file opened by the bridge process. May signal gdsm-agent-not-connected.

gdsm-agent-interface::gdsm-agent-delete-file

Synopsis

gdsm-agent-interface::gdsm-agent-close-file
(*io*: class gdsm-agent-interface, *filename*: text)
-> *status*: truth-value

Argument	Description
io	The agent interface.
filename	The name of the file to delete.

Return Value	Description
status	True if successful, false otherwise.

Description

Deletes a file on the computer where the bridge process is running. May signal gdsm-agent-not-connected.

gdsm-agent-interface::gdsm-agent-create-directory

Synopsis

gdsm-agent-interface::gdsm-agent-create-directory
(*io*: class gdsm-agent-interface, *directory*: text, *create-parents*: truth-value)
-> *status*: truth-value

Argument	Description
io	The agent interface.
directory	The directory to create.
create-parents	True to create the parent nodes in the directory if they do not exist, false otherwise.

Return Value	Description
status	True if successful, false otherwise.

Description

Creates a directory on the computer where the bridge process is running. May signal gdsm-agent-not-connected or gdsm-agent-invalid-filename.

gdsm-agent-interface::gdsm-agent-directory-exists

Synopsis

gdsm-agent-interface::gdsm-agent-directory-exists
(*io*: class gdsm-agent-interface, *directory*: text)
-> *status*: truth-value

Argument	Description
io	The agent interface.
directory	The directory name.

Return Value	Description
status	True if the file exists, false otherwise.

Description

Returns true if the directory exists on the computer where the bridge process is running. May signal gdsm-agent-not-connected or gdsm-agent-invalid-filename.

gdsm-agent-interface::gdsm-agent-file-exists

Synopsis

gdsm-agent-interface::gdsm-agent-file-exists
(*io*: class gdsm-agent-interface, *filename*: text)
-> *status*: truth-value

Argument	Description
io	The agent interface.
filename	The name of the file.

Return Value	Description
status	True if the file exists, false otherwise.

Description

Returns true if the file exists on the computer where the bridge process is running. May signal gdsm-agent-not-connected.

gdsm-agent-interface::gdsm-agent-file-stats

Synopsis

gdsm-agent-interface::gdsm-agent-file-stats
    (*io*: class gdsm-agent-interface, *filename*: text)
    -> *file-size*: float, *creation-time*: float, *last-access-time*: float,
        modification-time: float

Argument	Description
io	The agent interface.
filename	The name of the file whose statistics to get.

Return Value	Description
file-size	The file size.
creation-time	The UNIX creation time.
last-access-time	The UNIX last accessed time
modification-time	The UNIX last modification time.

Description

Returns file statistics for a file on the computer where the bridge process is running or -1 if the file does not exist. May signal gdsm-agent-not-connected or gdsm-agent-io-error.

gdsm-agent-interface::gdsm-agent-length-of-file

Synopsis

gdsm-agent-interface::gdsm-agent-length-of-file
(*io*: class gdsm-agent-interface, *filename*: text)
-> *length*: float

Argument	Description
io	The agent interface.
filename	The name of the file.

Return Value	Description
length	The file size.

Description

Returns the size of the file on the computer where the bridge process is running or -1 if the file does not exist. May signal gdsm-agent-not-connected or gdsm-agent-io-error.

gdsm-agent-interface::gdsm-agent-open-file-for-append

Synopsis

gdsm-agent-interface::gdsm-agent-open-file-for-append
(*io*: class gdsm-agent-interface, *filename*: text)
-> *file-handle*: integer

Argument	Description
io	The agent interface.
filename	The name of the file to open.

Return Value	Description
file-handle	An integer handle to the file.

Description

Opens a file in append mode on the computer where the bridge is running and returns a file handle. May signal gdsm-agent-not-connected, gdsm-agent-invalid-filename, or gdsm-agent-cannot-open-file.

gdsm-agent-interface::gdsm-agent-open-file-for-read

Synopsis

gdsm-agent-interface::gdsm-agent-open-file-for-read
(*io*: class gdsm-agent-interface, *filename*: text)
-> *file-handle*: integer

Argument	Description
io	The agent interface.
filename	The name of the file to open.

Return Value	Description
file-handle	An integer handle to the file.

Description

Opens a file in read mode on the computer where the bridge is running and returns a file handle. May signal gdsm-agent-not-connected, gdsm-agent-invalid-filename, or gdsm-agent-cannot-open-file.

gdsm-agent-interface::gdsm-agent-open-file-for-read-and-write

Synopsis

gdsm-agent-interface::gdsm-agent-open-file-for-read-and-write
(*io*: class gdsm-agent-interface, *filename*: text)
-> *file-handle*: integer

Argument	Description
io	The agent interface.
filename	The name of the file to open.

Return Value	Description
file-handle	An integer handle to the file.

Description

Opens a file in read and write mode on the computer where the bridge is running and returns a file handle. May signal gdsm-agent-not-connected, gdsm-agent-invalid-filename, or gdsm-agent-cannot-open-file.

gdsm-agent-interface::gdsm-agent-open-file-for-write

Synopsis

gdsm-agent-interface::gdsm-agent-open-file-for-write
(*io*: class gdsm-agent-interface, *filename*: text)
-> *file-handle*: integer

Argument	Description
io	The agent interface.
filename	The name of the file to open.

Return Value	Description
file-handle	An integer handle to the file.

Description

Opens a file in write mode on the computer where the bridge is running and returns a file handle. May signal gdsm-agent-not-connected, gdsm-agent-invalid-filename, or gdsm-agent-cannot-open-file.

gdsm-agent-interface::gdsm-agent-read-from-file

Synopsis

gdsm-agent-interface::gdsm-agent-read-from-file
(*io*: class gdsm-agent-interface, *file-handle*: integer,
maximum-nb-of-characters: integer)
-> *text*: text

Argument	Description
io	The agent interface.
file-handle	The integer handle for the file.
maximum-nb-of-characters	The maximum number of characters to read, which is limited to 4096 in the bridge.

Return Value	Description
text	The text that was read.

Description

Reads text from a file opened by the bridge process and returns the text. May signal gdsm-agent-not-connected or gdsm-agent-eof.

gdsm-agent-interface::gdsm-agent-readline-from-file

Synopsis

gdsm-agent-interface::gdsm-agent-readline-from-file
(*io*: class gdsm-agent-interface, *file-handle*: integer)
-> *text*: text

Argument	Description
io	The agent interface.
file-handle	The integer handle for the file.

Return Value	Description
text	The text that was read.

Description

Reads a line of text from a file opened by the bridge process and returns the text. May signal gdsm-agent-not-connected or gdsm-agent-eof.

gdsm-agent-interface::gdsm-agent-rename-file

Synopsis

gdsm-agent-interface::gdsm-agent-rename-file
(*io*: class gdsm-agent-interface, *old-filename*: text, *new-filename*: text)
-> *status*: truth-value

Argument	Description
io	The agent interface.
old-filename	The name of the existing file.
new-filename	The new name for the file.

Return Value	Description
status	True if successful, false otherwise.

Description

Renames a file on the computer where the bridge process is running. May signal gdsm-agent-not-connected.

gdsm-agent-interface::gdsm-agent-seek-to-position-in-file

Synopsis

gdsm-agent-interface::gdsm-agent-seek-to-position-in-file
(*io*: class gdsm-agent-interface, *file-handle*: integer, *position*: float)
-> *status*: truth-value

Argument	Description
io	The agent interface.
file-handle	The integer handle for the file.
position	The position in the file.

Return Value	Description
status	True if successful, false otherwise.

Description

Seeks to a position in the file opened by the bridge process. May signal gdsm-agent-not-connected or gdsm-agent-io-error.

gdsm-agent-interface::gdsm-agent-write-to-file

Synopsis

gdsm-agent-interface::gdsm-agent-write-to-file
(*io*: class gdsm-agent-interface, *file-handle*: integer, *text*: text,
flush-output: truth-value)
-> *characters*: integer

Argument	Description
io	The agent interface.
file-handle	The integer handle for the file.
text	The text to write to the file.
flush-output	Whether to flush the output when the write is complete.

Return Value	Description
characters	The number of characters written to the file.

Description

Writes text to a file opened by the bridge process and returns the number of characters written to the file. May signal gdsm-agent-not-connected or gdsm-agent-io-error.

gdsm-agent-interface::gdsm-agent-spawn-process

Synopsis

gdsm-agent-interface::gdsm-agent-spawn-process
(*io*: class gdsm-agent-interface, *cmd*: text)
-> *pid*: float

Argument	Description
io	The agent interface.
cmd	The command to execute.

Return Value	Description
pid	The PID of the process.

Description

Spawns a process and returns the PID. A negative PID indicates the *cmd* could not be launched. May signal gdsm-agent-not-connected or gdsm-agent-invalid-cmd.

gdsm-agent-interface::gdsm-agent-kill-process

Synopsis

gdsm-agent-interface::gdsm-agent-kill-process
    (*io*: class gdsm-agent-interface, *pid*: float)
    -> *status*: truth-value

Argument	Description
io	The agent interface.
pid	The PID of the process to kill.

Return Value	Description
status	True if successful, false otherwise.

Description

Kills a process given its PID. May signal gdsm-agent-not-connected or gdsm-agent-invalid-pid.

gdsm-agent-interface::gdsm-agent-process-exists

Synopsis

gdsm-agent-interface::gdsm-agent-process-exists
(*io*: class gdsm-agent-interface, *pid*: float)
-> *status*: truth-value

Argument	Description
io	The agent interface.
pid	The PID of the process.

Return Value	Description
status	True if successful, false otherwise.

Description

Checks if a process exists. May signal gdsm-agent-not-connected or gdsm-agent-invalid-pid.

gdsm-agent-interface::gdsm-agent-add-log-event-source

Synopsis

gdsm-agent-interface::gdsm-agent-add-log-event-source
(*io*: class gdsm-agent-interface, *log-name*: text, *source-name*: text, *dll*: text, *number-of-categories*: integer)
-> *status*: truth-value

Argument	Description
io	The agent interface.
log-name	The name of the log file.
source-name	The event source.
dll	The DLL of the event.
number-of-categories	The number of categories.

Return Value	Description
status	True if successful, false otherwise.

Description

Adds a log source (group) to the Microsoft Event Viewer, which is accessible from the Administrative Tools in Windows. For example, you might add a G2 group similar to the Applications or System group. See *gdsm-demo.kb* for an example.

gdsm-agent-interface::gdsm-agent-get-log-info

Synopsis

gdsm-agent-interface::gdsm-agent-add-log-event-source
(*io*: class gdsm-agent-interface, *computer-name*: text, *source-name*: text)
-> *status*: truth-value, *number-of-records*: integer, *oldest-record-id*: integer

Argument	Description
io	The agent interface.
computer-name	The name of the computer. Use the empty string to specify the computer where the bridge is running.
source-name	The event source.

Return Value	Description
status	True if successful, false otherwise.
number-of-records	The number of records in the event log.
oldest-record-id	The ID of the oldest record in the log.

Description

Returns information about event source in the Microsoft Event Viewer, which is accessible from the Administrative Tools in Windows. May signal gdsm-agent-not-connected.

gdsm-agent-interface::gdsm-agent-get-log-entries

Synopsis

gdsm-agent-interface::gdsm-agent-add-log-event-source
(*io*: class gdsm-agent-interface, *computer-name*: text, *source-name*: text)
-> *status*: truth-value, *log-entries*: value

Argument	Description
io	The agent interface.
computer-name	The name of the computer. Use the empty string to specify the computer where the bridge is running.
source-name	The event source.

Return Value	Description
status	True if successful, false otherwise.
log-entries	A CSV file of log entries, including header information in the first row, which includes Count, Event-ID, Event-type, and Event-source.

Description

Returns log entries for an event source in the Microsoft Event Viewer, which is accessible from the Administrative Tools in Windows. May signal gdsm-agent-not-connected.

gdsm-agent-interface::gdsm-agent-log-error-event

Synopsis

gdsm-agent-interface::gdsm-agent-log-error-event
(*io*: class gdsm-agent-interface, *computer-name*: text, *source-name*: text, *event-id*: integer, *category*: integer, *messages*: sequence, *data*: text)
-> *status*: truth-value

Argument	Description
io	The agent interface.
computer-name	The name of the computer. Use the empty string to specify the computer where the bridge is running.
source-name	The event source.
event-id	The ID of the event.
category	The event category.
messages	A sequence of text messages to log.
data	Data values for the event.

Return Value	Description
status	True if successful, false otherwise.

Description

Logs an error event to the Microsoft Event Viewer, which is accessible from the Administrative Tools in Windows. May signal gdsm-agent-not-connected.

gdsm-agent-interface::gdsm-agent-log-information-event

Synopsis

gdsm-agent-interface::gdsm-agent-log-information-event
(*io*: class gdsm-agent-interface, *computer-name*: text, *source-name*: text, *event-id*: integer, *category*: integer, *messages*: sequence, *data*: text)
-> *status*: truth-value

Argument	Description
io	The agent interface.
computer-name	The name of the computer. Use the empty string to specify the computer where the bridge is running.
source-name	The event source.
event-id	The ID of the event.
category	The event category.
messages	A sequence of text messages to log.
data	Data values for the event.

Return Value	Description
status	True if successful, false otherwise.

Description

Logs an information event to the Microsoft Event Viewer, which is accessible from the Administrative Tools in Windows. May signal gdsm-agent-not-connected.

gdsm-agent-interface::gdsm-agent-log-warning-event

Synopsis

gdsm-agent-interface::gdsm-agent-log-warning-event
(*io*: class gdsm-agent-interface, *computer-name*: text, *source-name*: text, *event-id*: integer, *category*: integer, *messages*: sequence, *data*: text)
-> *status*: truth-value

Argument	Description
io	The agent interface.
computer-name	The name of the computer. Use the empty string to specify the computer where the bridge is running.
source-name	The event source.
event-id	The ID of the event.
category	The event category.
messages	A sequence of text messages to log.
data	Data values for the event.

Return Value	Description
status	True if successful, false otherwise.

Description

Logs a warning event to the Microsoft Event Viewer, which is accessible from the Administrative Tools in Windows. May signal gdsm-agent-not-connected.

Database Connection Management

Class

gdsm-database-interface

Methods

gdsm-database-interface::gdsm-network-interface-configure
g2-database-interface::gdsm-network-interface-get-status
gdsm-database-interface::gdsm-kill-bridge-process
gdsm-database-interface::gdsm-network-interface-ping
gdsm-database-interface::gdsm-get-new-cursor
gdsm-database-interface::gdsm-get-new-or-existing-cursor
gdsm-database-interface::gdsm-release-cursor
gdsm-database-interface::grtl-show-properties

gdsm-database-interface

Class Inheritance Path

gdsm-database-interface, g2-database-interface,
gdsm-external-system-interface, gsi-interface, network-interface, object, item

Attributes

Attribute	Description
quote-string	The character to use to surround strings.
Allowable values:	Any text.
Default value:	"‘”
quote-in-string	The character to use to specify a quote in a string.
Allowable values:	
Default value:	""""
bridge-connection-timeout	The timeout for connecting to the bridge, in seconds.
Allowable values:	inherited
Default value:	15
bind-variable-prefix	The character to use to mark bind variables, which is database-vendor specific.
Allowable values:	Any text
Default value:	":"
database-type	
Allowable values:	Any symbol

Attribute	Description
Default value:	G2
maximum-definable-cursors	See g2-database-interface
Allowable values:	inherited
Default value:	10
null-string	See g2-database-interface
Allowable values:	inherited
Default value:	""
null-number	See g2-database-interface
Allowable values:	inherited
Default value:	0
enable-messaging	See g2-database-interface
Allowable values:	inherited
Default value:	false
log-file	See g2-database-interface
Allowable values:	inherited
Default value:	""
context-name	See g2-database-interface
Allowable values:	inherited
Default value:	""

Attribute	Description
database-connection-status	See g2-database-interface
Allowable values:	inherited
Default value:	disconnected
auto-database-reconnect	See g2-database-interface
Allowable values:	inherited
Default value:	false
database-user	See g2-database-interface
Allowable values:	inherited
Default value:	""
database-password	See g2-database-interface
Allowable values:	inherited
Default value:	""
database-connect-string	See g2-database-interface
Allowable values:	inherited
Default value:	""
bridge-host-name	See gdsm-external-system-interface
Allowable values:	inherited
Default value:	"localhost"

Attribute	Description
bridge-host-port	See gdsm-external-system-interface
Allowable values:	inherited
Default value:	22041
bridge-connection-timeout	See gdsm-external-system-interface
Allowable values:	inherited
Default value:	15
auto-connect-to-remote-process	When true, automatically connects to the remote G2 process if the connection is lost.
Allowable values:	truth-value
Default value:	false
launch-remote-process	When true, automatically launches the bridge process when the interface is connected.
Allowable values:	truth-value
Default value:	false
remote-process-launch-cmd	The command line used to launch the bridge.
Allowable values:	text
Default value:	""
remote-process-pid	The PID of the remote G2 process.
Allowable values:	quantity
Default value:	-1

Attribute	Description
shutdown-remote-process-upon-disconnect	When true, automatically shuts down the bridge process when the interface is disconnected.
Allowable values:	truth-value
Default value:	false
monitor-connection-and-process	Whether to monitor the connection status according to the network-connection-monitoring-interval of the gdsm-module-settings object.
Allowable values:	truth-value
Default value:	false

Methods

gdsm-database-interface::gdsm-network-interface-configure
g2-database-interface::gdsm-network-interface-get-status
gdsm-database-interface::gdsm-kill-bridge-process
gdsm-database-interface::gdsm-network-interface-ping
gdsm-database-interface::gdsm-get-new-cursor
gdsm-database-interface::gdsm-get-new-or-existing-cursor
gdsm-database-interface::gdsm-release-cursor
gdsm-database-interface::grtl-show-properties

gdsm-database-interface::gdsm-network-interface-configure

Synopsis

gdsm-database-interface::gdsm-network-interface-configure
(*io*: gdsm-database-interface, *network-pool*: gdsm-database-connection-pool)

Argument	Description
io	The database interface to configure.
network-pool	The network pool to use.

Description

Configures a database interface to use a network pool.

g2-database-interface::gdsm-network-interface-get-status

Synopsis

g2-database-interface::gdsm-network-interface-get-status
(*io*: g2-database-interface)
-> *state*: symbol

Argument	Description
io	The database interface connection whose status to get.

Return Value	Description
state	The state of the interface. The possible return values are: connected, not-connected, in-transition, timed-out, or connection-lost.

Description

Determines the state of the network connection between a database interface and the gateway process, refreshes the icon of the interface based on the status, and returns the status of the interface.

gdsm-database-interface::gdsm-kill-bridge-process

Synopsis

gdsm-database-interface::gdsm-kill-bridge-process
(*io*: class gdsm-database-interface)

Argument	Description
io	The database interface that is connected to the bridge process to kill.

Description

Kills the bridge process that is connected to the specified interface on the host specified in the gdsm-database-interface by calling db-kill-bridge.

Typically, you configure the shutdown-remote-process-upon-disconnect attribute in the network interface to automatically kill the bridge process when the network interface is disconnected.

gdsm-database-interface::gdsm-network-interface-ping

Synopsis

gdsm-database-interface::gdsm-network-interface-ping
    (*io*: gdsm-database-interface)
    -> *status*: symbol

Argument	Description
io	The database interface to ping.

Return Value	Description
status	The status of the interface: connected, not-connected, in-transition, timed-out, or connection-lost.

Description

Calls db-ping to ping the bridge, then calls gdsm-network-interface-get-status and returns the status.

gdsm-database-interface::gdsm-get-new-cursor

Synopsis

gdsm-database-interface::gdsm-get-new-cursor
(*io*: class gdsm-database-interface, *sql*: text, *bind-vars*: item-or-value)
-> *cursor*: class gdsm-cursor-object

Argument	Description
io	The database interface.
sql	The SQL statement.
bind-vars	The bind variables.

Return Value	Description
cursor	The database cursor.

Description

Creates a new cursor, names it, and stores it on the subworkspace of the interface object. The method returns the cursor if the creation was successful; otherwise, it signals the error gdsm-failed-to-allocate-cursor.

Note that as cursor objects are released, they are not deleted but are kept in memory and reused by this method for configuring the new SQL and bind variables.

gdsm-database-interface::gdsm-get-new-or-existing-cursor

Synopsis

gdsm-database-interface::gdsm-get-new-or-existing-cursor
(*io*: class gdsm-database-interface, *sql*: text, *bind-vars*: item-or-value)
-> *status*: symbol, *????*: text, *cursor*: item-or-value

Argument	Description
io	The database interface.
sql	The SQL statement.
bind-vars	The bind variables.

Return Value	Description
status	The status of the interface: connected, not-connected, in-transition, timed-out, or connection-lost.
????	
cursor	The database cursor.

Description

Returns an existing cursor with a matching SQL, or creates a new cursor, names it, and stores it on the subworkspace of the interface object. The method returns the cursor if the creation was successful; otherwise, it signals the error gdsm-failed-to-allocate-cursor.

Note that as cursor objects are released, they are not deleted but are kept in memory and reused by this method for configuring the new SQL and bind variables.

gdsm-database-interface::gdsm-release-cursor

Synopsis

gdsm-database-interface::gdsm-release-cursor
    (*io*: class gdsm-database-interface, *curs*: class gdsm-cursor-object)

Argument	Description
io	The database interface.
curs	The cursor to release.

Description

Releases a cursor. This method should be called once all data has been retrieved.

gdsm-database-interface::grtl-show-properties

Synopsis

gdsm-database-interface::grtl-show-properties
    (*io*: gdsm-database-interface, *client*: ui-client-item)
 -> *result*: truth-value

Argument	Description
io	The database interface whose properties to view.
client	The client window in which to show the dialog.

Return Value	Description
result	True if the properties dialog exists.

Description

Opens the properties dialogs of a database interface, if it exists.

JMail Connection Management

The following class and APIs manage JMail connections.

Class

gdsm-jmail-interface

Methods

gdsm-jmail-interface::gdsm-network-interface-configure
gdsm-jmail-interface::gdsm-network-interface-get-status
gdsm-jmail-interface::gdsm-kill-bridge-process
gdsm-jmail-interface::grtl-show-properties

gdsm-jmail-interface

Class Inheritance Path

gdsm-jmail-interface, jmail-interface, gdsm-external-system-interface, gsi-interface, network-interface, object, item

Attributes

Attribute	Description
user-name	See jmail-interface
Allowable values:	inherited
Default value:	""
password	See jmail-interface
Allowable values:	inherited
Default value:	""
incoming-email-host	See jmail-interface
Allowable values:	inherited
Default value:	""
incoming-email-protocol	See jmail-interface
Allowable values:	inherited
Default value:	"pop3"
incoming-email-folder	See jmail-interface
Allowable values:	inherited
Default value:	"INBOX"

Attribute	Description
incoming-email-delete-messages-on-host	See jmail-interface
Allowable values:	inherited
Default value:	false
outgoing-email-host	See jmail-interface
Allowable values:	inherited
Default value:	""
outgoing-email-from-address	See jmail-interface
Allowable values:	inherited
Default value:	""
download-attachment-directory-path	See jmail-interface
Allowable values:	inherited
Default value:	"unspecified"
jmail-delivery-confirmation	See jmail-interface
Allowable values:	inherited
Default value:	false
jmail-bridge-error-procedure-callback	See jmail-interface
Allowable values:	inherited

Attribute	Description
Default value:	jmail-bridge-default-error-handler
jmail-bridge-delivery-confirmation-procedure-callback	See jmail-interface
Allowable values:	inherited
Default value:	jmail-bridge-default-delivery-report-handler
bridge-host-name	See gdsm-external-system-interface
Allowable values:	inherited
Default value:	"localhost"
bridge-host-port	See gdsm-external-system-interface
Allowable values:	inherited
Default value:	22080
bridge-connection-timeout	See gdsm-external-system-interface
Allowable values:	inherited
Default value:	15
auto-connect-to-remote-process	When true, automatically connects to the remote G2 process if the connection is lost.
Allowable values:	truth-value
Default value:	false
launch-remote-process	When true, automatically launches the bridge process when the interface is connected.

Attribute	Description
Allowable values:	truth-value
Default value:	false
remote-process-launch-cmd	The command line used to launch the bridge.
Allowable values:	text
Default value:	""
remote-process-pid	The PID of the remote G2 process.
Allowable values:	quantity
Default value:	-1
shutdown-remote-process-upon-disconnect	When true, automatically shuts down the bridge process when the interface is disconnected.
Allowable values:	truth-value
Default value:	false
monitor-connection-and-process	Whether to monitor the connection status according to the network-connection-monitoring-interval of the gdsm-module-settings object.
Allowable values:	truth-value
Default value:	false

Methods

gdsm-jmail-interface::gdsm-network-interface-configure
gdsm-jmail-interface::gdsm-network-interface-get-status
gdsm-jmail-interface::gdsm-kill-bridge-process
gdsm-jmail-interface::grtl-show-properties

gdsm-jmail-interface::gdsm-network-interface-configure

Synopsis

gdsm-jmail-interface::gdsm-network-interface-configure
(*io*: gdsm-jmail-interface, *network-pool*: gdsm-jmail-connection-pool)

Argument	Description
io	The jmail-interface to configure.
network-pool	The network pool to use.

Description

Configures a jmail interface to use a network pool.

gdsm-jmail-interface::gdsm-network-interface-get-status

Synopsis

gdsm-jmail-interface::gdsm-network-interface-get-status
(*io*: gdsm-jmail-interface)
-> *state*: symbol

Argument	Description
io	The jmail-interface connection whose status to get.

Return Value	Description
state	The state of the interface. The possible return values are: connected, not-connected, in-transition, timed-out, or connection-lost.

Description

Determines the state of the network connection between a jmail-interface and the gateway process, refreshes the icon of the interface based on the status, and returns the status of the interface.

gdsm-jmail-interface::gdsm-kill-bridge-process

Synopsis

gdsm-jmail-interface::gdsm-kill-bridge-process
(*io*: class gdsm-jmail-interface)

Argument	Description
io	The jmail-interface that is connected to the bridge process to kill.

Description

Kills the bridge process that is connected to the specified interface on the host specified in the gdsm-jmail-interface by calling jmail-disconnect.

Typically, you configure the shutdown-remote-process-upon-disconnect attribute in the network interface to automatically kill the bridge process when the network interface is disconnected.

gdsm-jmail-interface::grtl-show-properties

Synopsis

gdsm-jmail-interface::grtl-show-properties
    (*io*: gdsm-jmail-interface, *client*: ui-client-item)
    -> *result*: truth-value

Argument	Description
io	The jmail-interface whose properties to view.
client	The client window in which to show the dialog.

Return Value	Description
result	True if the properties dialog exists.

Description

Opens the properties dialogs of a jmail-interface, if it exists.

JMS Connection Management

The following class and APIs manage JMS connections.

Class

gdsm-jms-interface

Methods

gdsm-jms-interface::gdsm-network-interface-configure
gdsm-jms-interface::gdsm-network-interface-connect
gdsm-jms-interface::gdsm-kill-bridge-process
gdsm-jms-interface::grtl-show-properties

gdsm-jms-interface

Class Inheritance Path

gdsm-jms-interface, jms-interface, gdsm-external-system-interface, gsi-interface, network-interface, object, item

Attributes

Attribute	Description
jms-provider	See jms-interface
Allowable values:	inherited
Default value:	""
jms-initial-context-factory	See jms-interface
Allowable values:	inherited
Default value:	"unspecified"
jms-provider-url	See jms-interface
Allowable values:	inherited
Default value:	"unspecified"
jms-topic-connection-factory	See jms-interface
Allowable values:	inherited
Default value:	"unspecified"
jms-queue-connection-factory	See jms-interface
Allowable values:	inherited

Attribute	Description
Default value:	"unspecified"
jms-destination-type	See jms-interface
Allowable values:	TOPIC, QUEUE
Default value:	TOPIC
jms-input-destination-name	See jms-interface
Allowable values:	inherited
Default value:	""
jms-input-destination-selector	See jms-interface
Allowable values:	inherited
Default value:	"unspecified"
jms-durable-topic-subscription	See jms-interface
Allowable values:	inherited
Default value:	false
jms-durable-subscription-name	See jms-interface
Allowable values:	inherited
Default value:	"unspecified"
jms-input-messages	See jms-interface

Attribute	Description
Allowable values:	inherited
Default value:	sequence ()
jms-input-message-procedure-callback	See jms-interface
Allowable values:	inherited
Default value:	jms-default-message-handler
jms-bridge-error-message-procedure-callback	See jms-interface
Allowable values:	inherited
Default value:	jms-default-bridge-error-handler
jms-output-destination-name	See jms-interface
Allowable values:	inherited
Default value:	""
jms-topic-receive-local-copy	See jms-interface
Allowable values:	inherited
Default value:	false
jms-transacted-delivery	See jms-interface
Allowable values:	inherited
Default value:	false

Attribute	Description
jms-synchronous-delivery	See jms-interface
Allowable values:	inherited
Default value:	true
jms-persistent-delivery	See jms-interface
Allowable values:	inherited
Default value:	true
jms-message-priority	See jms-interface
Allowable values:	inherited
Default value:	4
jms-message-alive-time	See jms-interface
Allowable values:	inherited
Default value:	0
jms-username	See jms-interface
Allowable values:	inherited
Default value:	""
jms-password	See jms-interface
Allowable values:	inherited
Default value:	""
jms-client-id	See jms-interface

Attribute	Description
Allowable values:	inherited
Default value:	""
jms-provider-connection-status	See jms-interface
Allowable values:	inherited
Default value:	DISCONNECTED
bridge-host-name	See gdsm-external-system-interface
Allowable values:	inherited
Default value:	"localhost"
bridge-host-port	See gdsm-external-system-interface
Allowable values:	inherited
Default value:	22070
bridge-connection-timeout	See gdsm-external-system-interface
Allowable values:	inherited
Default value:	15
auto-connect-to-remote-process	When true, automatically connects to the remote G2 process if the connection is lost.
Allowable values:	truth-value
Default value:	false
launch-remote-process	When true, automatically launches the bridge process when the interface is connected.

Attribute	Description
Allowable values:	truth-value
Default value:	false
remote-process-launch-cmd	The command line used to launch the bridge.
Allowable values:	text
Default value:	""
remote-process-pid	The PID of the remote G2 process.
Allowable values:	quantity
Default value:	-1
shutdown-remote-process-upon-disconnect	When true, automatically shuts down the bridge process when the interface is disconnected.
Allowable values:	truth-value
Default value:	false
monitor-connection-and-process	Whether to monitor the connection status according to the network-connection-monitoring-interval of the gdsm-module-settings object.
Allowable values:	truth-value
Default value:	false

Methods

gdsm-jms-interface::gdsm-network-interface-configure
gdsm-jms-interface::gdsm-network-interface-connect
gdsm-jms-interface::gdsm-kill-bridge-process
gdsm-jms-interface::grtl-show-properties

gdsm-jms-interface::gdsm-network-interface-configure

Synopsis

gdsm-jms-interface::gdsm-network-interface-configure
(*io*: gdsm-jms-interface, *network-pool*: gdsm-jms-connection-pool)

Argument	Description
io	The JMS interface to configure.
network-pool	The network pool to use.

Description

Configures a JMS interface to use a network pool.

gdsm-jms-interface::gdsm-network-interface-connect

Synopsis

gdsm-jms-interface::gdsm-network-interface-connect
(*io*: gdsm-jms-interface, *host*: text, *port*: integer,
connection-timeout: integer)

Argument	Description
io	The JMS interface that should connect to the bridge process.
host	The host running the bridge.
port	The TCP/IP Port of the bridge process.
connection-timeout	Timeout to wait before testing a connection.

Description

Connects a bridge process through a JMS interface at the specified host and port, with the given timeout.

gdsm-jms-interface::gdsm-kill-bridge-process

Synopsis

gdsm-jms-interface::gdsm-kill-bridge-process
(*io*: class gdsm-jms-interface)

Argument	Description
io	The jms-interface that is connected to the bridge process to kill.

Description

Kills the bridge process that is connected to the specified interface on the host specified in the gdsm-jms-interface by calling jms-disconnect.

Typically, you configure the shutdown-remote-process-upon-disconnect attribute in the network interface to automatically kill the bridge process when the network interface is disconnected.

gdsm-jms-interface::grtl-show-properties

Synopsis

gdsm-jms-interface::grtl-show-properties
(*io*: gdsm-jms-interface, *client*: ui-client-item)
-> *result*: truth-value

Argument	Description
io	The JMS interface whose properties to view.
client	The client window in which to show the dialog.

Return Value	Description
result	True if the properties dialog exists.

Description

Opens the properties dialogs of a JMS interface, if it exists.

OPC Connection Management

Classes

gdsm-opc-interface

gdsm-opc-interface

Inherits all methods from the gsi-interface class.

Class Inheritance Path

gdsm-opc-interface, gsi-opc-interface, gdsm-dcs-interface, gdsm-external-system-interface, gsi-interface, network-interface, object, item

Attributes

Attribute	Description
bridge-host-name	The host name of the computer running the bridge.
Allowable values:	inherited
Default value:	"localhost"
bridge-host-port	The port number on which the OPC bridge is running.
Allowable values:	inherited
Default value:	22041
bridge-connection-timeout	The timeout for connecting to the bridge, in seconds.
Allowable values:	inherited
Default value:	15
auto-connect-to-remote-process	When true, automatically connects to the remote G2 process if the connection is lost.
Allowable values:	truth-value
Default value:	false

Attribute	Description
launch-remote-process	When true, automatically launches the bridge process when the interface is connected.
Allowable values:	truth-value
Default value:	false
remote-process-launch-cmd	The command line used to launch the bridge.
Allowable values:	text
Default value:	""
remote-process-pid	The PID of the remote G2 process.
Allowable values:	quantity
Default value:	-1
shutdown-remote-process-upon-disconnect	When true, automatically shuts down the bridge process when the interface is disconnected.
Allowable values:	truth-value
Default value:	false
monitor-connection-and-process	Whether to monitor the connection status according to the network-connection-monitoring-interval of the gdsm-module-settings object.
Allowable values:	truth-value
Default value:	false

PI Connection Management

Classes

gdsm-pi-interface

gdsm-pi-interface

Inherits all methods from the gsi-interface class.

Class Inheritance Path

gdsm-pi-interface, osipi_interface, gdsm-dcs-interface, gdsm-external-system-interface, gsi-interface, network-interface, object, item

Attributes

Attribute	Description
bridge-host-name	The host name of the computer running the bridge.
Allowable values:	inherited
Default value:	"localhost"
bridge-host-port	The port number on which the PI bridge is running.
Allowable values:	inherited
Default value:	22041
bridge-connection-timeout	The timeout for connecting to the bridge, in seconds.
Allowable values:	inherited
Default value:	15
auto-connect-to-remote-process	When true, automatically connects to the remote G2 process if the connection is lost.
Allowable values:	truth-value
Default value:	false

Attribute	Description
launch-remote-process	When true, automatically launches the bridge process when the interface is connected.
Allowable values:	truth-value
Default value:	false
remote-process-launch-cmd	The command line used to launch the bridge.
Allowable values:	text
Default value:	""
remote-process-pid	The PID of the remote G2 process.
Allowable values:	quantity
Default value:	-1
shutdown-remote-process-upon-disconnect	When true, automatically shuts down the bridge process when the interface is disconnected.
Allowable values:	truth-value
Default value:	false
monitor-connection-and-process	Whether to monitor the connection status according to the network-connection-monitoring-interval of the gdsm-module-settings object.
Allowable values:	truth-value
Default value:	false

Web Connection Management

Classes

gdsm-g2-http-server
gdsm-weblink-http-server

gdsm-g2-http-server

Inherits all methods from the gweb-g2-http-server class.

Class Inheritance Path

gdsm-g2-http-server, gweb-g2-http-server, object, item

Attributes

Attribute	Description
default-page	The default text for the Web page.
Allowable values:	text, formatted as free text
Default value:	"default"
logging-enabled	Whether logging is enabled.
Allowable values:	truth-value
Default value:	false
add-http-request-attributes-to-log	Whether to add HTTP request attribute to the log file.
Allowable values:	truth-value
Default value:	false
log-file	The name of the log file, which is created in the http-server-root-directory.
Allowable values:	text
Default value:	"g2-http-server-log.txt"
http-server-port	The HTTP server port.

Attribute	Description
Allowable values:	integer
Default value:	80
http-server-ssl-enabled	Whether to enable SSL authentication.
Allowable values:	truth-value
Default value:	false
http-server-ssl-certificate-file	The name of the SSL certificate file.
Allowable values:	text
Default value:	""
http-server-root-directory	The name of the HTTP server root directory.
Allowable values:	text
Default value:	"C:\temp"
http-server-status	(Read-only) The status of the HTTP server.
Allowable values:	One of the following symbols: gweb-http-server-connection-error gweb-http-server-disconnected gweb-http-server-initialized gweb-http-server-awaiting-gweb-http-initialization gweb-http-server-awaiting-gsi-connection
Default value:	gweb-http-server-disconnected
http-server-started-and-initialized	(Read-only) Whether the HTTP server has been started and initialized.
Allowable values:	truth-value
Default value:	false

Attribute	Description
http-server-url	The default URL to which the HTTP server should connect.
Allowable values:	text
Default value:	""

gdsm-weblink-http-server

Inherits all methods from the gweb-weblink-http-server class.

Class Inheritance Path

gdsm-weblink-http-server, gweb-weblink-http-server, object, item

Attributes

Attribute	Description
default-page	The default text for the Web page.
Allowable values:	text, formatted as free text
Default value:	"default"
logging-enabled	Whether logging is enabled.
Allowable values:	truth-value
Default value:	false
add-http-request-attributes-to-log	Whether to add HTTP request attribute to the log file.
Allowable values:	truth-value
Default value:	false
log-file	The name of the log file, which is created in the http-server-root-directory.
Allowable values:	text
Default value:	"g2-http-server-log.txt"
weblink-configuration	The G2 WebLink configuration object.

Attribute	Description
Allowable values:	an instance of a gw-bridge-configuration
Default value:	an instance of a gw-bridge-configuration
http-server-port	The HTTP server port.
Allowable values:	integer
Default value:	80
http-server-root-directory	The name of the HTTP server root directory.
Allowable values:	text
Default value:	"C:\temp"
http-server-status	(Read-only) The status of the HTTP server.
Allowable values:	One of the following symbols: gweb-http-server-connection-error gweb-http-server-disconnected gweb-http-server-initialized gweb-http-server-awaiting-gweb-http-initialization gweb-http-server-awaiting-gsi-connection
Default value:	gweb-http-server-disconnected
http-server-started-and-initialized	(Read-only) Whether the HTTP server has been started and initialized.
Allowable values:	truth-value
Default value:	false
http-server-url	The default URL to which the HTTP server should connect.
Allowable values:	text

Attribute	Description
Default value:	""

Procedures

gdsm-network-interface-connect-to-bridge

gdsm-network-interface-connect-to-bridge

Synopsis

gdsm-network-interface-connect-to-bridge
    (*io*: network-interface, *win*: class ui-client-item)

Argument	Description
io	The network interface that should connect to the bridge process.
win	The G2 window.

Description

Connects a bridge process through a gsi-interface and automatically starts the bridge. This procedure uses the default values of the gdsm-gsi-interface instance to build the connect string to the remote host. If a connection is lost, this procedure automatically posts messages and attempts to reconnect, based on time-outs specified in the gdsm-module-settings.

4

Connection Pool Management

Describes functionality to manage network pool connections for improved throughput and scalability of applications.

Introduction

Applications that require heavy communications with external systems may benefit from multiple parallel connections to that remote system. A typical example is a database. A single bridge may constrain other threads of the application if one thread issues a query that takes a long time to respond. By using a pool of network connections, your application can access the database from multiple threads at the same time. Each network connection is connected to a separate bridge. Before accessing a remote system via RPC calls, you can call APIs on the pool to select the least-used connection to your remote system. The connection also monitors the state of the connections and generates alarm messages if any connection fails.

GDSM automatically reassigns OPC and PI GSI data service variables from an interface in a pool that looses its connection to another one in the same pool that is connected.

The classes and associated APIs for the various types of network interfaces are located in the following modules, all of which require the gdsm module:

- gdpm-db — Database interface classes and APIs.
- gdsm-jmail — G2 Java Mail Bridge interface classes and APIs.
- gdsm-jms — G2 JMSLink interface classes and APIs.

- gdsm-opc — G2 OPCLink interface classes and APIs.
- gdsm-pi — G2 PI Bridge interface classes and APIs.
- gdsm-web — G2 WebLink interface classes and APIs.

Network Connection Pool Management

Classes

gdsm-network-connection-pool

Methods

gdsm-network-connection-pool::gdsm-kill-bridge-process
gdsm-network-connection-pool::gdsm-launch-bridge-process
gdsm-network-connection-pool::gdsm-network-pool-add-interface
gdsm-network-connection-pool::gdsm-network-pool-cleanup
gdsm-network-connection-pool::gdsm-network-pool-delete-interface
gdsm-network-connection-pool::gdsm-network-pool-get-all-interfaces
gdsm-network-connection-pool::gdsm-network-pool-get-an-interface
gdsm-network-connection-pool::gdsm-network-pool-get-info-for-io
gdsm-network-connection-pool::gdsm-network-pool-initialize
gdsm-network-connection-pool::gdsm-network-pool-monitor-an-interface
gdsm-network-connection-pool::gdsm-network-pool-release-an-interface
gdsm-network-connection-pool::gdsm-show-detail
gdsm-network-connection-pool::grtl-get-key
gdsm-network-connection-pool::grtl-get-key-attribute-name
gdsm-network-connection-pool::grtl-set-key
item::gdsm-get-network-interface-types

gdsm-network-connection-pool

The superior class for all network connection pools.

Class Inheritance Path

gdsm-network-connection-pool, object, grtl-event-source, grtl-item, item

Attributes

Attribute	Description
pool-label	A textual label for identifying the pool.
Allowable values:	inherited
Default value:	""
comments	User-defined comments describing the type of network pool.
Allowable values:	inherited
Default value:	NONE
network-initial-interface-count	The number of network interfaces of the specified type to create in the pool upon initialization.
Allowable values:	inherited
Default value:	1
network-default-host-name	The default host for connecting network interfaces in the pool.
Allowable values:	inherited
Default value:	"localhost"

Attribute	Description
network-base-port-number	The initial port number used for the first interface. As additional interfaces are added, the connection pool uses TCP/IP ports that are incremented from this base number.
Allowable values:	inherited
Default value:	22041
network-connection-timeout	The maximum time period the procedure gdsm-network-interface-connect checks and waits for the network interface to connect to the bridge by checking the connection status. This value is passed as an argument to the procedure gdsm-network-interface-connect when a pool adds an interface and attempts to auto connect to the bridge.
Allowable values:	inherited
Default value:	120
user-name	The user name for logging into the host.
Allowable values:	inherited
Default value:	""
user-password	The password for logging into the host.
Allowable values:	inherited
Default value:	""
enable-initialization-during-reset	Whether to initialize the network pool upon G2 reset. Initialization creates the number of network interfaces specified by the network-initial-interface-count, where each network interface is a type of network-interface-class-name.

Attribute	Description
Allowable values:	inherited
Default value:	true
network-interface-initialization-string	The remote-process-initialization-string to use when connecting to each network interface in the pool.
Allowable values:	inherited
Default value:	""
network-interface-timeout	The network interface timeout to use as interfaces are created and configured.
Allowable values:	inherited
Default value:	30
network-interface-class-name	The class name of each network interface to create in the pool, as a symbol.
Allowable values:	symbol
Default value:	GDSM-DATABASE-INTERFACE
remote-process-launch-arguments	Passed to the procedure specified in attribute remote-process-launch-procedure when called to launch a bridge.
Allowable values:	inherited
Default value:	""
remote-process-launch-procedure	The procedure to execute when launching each network interface in the pool.
Allowable values:	inherited

Attribute	Description
Default value:	GDSM-LAUNCH-BRIDGE-PROCESS
remote-process-kill-procedure	The procedure to execute when killing a network interface process in the pool.
Allowable values:	inherited
Default value:	GDSM-KILL-BRIDGE-PROCESS
remote-process-launch-cmd	The command to use for launching each network interface in the pool.
Allowable values:	inherited
Default value:	""
auto-connect-to-remote-process	Whether to automatically connect to the remote process.
Allowable values:	truth-value
Default value:	false
launch-remote-process	Whether to launch the remote process.
Allowable values:	truth-value
Default value:	false
shutdown-remote-process-upon-disconnect	Whether to shutdown the remote process upon disconnect.
Allowable values:	truth-value
Default value:	true

gdsm-network-connection-pool::gdsm-kill-bridge-process

Synopsis

gdsm-network-connection-pool::gdsm-kill-bridge-process
(*network-pool*: gdsm-network-connection-pool, *io*: network-interface, *host*: text, *pid*: quantity)

Argument	Description
network-pool	The network pool that is requesting to kill the bridge process.
io	The remote bridge process to kill.
host	The host computer that is running the bridge process to kill.
pid	The PID of the bridge process to kill.

Description

Kills a bridge process associated with a network connection pool, given the network interface, host, and PID of the network interface.

gdsm-network-connection-pool::gdsm-launch-bridge-process

Synopsis

gdsm-network-connection-pool::gdsm-launch-bridge-process
(*network-pool*: gdsm-network-connection-pool, *cmd*: text, *host*: text, *port*: integer, *args*: text)
-> *return-value*: float

Argument	Description
network-pool	The network pool that is requesting to launch the bridge process.
cmd	A command line specified when launching the bridge process.
host	The host computer where the bridge process should run.
port	The TCP/IP port to which the bridge should be listening for connections.
args	Any arguments that the implementation could use. When this method is called from the pool management APIs, the value of this argument is the value of the remote-process-launch-arguments attribute of the pool.

Return Value	Description
return-value	The PID of the process that was launched, which could be the bridge process or the shell script that was used to launch the bridge.

Description

Launches a bridge process for the specified connection pool, given a host, port, and an optional command-line.

gdsm-network-connection-pool::gdsm-network-pool-add-interface

Synopsis

gdsm-network-connection-pool::gdsm-network-pool-add-interface
(*network-pool*: gdsm-network-connection-pool, *host*: text, *port*: integer)
-> *network-interface*: item-or-value

Argument	Description
network-pool	The network pool that should add a network interface.
host	The host computer that is running the remote bridge process to add.
port	The TCP/IP port of the bridge process to add.

Return Value	Description
network-interface	The network interface that was added.

Description

Adds a network interface to a network connection pool.

gdsm-network-connection-pool::gdsm-network-pool-cleanup

Synopsis

gdsm-network-connection-pool::gdsm-network-pool-cleanup
(*network-pool*: gdsm-network-connection-pool)

Argument	Description
network-pool	The network pool to clean up.

Description

Cleans up a network pool by removing every network connection that is in the pool.

gdsm-network-connection-pool::gdsm-network-pool-delete-interface

Synopsis

gdsm-network-connection-pool::gdsm-network-pool-delete-interface
(*network-pool*: gdsm-network-connection-pool, *io*: item-or-value)
-> *result*: truth-value

Argument	Description
network-pool	The network pool containing the interface to delete.
io	The network connection to delete.

Return Value	Description
restult	True if the network interface was deleted from the pool.

Description

Disconnects and removes the specified network connection from a network pool.

gdsm-network-connection-pool::gdsm-network-pool-get-all-interfaces

Synopsis

gdsm-network-connection-pool::gdsm-network-pool-get-all-interfaces
(*network-pool*: gdsm-network-connection-pool)
-> *network-interfaces*: sequence

Argument	Description
network-pool	The network pool containing the interfaces to get.

Return Value	Description
network-interfaces	A sequence of network interfaces associated with the connection pool.

Description

Returns a sequence of all network connections in the specified connection pool.

gdsm-network-connection-pool::gdsm-network-pool-get-an-interface

Synopsis

gdsm-network-connection-pool::gdsm-network-pool-get-an-interface
(*network-pool*: gdsm-network-connection-pool, *target-object*: item-or-value)
-> *network-interface*: item-or-value

Argument	Description
network-pool	The network pool containing the interface to get.
target-object	Any object involved in the transaction with the interface. The interface is associated with the object until the interface is release by calling gdsm-network-pool-release-an-interface. If the method gdsm-network-pool-get-an-interface is called again and a network interface has already been assigned to the target object, the same network interface is returned. This is very useful when implementing transaction processing.

Return Value	Description
network-interface	The network interface associated with the connection pool.

Description

Returns the least used network interface from the pool of connections. The *target-object* may refer to a user-defined object that needs to lock the returned network interface. As long as the returned interface has not been released via a call to gdsm-network-pool-release-an-interface, this API returns the same network interface in subsequent calls to this API. Use this API when several segments of code or several blocks in a block diagram language need to refer to the same interface to perform a transaction that could be rolled back or needs to be committed at the end, for example, a database transaction.

gdsm-network-connection-pool::gdsm-network-pool-get-info-for-io

Synopsis

gdsm-network-connection-pool::gdsm-network-pool-get-info-for-io
(*network-pool*: gdsm-network-connection-pool, *io*: network-interface)
-> *handle*: integer, *info*: structure

Argument	Description
network-pool	The network pool containing the interface whose information to get.
io	The network interface whose information to get.

Return Value	Description
handle	A numeric handle for the returned network interface.
info	A structure with information about the returned network information. See Description for the syntax of the structure.

Description

Returns a structure with information related to a specific network interface. The structure has the following syntax:

structure
(INTERFACE: *network-interface*, {the network interface}
BRIDGE-PID: *quantity*, {PID of the bridge process}
BRIDGE-HOST: *text*, {host running the bridge process}
BRIDGE-PORT: *integer*, {TCP/IP port number the bridge is listening on}
CURRENT-UTILIZATION: *quantity*, {current utilization time of the network interface}
LAST-ALLOCATION-TIME: *quantity*, {last time the network interface was allocated}
LAST-RELEASE-TIME: *quantity*, {last time the network interface was allocated}
TOTAL-UTILIZATION-TIME: *quantity*, {total utilization time of the network interface}
TOTAL-UTILIZATION-COUNTER: *interger*, {total number of times the network interface has been allocated}
AVERAGE-UTILIZATION: *quantity*, {average utilization time of the network interface}
LAST-STATUS: *symbol* {Any status value returned by gdsm-network-interface-get-status. Typical values are: unknown, not-connected, in-transition, connected, timed-out})

gdsm-network-connection-pool::gdsm-network-pool-initialize

Synopsis

gdsm-network-connection-pool::gdsm-network-pool-initialize
(*network-pool*: gdsm-network-connection-pool)

Argument	Description
network-pool	The network pool to initialize.

Description

Initializes a JMS network pool, which creates the number of default network connections specified in the network-initial-interface-count attribute of the gdsm-network-connection-pool.

gdsm-network-connection-pool::gdsm-network-pool-monitor-an-interface

Synopsis

gdsm-network-connection-pool::gdsm-network-pool-monitor-an-interface
(*network-pool*: gdsm-network-connection-pool, *io*: item-or-value)

Argument	Description
network-pool	The network pool containing the interface to monitor.
io	The network interface to monitor.

Description

Called to monitor the status of a network interface of a pool. This method checks the connection by calling gdsm-network-interface-get-status and dispatches the event gdsm-network-interface-event to pool listeners if the connection status failed. If the connection timed out or failed, it starts the gdsm-network-interface-handle-connection-timeout or gdsm-network-interface-handle-connection-failure methods, respectively.

gdsm-network-connection-pool::gdsm-network-pool-release-an-interface

Synopsis

gdsm-network-connection-pool::gdsm-network-pool-release-an-interface
(*network-pool*: gdsm-network-connection-pool, *io*: network-interface)

Argument	Description
network-pool	The network pool containing the interface to release.
io	The network interface to release.

Description

Releases the specified network interface from a network pool. Call this method to free any network connection that was allocated from the pool. It updates internal metrics and releases its usage.

gdsm-network-connection-pool::gdsm-show-detail

Synopsis

gdsm-network-connection-pool::gdsm-show-detail
(*network-pool*: gdsm-network-connection-pool, *client*: ui-client-item)

Argument	Description
network-pool	The network pool whose detail to show.
client	The client in which to show the detail, typically a G2 window.

Description

Displays the detail of a network pool on a given client.

gdsm-network-connection-pool::grtl-get-key

Synopsis

gdsm-network-connection-pool::grtl-get-key
    (*network-pool*: gdsm-network-connection-pool)
    -> *key*: text

Argument	Description
network-pool	The network pool whose key to get.

Return Value	Description
key	The key associated with the network pool.

Description

Returns the key associated with a given network pool.

gdsm-network-connection-pool::grtl-get-key-attribute-name

Synopsis

gdsm-network-connection-pool::grtl-get-key-attribute-name
    (network-pool: gdsm-network-connection-pool)
    -> *attribute-name*: symbol

Argument	Description
network-pool	The network pool whose key attribute to get.

Return Value	Description
attribute-name	The name of the attribute that defines the network pool key.

Description

Returns the key attribute name of the specified network pool. The key is a text string that is meaningful for a human reader and unique at least for the item's base class.

gdsm-network-connection-pool::grtl-set-key

Synopsis

gdsm-network-connection-pool::grtl-set-key
(*network-pool*: gdsm-network-connection-pool, *key*: text)

Argument	Description
network-pool	The network pool whose key to set.
key	A key for the network pool, which is a text string that is meaningful for a human reader and unique at least for the item's base class.

Description

Sets the key for a network pool.

item::gdsm-get-network-interface-types

Synopsis

item::gdsm-get-network-interface-types
(*itm*: item)
-> *types*: sequence

Argument	Description
itm	The item whose network interface types to get.

Return Value	Description
types	A sequence of applicable network interface types, as symbols.

Description

Returns a list of valid network interface types for the specified item.

G2-to-G2 Connection Pool Management

Classes

gdsm-g2-to-g2-connection-pool

gdsm-g2-to-g2-connection-pool

A network connection pool for g2-to-g2 interfaces.

For information on g2-to-g2 interfaces, see Chapter 56 "G2-to-G2 Interface" in the *G2 Reference Manual*.

Class Inheritance Path

gdsm-g2-to-g2-connection-pool, gdsm-network-connection-pool, object, grtl-event-source, grtl-item, item

Attributes

Attribute	Description
pool-label	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
error	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
comments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
network-initial-interface-count	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	1

Attribute	Description
network-default-host-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	"localhost"
network-base-port-number	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	22041
network-connection-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	120
user-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
user-password	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
enable-initialization-during-reset	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	true

Attribute	Description
network-interface-initialization-string	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
network-interface-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	30
network-interface-class-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-DATABASE-INTERFACE
remote-process-launch-arguments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
remote-process-launch-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-LAUNCH-BRIDGE-PROCESS
remote-process-kill-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-KILL-BRIDGE-PROCESS

Attribute	Description
remote-process-launch-cmd	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""

Database Connection Pool Management

Classes

gdsm-database-connection-pool

Methods

gdsm-database-connection-pool::gdsm-kill-bridge-process

gdsm-database-connection-pool

A network connection pool for database interfaces.

For information on the g2-database-interface class, see Chapter 5 "Configuring Connections" in the *G2 Database Bridge User? Guide*. See also gdsm-database-interface.

Class Inheritance Path

gdsm-database-connection-pool, gdsm-network-connection-pool, object, grtl-event-source, grtl-item, item

Attributes

Attribute	Description
database-connect-string	See g2-database-interface
Allowable values:	Any text
Default value:	""
database-maximum-definable-cursors	See g2-database-interface
Allowable values:	Any integer
Default value:	100
database-bind-variable-prefix	See g2-database-interface
Allowable values:	Any text
Default value:	":"
pool-label	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""

Attribute	Description
error	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
comments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
network-initial-interface-count	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	1
network-default-host-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	"localhost"
network-base-port-number	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	22041
network-connection-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	120

Attribute	Description
user-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
user-password	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
enable-initialization-during-reset	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	true
network-interface-initialization-string	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
network-interface-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	30
network-interface-class-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-DATABASE-INTERFACE

Attribute	Description
remote-process-launch-arguments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
remote-process-launch-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-LAUNCH-BRIDGE-PROCESS
remote-process-kill-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-KILL-BRIDGE-PROCESS
remote-process-launch-cmd	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""

gdsm-database-connection-pool::gdsm-kill-bridge-process

Synopsis

gdsm-database-connection-pool::gdsm-kill-bridge-process
(*network-pool*: gdsm-database-connection-pool, *io*: network-interface, *host*: text, *pid*: quantity)

Argument	Description
network-pool	The network pool that is requesting to kill the bridge process.
io	The remote bridge process to kill.
host	The host computer that is running the bridge process to kill.
pid	The PID of the bridge process to kill.

Description

Kills a bridge process associated with a database connection pool, given the network interface, host, and PID of the network interface.

OPC Network Connection Pool Management

Classes

gdsm-opc-connection-pool

gdsm-opc-connection-pool

A network connection pool for OPC interfaces.

For information on OPC interfaces, see the *G2 OPCLink User? Guide*. See also gdsm-opc-interface.

Class Inheritance Path

gdsm-opc-connection-pool, gdsm-network-connection-pool, object, grtl-event-source, grtl-item, item

Attributes

Attribute	Description
pool-label	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
error	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
comments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
network-initial-interface-count	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	1

Attribute	Description
network-default-host-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	"localhost"
network-base-port-number	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	22041
network-connection-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	120
user-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
user-password	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
enable-initialization-during-reset	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	true

Attribute	Description
network-interface-initialization-string	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
network-interface-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	30
network-interface-class-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-DATABASE-INTERFACE
remote-process-launch-arguments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
remote-process-launch-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-LAUNCH-BRIDGE-PROCESS
remote-process-kill-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-KILL-BRIDGE-PROCESS

Attribute	Description
remote-process-launch-cmd	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
interface-identifying-attributes	When the value is an empty text or none, configures the identifying-attributes of each gdsm-opc-interface that gets added to the pool to be "item-id, access-path".
Allowable values:	text
Default value:	""

PI Network Connection Pool Management

Classes

gdsm-pi-connection-pool

gdsm-pi-connection-pool

A network connection pool for PI interfaces.

For information on PI interfaces, see the *G2-PI Bridge User? Guide*. See also gdsm-pi-interface.

Class Inheritance Path

gdsm-pi-connection-pool, gdsm-network-connection-pool, object, grtl-event-source, grtl-item, item

Attributes

Attribute	Description
pool-label	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
error	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
comments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
network-initial-interface-count	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	1

Attribute	Description
network-default-host-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	"localhost"
network-base-port-number	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	22041
network-connection-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	120
user-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
user-password	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
enable-initialization-during-reset	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	true

Attribute	Description
network-interface-initialization-string	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
network-interface-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	30
network-interface-class-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-DATABASE-INTERFACE
remote-process-launch-arguments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
remote-process-launch-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-LAUNCH-BRIDGE-PROCESS
remote-process-kill-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-KILL-BRIDGE-PROCESS

Attribute	Description
remote-process-launch-cmd	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
interface-identifying-attributes	When the value is an empty text or none, configures the identifying-attributes of each gdsm-pi-interface that gets added to the pool to be "osipi-tagname, osipi-data-type".
Allowable values:	text
Default value:	""

JMail Network Connection Pool Management

Classes

gdsm-jmail-connection-pool

Methods

gdsm-jmail-connection-pool::gdsm-kill-bridge-process

gdsm-jmail-connection-pool

A network connection pool for jmail interfaces.

For information on the jmail-interface class, see the *G2 JMail Bridge User? Guide*. See also gdsm-jmail-interface.

Class Inheritance Path

gdsm-jmail-connection-pool, gdsm-network-connection-pool, object, grtl-event-source, grtl-item, item

Attributes

Attribute	Description
incoming-email-host	See jmail-interface
Allowable values:	Any text
Default value:	""
incoming-email-protocol	See jmail-interface
Allowable values:	Any text
Default value:	"pop3"
incoming-email-folder	See jmail-interface
Allowable values:	Any text
Default value:	"INBOX"
incoming-email-delete-messages-on-host	See jmail-interface
Allowable values:	Any truth-value
Default value:	false

Attribute	Description
outgoing-email-host	See jmail-interface
Allowable values:	Any text
Default value:	""
outgoing-email-from-address	See jmail-interface
Allowable values:	Any text
Default value:	""
pool-label	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
error	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
comments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
network-initial-interface-count	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	1

Attribute	Description
network-default-host-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	"localhost"
network-base-port-number	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	22041
network-connection-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	120
user-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
user-password	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
enable-initialization-during-reset	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	true

Attribute	Description
network-interface-initialization-string	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
network-interface-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	30
network-interface-class-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-DATABASE-INTERFACE
remote-process-launch-arguments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
remote-process-launch-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-LAUNCH-BRIDGE-PROCESS
remote-process-kill-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-KILL-BRIDGE-PROCESS

Attribute	Description
remote-process-launch-cmd	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""

gdsm-jmail-connection-pool::gdsm-kill-bridge-process

Synopsis

gdsm-jmail-connection-pool::gdsm-kill-bridge-process
(*network-pool*: gdsm-jmail-connection-pool, *io*: network-interface, *host*: text, *pid*: quantity)

Argument	Description
network-pool	The network pool that is requesting to kill the bridge process.
io	The remote bridge process to kill.
host	The host computer that is running the bridge process to kill.
pid	The PID of the bridge process to kill.

Description

Kills a bridge process associated with a jmail connection pool, given the network interface, host, and PID of the network interface.

JMS Network Connection Pool Management

Classes

gdsm-jms-connection-pool

Methods

gdsm-jms-connection-pool::gdsm-kill-bridge-process
gdsm-jms-connection-pool::gdsm-network-pool-add-interface
gdsm-jms-connection-pool::gdsm-network-pool-get-an-interface
gdsm-jms-connection-pool::gdsm-network-pool-initialize

gdsm-jms-connection-pool

A network connection pool for JMS interfaces.

For information on the jms-interface class, see the *G2 JMSLink User? Guide*. See also gdsm-jms-interface.

Class Inheritance Path

gdsm-jms-connection-pool, gdsm-network-connection-pool, object, grtl-event-source, grtl-item, item

Attributes

Attribute	Description
jms-provider	See jms-interface
Allowable values:	Any text
Default value:	""
jms-initial-context-factory	See jms-interface
Allowable values:	Any text
Default value:	"unspecified"
jms-provider-url	See jms-interface
Allowable values:	Any text
Default value:	"unspecified"
jms-topic-connection-factory	See jms-interface
Allowable values:	Any text
Default value:	"unspecified"

Attribute	Description
jms-queue-connection-factory	See jms-interface
Allowable values:	Any text
Default value:	"unspecified"
jms-destination-type	See jms-interface
Allowable values:	TOPIC, QUEUE
Default value:	TOPIC
jms-input-destination-name	See jms-interface
Allowable values:	Any text
Default value:	""
jms-input-destination-selector	See jms-interface
Allowable values:	Any text
Default value:	"unspecified"
jms-durable-topic-subscription	See jms-interface
Allowable values:	Any truth-value
Default value:	false
jms-durable-subscription-name	See jms-interface
Allowable values:	Any text
Default value:	"unspecified"

Attribute	Description
jms-input-messages	See jms-interface
Allowable values:	Any sequence
Default value:	sequence ()
jms-input-message-procedure-callback	See jms-interface
Allowable values:	Any symbol
Default value:	JMS-DEFAULT-MESSAGE-HANDLER
jms-bridge-error-message-procedure-callback	See jms-interface
Allowable values:	Any symbol
Default value:	JMS-DEFAULT-BRIDGE-ERROR-HANDLER
jms-output-destination-name	See jms-interface
Allowable values:	Any text
Default value:	""
jms-topic-receive-local-copy	See jms-interface
Allowable values:	Any truth-value
Default value:	false
jms-transacted-delivery	See jms-interface
Allowable values:	Any truth-value

Attribute	Description
Default value:	false
jms-synchronous-delivery	See jms-interface
Allowable values:	Any truth-value
Default value:	true
jms-persistent-delivery	See jms-interface
Allowable values:	Any truth-value
Default value:	true
jms-message-priority	See jms-interface
Allowable values:	Any integer
Default value:	4
jms-message-alive-time	See jms-interface
Allowable values:	Any integer
Default value:	0
jms-provider-connection-status	See jms-interface
Allowable values:	Any symbol
Default value:	DISCONNECTED
pool-label	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""

Attribute	Description
error	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
comments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	NONE
network-initial-interface-count	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	1
network-default-host-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	"localhost"
network-base-port-number	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	22041
network-connection-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	120

Attribute	Description
user-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
user-password	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
enable-initialization-during-reset	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	true
network-interface-initialization-string	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
network-interface-timeout	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	30
network-interface-class-name	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-DATABASE-INTERFACE

Attribute	Description
remote-process-launch-arguments	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""
remote-process-launch-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-LAUNCH-BRIDGE-PROCESS
remote-process-kill-procedure	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	GDSM-KILL-BRIDGE-PROCESS
remote-process-launch-cmd	See gdsm-network-connection-pool
Allowable values:	inherited
Default value:	""

gdsm-jms-connection-pool::gdsm-kill-bridge-process

Synopsis

gdsm-jms-connection-pool::gdsm-kill-bridge-process
(*network-pool*: gdsm-jms-connection-pool, *io*: network-interface, *host*: text, *pid*: quantity)

Argument	Description
network-pool	The network pool that is requesting to kill the bridge process.
io	The remote bridge process to kill.
host	The host computer that is running the bridge process to kill.
pid	The PID of the bridge process to kill.

Description

Kills a bridge process associated with a JMS connection pool, given the network interface, host, and PID of the network interface.

gdsm-jms-connection-pool::gdsm-network-pool-add-interface

Synopsis

gdsm-jms-connection-pool::gdsm-network-pool-add-interface
(*network-pool*: gdsm-jms-connection-pool, *host*: text, *port*: integer)
-> *network-interface*: item-or-value

Argument	Description
network-pool	The network pool that should add a network interface.
host	The host computer that is running the remote bridge process to add.
port	The TCP/IP port of the bridge process to add.

Return Value	Description
network-interface	The network interface that was added.

Description

Adds a network interface to a JMS network pool.

gdsm-jms-connection-pool::gdsm-network-pool-get-an-interface

Synopsis

gdsm-jms-connection-pool::gdsm-network-pool-get-an-interface
(*network-pool*: gdsm-jms-connection-pool, *target-object*: item-or-value)
-> *network-interface*: item-or-value

Argument	Description
network-pool	The network pool from which to get a network interface.
target-object	Any object involved in the transaction with the interface. The interface is associated with the object until the interface is release by calling gdsm-network-pool-release-an-interface. If the method gdsm-network-pool-get-an-interface is called again and a network interface has already been assigned to the target object, the same network interface is returned. This is very useful when implementing transaction processing.

Return Value	Description
network-interface	The network interface.

Description

Gets a network interface from a JMS network pool.

gdsm-jms-connection-pool::gdsm-network-pool-initialize

Synopsis

gdsm-jms-connection-pool::gdsm-network-pool-initialize
(*network-pool*: gdsm-jms-connection-pool)

Argument	Description
network-pool	The network pool to initialize.

Description

Initializes a JMS network pool, which creates the number of default network connections specified in the network-initial-interface-count attribute of the gdsm-jms-connection-pool.

item::gdsm-get-network-interface-types

GDSM Network Pool Procedures

gdsm-generate-instance-sequence

Synopsis

gdsm-generate-instance-sequence
(*pool-class-name*: symbol, *interface-class-name*: symbol)
-> *instances*: sequence

Argument	Description
pool-class-name	The name of a pool class.
interface-class-name	The name of an interface class.

Return Value	Description
instances	A sequence of pool and interface instances.

Description

Returns the concatenation of pool instances and subclasses of the class specified by *pool-class-name* and interface instances and subclasses of the class specified by *interface-class-name*.

gdsm-get-network-connection-pool-by-label

Synopsis

gdsm-get-network-connection-pool-by-label
(*network-pool-label*: text, *network-pool-class*: symbol,
hierarchy-containment: item-or-value)
-> *network-pool*: item-or-value

Argument	Description
network-pool-label	The label of the network pool to get.
network-pool-class	The class of the network pool to get.
hierarchy-containment	The workspace containment hierarchy in which the network connection pool exists.

Return Value	Description
network-pool	The network pool with the specified label.

Description

Returns a network pool given its label and its class. Optionally, the search can be restricted to network connection pools contained in a specified workspace containment hierarchy.

gdsm-get-network-connection-from-pool-by-label

Synopsis

gdsm-get-network-connection-from-pool-by-label
(*network-pool-label*: text, *network-pool-class*: symbol,
hierarchy-containment: item-or-value, *target-object*: item-or-value,
default-io: item-or-value)
-> *network-pool*: item-or-value, *network-interface*: item-or-value

Argument	Description
network-pool-label	The label of the network pool.
network-pool-class	The network pool class.
hierarchy-containment	The workspace containment hierarchy in which the network connection pool exists.
target-object	The network interface to get from the network pool.
default-io	The default network interface to get if the specified target object cannot be found.

Return Value	Description
network-pool	The network pool.
network-interface	The network interface associated with the pool.

Description

Returns the network pool and a network interface from the selected pool, given the network pool label and its class. Optionally, the search can be restricted within a workspace containment hierarchy. If no interface or pool is found but a default interface is specified, the procedure returns the symbol unspecified and the default interface. Otherwise, it signals the error not-found. If both the network pool and the network interface are found, they are returned in this order.

Optionally, you can specify a target object to be associated with the selected network connection. The association remains until the connection is released, and subsequent calls return the same interface. This is important when multiple calls

to the remote system are required in transactional mode, such as with databases when performing a commit or rollback.

5

Network Connection Management Utilities

Describes utility APIs for performing rsh commands on a UNIX server and for creating SQL statements, based on G2 data structures.

Introduction

This chapter describes two categories of convenience APIs:

- Agent Utilities — Allow you to perform *rsh* commands on a UNIX server. These APIs use the DOS or UNIX rsh shell/DOS command while hiding the complexity of building the command, and piping the output and error output to files to be imported into G2. These APIs are located in the gdsm-agent module.
- Database Utilities — Allow you to abstract the specific SQL statements and build them dynamically. These APIs are located in the gdsm-db module.

Agent Utilities

gdsm-execute-rsh-command

Synopsis

gdsm-execute-rsh-command
(*server*: text, *server-username*: text, *cmd*: text)
-> *output*: text, *error:* text

Argument	Description
server	The name of the UNIX server where the command should be executed.
server-username	The user name for logging in to *server*.
cmd	The UNIX command to execute.

Return Value	Description
output	The output of the command.
error	The error output of the command.

Description

Builds and executes `rsh` commands, returning the output and error of the command as text.

It assumes that G2 can execute the `rsh` command by launching a shell script, that is, the `PATH` environment variable is set up to find the `rsh` command.

gdsm-execute-rsh-view-directory-command

Synopsis

gdsm-execute-rsh-view-directory-command
(*server*: text, *server-username*: text, *directory*: text,
recursive-directory-view: truth-value)
-> *output*: text, *error:* text

Argument	Description
server	The name of the UNIX server where the command should be executed.
server-username	The user name for logging in to *server*.
directory	The directory to view.
recursive-directory-view	True to execute the command on the specified directory recursively.

Return Value	Description
output	The output of the command.
error	The error output of the command.

Description

Executes a command on the remote server using `rsh` to collect the contents of a directory, typically `ls -l` or `ls -lR`.

It assumes that G2 can execute the command by launching a shell script, that is, the `PATH` environment variable is set up to find the `rsh` command.

gdsm-execute-rsh-remove-file-command

Synopsis

gdsm-execute-rsh-remove-file-command
(*server*: text, *server-username*: text, *filename*: text)
-> *output*: text, *error:* text

Argument	Description
server	The name of the UNIX server where the command should be executed.
server-username	The user name for logging in to *server*.
filename	The filename to remove.

Return Value	Description
output	The output of the command.
error	The error output of the command.

Description

Executes a command on the remote server using `rsh` to remove a file, typically `rm`.

It assumes that G2 can execute the `rsh` command by launching a shell script, that is, the `PATH` environment variable is set up to find the `rsh` command.

gdsm-execute-rsh-view-processes-command

Synopsis

gdsm-execute-rsh-view-processes-command
(*server*: text, *server-username*: text, *filter-1*: text, *filter-2*: text, *not-filter-1*: text, *not-filter-1*: text)
-> *output*: text, *error:* text

Argument	Description
server	The name of the UNIX server where the command should be executed.
server-username	The user name for logging in to *server*.
filter-1	Text to include in *output*.
filter-2	Text to include in *output*.
not-filter-1	Text to exclude from *output*.
not-filter-2	Text to exclude from *output*.

Return Value	Description
output	The output of the command.
error	The error output of the command.

Description

Executes a command on the remote server using `rsh` to return a list of running processes, typically, `ps -auxw`. The output can be filtered to include lines with patterns *filter-1* or *filter-2* or exclude lines with patterns *not-filter-1* or *not-filter-2*.

It assumes that G2 can execute the `rsh` command by launching a shell script, that is, the `PATH` environment variable is set up to find the `rsh` command.

Database Utilities

gdsm-db-create-table

Synopsis

gdsm-db-create-table
(*io*: g2-database-interface, *table-name*: text, *key-property-name*: symbol, *property-names*: item-or-value, *itm*: item, *auto-commit*: truth-value)
-> *status*: symbol, *error*: text

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.
key-property-name	The name of the property that should be used as the database key. The property key is also specified in the *property-names* argument.
property-names	List of attribute or property names.
itm	The item to insert into the database.
auto-commit	If true, auto commits the transaction.

Return Value	Description
status	The symbol success upon success, otherwise returns the error status returned by db-execute-immediate.
error	Error description, if applicable.

Description

Creates the SQL statement to create a new database table and executes it. Similar to the other database utility routines, this procedure relies on the GRTL property type information to map data types to SQL data types. See the description of grtl-get-property-type-info in the *G2 Run-Time Library User? Guide*.

gdsm-db-create-table-for-property-type-info

Synopsis

gdsm-db-create-table-for-property-type-info
(*io*: class gdsm-database-interface, *table-name*: text,
key-property-name: symbol, *properties-info*: sequence,
auto-commit: truth-value
-> *status*: symbol, *error*: text

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.
key-property-name	The name of the property that should be used as the database key.
properties-info	A sequence of property information structures. See grtl-get-property-type-info for the content of the structure.
auto-commit	If true, auto commits the transaction.

Return Value	Description
status	The symbol success upon success, otherwise returns the error status returned by db-execute-immediate.
error	Error description, if applicable.

Description

Creates the SQL statement to create a new database table and executes it. Similar to the other database utility routines, this procedure relies on the GRTL property type information to map data types to SQL data types. See the description of grtl-get-property-type-info in the *G2 Run-Time Library User? Guide*.

gdsm-db-delete-all-rows

Synopsis

gdsm-db-delete-all-rows
(*io*: g2-database-interface, *table-name*: text, *filter*: text,
auto-commit: truth-value)
-> *status*: symbol, *error*: text

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.
filter	Filter to use for deleting only a portion of the table.
auto-commit	If true, auto commits the transaction.

Return Value	Description
status	The symbol success upon success, otherwise returns the error status returned by db-execute-immediate.
error	Error description, if applicable.

Description

Creates the SQL statement to delete all rows in a table and executes it. You can specify an optional filter to delete only some rows. The filter syntax should follow the SQL `where` clause syntax.

gdsm-db-drop-table

Synopsis

gdsm-db-drop-table
(*io*: g2-database-interface, *table-name*: text, *auto-commit*: truth-value)
-> *status*: symbol, *error*: text

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.
auto-commit	If true, auto commits the transaction.

Return Value	Description
status	The symbol success upon success, otherwise returns the error status returned by db-execute-immediate.
error	Error description, if applicable.

Description

Creates the SQL statement to drop the database table and executes it.

gdsm-db-format-value

Synopsis

gdsm-db-format-value
(*val*: value, *quote-string*: text, *quote-in-string*: text, *max-string-length*: integer)
-> *formatted-value*: text

Argument	Description
val	The value to adjust.
quote-string	The character to use to surround strings.
quote-in-string	The character to use to specify a quote in a string.
max-string-length	The maximum string length.

Return Value	Description
formatted-value	The *val* argument reformatted as needed for databases.

Description

Adjusts values as needed for database compatibility. For example, truth-values are converted to 1 or 0, and empty text values are converted to null. Within text strings, the argument *quote-in-string* is used as the quote marker, and strings are surrounded by *quote-string*. If *max-string-length* is greater than 2, then any string value insertion is truncated to *max-string-length* - 2, where 2 characters reserved for the single quotes in order to not exceed the column width. If the string length is less than *max-string-length*, the string is not padded.

gdsm-db-get-attributes-for-bind-variables

Synopsis

gdsm-db-get-attributes-for-bind-variables
(*query*: text, *bind-variable-prefix*: text)
-> *attribute-names*: sequence

Argument	Description
query	The SQL query statement.
bind-variable-prefix	The prefix for bind variables, which depends on the database.

Return Value	Description
attribute-names	The list of attributes to use for the bind variables.

Description

Returns the list of attribute names specified as bind variables in the query expression. It assumes that the bind variable prefix is followed by the bind variable name, which should correspond to an attribute name of the object. Note that for MS Access or SQL 2000, only ? should be specified for bind variables without adding a name for the bind variable when sent to the database engine. In G2, we expect that the bind variables in the SQL statement are named like they are in Oracle but with the MS Access/SQL ? prefix. The APIs we provide remove the bind variable name after the ? before sending it to the database engine.

gdsm-db-get-count

Synopsis

gdsm-db-get-count
    (*io*: class gdsm-database-interface, *query*: text)
    -> *count*: integer

Argument	Description
io	Network interface to database bridge.
query	The SQL query statement.

Return Value	Description
count	The count returned by the SQL query or -1 if the query did not succeed.

Description

Executes an SQL query statement that returns an integer and returns the count.

gdsm-get-html-list-for-query-object

Synopsis

gdsm-get-html-list-for-query-object
(*list-name*: text, *tag*: text, *selection*: text, *label*: text, *blank*: text, *use-blank*: truth-value)
-> *html*: text

Argument	Description
list-name	The key of the selected gdsm-query-object instance.
tag	The HTML tag control.
selection	The selected value in the list of choices defined in gdsm-query-object, either from the value-list if the use-value-list attribute of the gdsm-query-object is true; otherwise, from the display-list.
label	The prompt label for the combo box, which is inserted before the combo box as "[label]: <combobox>".
blank	The value of the blank selection.
use-blank	When true and when the *blank* argument matches the *selection* argument, adds an HTML option for the blank value. This is used, for example, if the *selection* argument is not specified in the list, but the user must choose a valid value from the list specified in gdsm-query-object. For example, if the gdsm-query-object specifies a list of choices, but the initial *selection* is "", specifying true for the *use-blank* argument and "" for the *blank* argument displays an empty selection in the HTML page, as opposed to forcing an arbitrary choice in the list of possible values.

Return Value	Description
html	The HTML list.

Description

Builds an HTML list from a pre-queried database list stored in a gdsm-query-object where *list-name* is the database key.

gdsm-db-get-list

Synopsis

gdsm-db-get-list
(*io*: class gdsm-database-interface, *query*: text,
maximum-records-to-fetch: integer, *return-list-format*: truth-value)
-> *list-or-array*: class db-query-item

Argument	Description
io	Network interface to database bridge.
query	The SQL query statement.
maximum-records-to-fetch	The maximum number of records to fetch.
return-list-format	When true, returns a query item of the class db-query-item-list; otherwise, returns a query of the class db-query-item-array.

Return Value	Description
list	A structure returned by the SQL query statement.
rows	The number of rows in the returned structure.

Description

Executes an SQL query that returns a list. The procedure signals the gdsm-failed-database-transaction if the query fails or the gdsm-failed-to-allocate-cursor error if no cursor can be allocated.

gdsm-db-get-object-list

Synopsis

gdsm-db-get-object-list
(*io*: class gdsm-database-interface, *query*: text, *bind-variable-prefix*: text, *maximum-records-to-fetch*: integer, *object-class-name*: symbol)
-> *item-list*: class item, *rows*: integer

Argument	Description
io	Network interface to database bridge.
query	The SQL query statement.
bind-variable-prefix	The prefix for bind variables, which depends on the database.
maximum-records-to-fetch	The maximum number of records to fetch.
object-class-name	The class name of the items in the returned item list.

Return Value	Description
item-list	An item list returned by the SQL query statement.
rows	The number of rows in the item list.

Description

Executes an SQL query that returns a list of items of a specified class. The procedure signals the gdsm-failed-database-transaction if the query fails or the gdsm-failed-to-allocate-cursor error if no cursor can be allocated.

gdsm-db-get-single-object

Synopsis

gdsm-db-get-single-object
    (*io*: class gdsm-database-interface, *query*: text,
    bind-variable-prefix: item-or-value, *object-class-name*: symbol)
    -> *item*: class item

Argument	Description
io	Network interface to database bridge.
query	The SQL query statement.
bind-variable-prefix	The prefix for bind variables, which depends on the database.
object-class-name	The class name of the returned item.

Return Value	Description
item	The item returned by the SQL query statement.

Description

Executes an SQL query that returns an item of a specified class. The procedure signals the gdsm-failed-database-transaction if the query fails or the gdsm-failed-to-allocate-cursor error if no cursor can be allocated.

gdsm-db-get-structure-list

Synopsis

gdsm-db-get-structure-list
(*io*: class gdsm-database-interface, *query*: text, *bind-vars*: text,
maximum-records-to-fetch: integer)
-> *list*: structure, *rows*: integer

Argument	Description
io	Network interface to database bridge.
query	The SQL query statement.
bind-variable-prefix	The prefix for bind variables, which depends on the database.
maximum-records-to-fetch	The maximum number of records to fetch.

Return Value	Description
list	A structure returned by the SQL query statement.
rows	The number of rows in the returned structure.

Description

Executes an SQL query statement that returns a structure, and returns the structure and the number of rows. This procedure signals the gdsm-failed-database-transaction error if the query fails or the gdsm-failed-to-allocate-cursor error if no cursor can be allocated. This procedure is takes care of deleting objects for you.

gdsm-db-get-text

Synopsis

gdsm-db-get-text
    (*io*: class gdsm-database-interface, *query*: text)
    -> *text*: text

Argument	Description
io	Network interface to database bridge.
query	The SQL query statement.

Return Value	Description
text	The text value returned by the SQL query statement or an empty string if the query did not succeed.

Description

Executes an SQL query statement that returns a text value and returns the text.

gdsm-db-insert

Synopsis

gdsm-db-insert
(*io*: g2-database-interface, *table-name*: text, *property-names*: item-or-value, *itm*: item, *auto-commit*: truth-value)
-> *status*: symbol, *error*: text

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.
property-names	Attribute or property names to insert.
itm	The item to insert into the database.
auto-commit	If true, auto commits the transaction.

Return Value	Description
status	The symbol success upon success, otherwise returns the error status returned by db-execute-immediate.
error	Error description, if applicable.

Description

Creates and executes an SQL statement to insert an object into a database. Similar to the other database utility routines, this procedure relies on the GRTL property type information to map data types to SQL data types. See the description of grtl-get-property-type-info in the *G2 Run-Time Library User? Guide*.

gdsm-db-insert-row-for-property-type-info

Synopsis

gdsm-db-insert-row-for-property-type-info
(*io*: class gdsm-database-interface, *table-name*: text,
properties-info: sequence, *row-values*: sequence, *auto-commit*: truth-value)
-> *status*: symbol, *error*: text

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.
properties-info	A sequence of property information structures per column. See grtl-get-property-type-info for the content of the structure.
row-values	The values to insert into the database.
auto-commit	If true, auto commits the transaction.

Return Value	Description
status	The symbol success upon success, otherwise returns the error status returned by db-execute-immediate.
error	Error description, if applicable.

Description

Creates and executes an SQL statement to insert an object into a database. Similar to the other database utility routines, this procedure relies on the GRTL property type information to map data types to SQL data types. See the description of grtl-get-property-type-info in the *G2 Run-Time Library User? Guide*.

gdsm-db-make-column-name

Synopsis

gdsm-db-make-column-name
    (*txt*: text)
    -> *column-name*: text

Argument	Description
txt	The name to convert.

Return Value	Description
column-name	The column name.

Description

Converts a name, such as an attribute name, to a valid database column name. The column name is limited to 28 character, because several databases have this limitation.

gdsm-db-parse-query

Synopsis

gdsm-db-parse-query
(*query*: text, *object*: item, *bind-variable-prefix*: text)
-> *return-value*: text

Argument	Description
query	The database query to parse.
object	The query may include references to attribute names of this object, using the $*attribute-name* syntax. This procedure replaces these references in the query with the value from this object.
bind-variable-prefix	The bind variable prefix.

Return Value	Description
return-value	The query argument updated with actual values from the object and cleaned up references to bind variables.

Description

Parses a query, replacing bind variables $ with the corresponding value and formatting bind variable names correctly for the database. Within a query, G2 expects that bind variables marked with the *bind-variable-prefix* are followed by the G2 attribute name. However, bind variables starting with ?, such as in MS Access and SQL2000, are special cases since you don't need the variable name. In this case, this procedure removes the attribute name.

gdsm-db-query

Synopsis

gdsm-db-query
(*io*: g2-database-interface, *table-name*: text, *property-names*: item-or-value, *filter*: text)
-> *status*: symbol, *error*: text, *result*: item-or-value

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.
property-names	Attribute or property names to query.
filter	Filter to use for querying only a portion of the database.

Return Value	Description
status	The symbol success upon success, otherwise returns the error status returned by db-execute-immediate.
error	Error description, if applicable.
result	The result of the database query.

Description

Queries the database and returns the result. The filter syntax should follow the SQL `where` clause syntax.

If no cursor can be allocated, this procedure signals the gdsm-failed-to-allocate-cursor error.

gdsm-db-query-if-table-exists

Synopsis

gdsm-db-query-if-table-exists
(*io*: class gdsm-database-interface, *table-name*: text)
-> *result*: truth-value

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.

Return Value	Description
result	True if the table exists, false otherwise.

Description

Queries the database to determine if a table exists. Note that Sybase and Oracle are currently not supported, only ACCESS and SQL via the G2-ODBC Bridge. You also need the appropriate administration rights to query the MSysObjects table in Access and the sysobjects table in Microsoft SQL.

gdsm-db-query-table-names

Synopsis

gdsm-db-query-table-names
    (*io*: class gdsm-database-interface)
    -> *names*: sequence

Argument	Description
io	Network interface to database bridge.

Return Value	Description
names	A sequence of database table names.

Description

Returns a sequence of table names in a database. Note that Sybase and Oracle are currently not supported, only ACCESS and SQL via the G2-ODBC Bridge. You also need the appropriate administration rights to query the MSysObjects table in Access and the sysobjects table in Microsoft SQL.

If no cursor can be allocated, this procedure signals the gdsm-failed-to-allocate-cursor error.

gdsm-db-refresh-object

Synopsis

gdsm-db-refresh-object
(*io*: class gdsm-database-interface, *obj*: class object, *query*: text, *bind-variable-prefix*: item-or-value)

Argument	Description
io	Network interface to database bridge.
obj	The database object to refresh.
query	The SQL query statement.
bind-variable-prefix	The prefix for bind variables, which depends on the database.

Description

Executes an SQL query that refers to an object that exists in a database. The procedure signals the gdsm-failed-database-transaction if the query fails or the gdsm-failed-to-allocate-cursor error if no cursor can be allocated.

gdsm-db-refresh-query-object

Synopsis

gdsm-db-refresh-query-object
(*io*: class gdsm-database-interface, *query-object*: class gdsm-query-object)

Argument	Description
io	Network interface to database bridge.
query-object	The query object to refresh.

Description

Configures a gdsm-query-object based on the contents the database, using the SQL statement configured in the sql attribute of the gdsm-query-object instance. Any errors are stored in the error attribute of the gdsm-query-object instance.

The gdsm-query-object class allows you to cache lists of choices, for example, list of products or list of versions. This class also supports defining a different label for each value, and extracting the value and labels from a database.

The gdsm-query-object class inherits from grtl-object-with-key and defines the following attributes:

- last-update is an integer, formatted as a time stamp, initially is 0
- display-list initially is an instance of a text-array
- value-list initially is an instance of a text-array
- use-value-list initially is false
- maximum-list-size initially is 50
- sql is a text, formatted as free text, initially is ""
- error is a text, formatted as free text, initially is ""

gdsm-db-update

Synopsis

gdsm-db-update
(*io*: g2-database-interface, *table-name*: text, *property-names*: item-or-value, *itm*: item, *key*: text, *key-value*: item-or-value, *auto-commit*: truth-value)
-> *status*: symbol, *error*: text

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.
property-names	Attribute or property names to update or insert.
itm	The item to insert into the database.
key	A unique key for the item to update.
key-value	The value of the key.
auto-commit	If true, auto commits the transaction.

Return Value	Description
status	The symbol success upon success, otherwise returns the error status returned by db-execute-immediate.
error	Error description, if applicable.

Description

Updates or inserts a row in the database, where the item is uniquely defined by a key. Similar to the other database utility routines, this procedure relies on the GRTL property type information to map data types to SQL data types. See the description of grtl-get-property-type-info in the *G2 Run-Time Library User? Guide*.

gdsm-db-update-row-for-property-type-info

Synopsis

gdsm-db-update-row-for-property-type-info
(*io*: class gdsm-database-interface, *table-name*: text,
properties-info: sequence, *row-values*: sequence, *key*: text,
key-value: item-or-value, *auto-commit*: truth-value
-> *status*: symbol, *error*: text

Argument	Description
io	Network interface to database bridge.
table-name	Database table name.
properties-info	A sequence of property information structures, per column. See grtl-get-property-type-info for the content of the structure.
row-values	The values to insert into the database.
key	A unique key for the item to update.
key-value	The value of the key.
auto-commit	If true, auto commits the transaction.

Return Value	Description
status	The symbol success upon success, otherwise returns the error status returned by db-execute-immediate.
error	Error description, if applicable.

Description

Updates or inserts a row in the database uniquely defined by the *key*. Similar to the other database utility routines, this procedure relies on the GRTL property type information to map data types to SQL data types. See the description of grtl-get-property-type-info in the *G2 Run-Time Library User? Guide*.

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