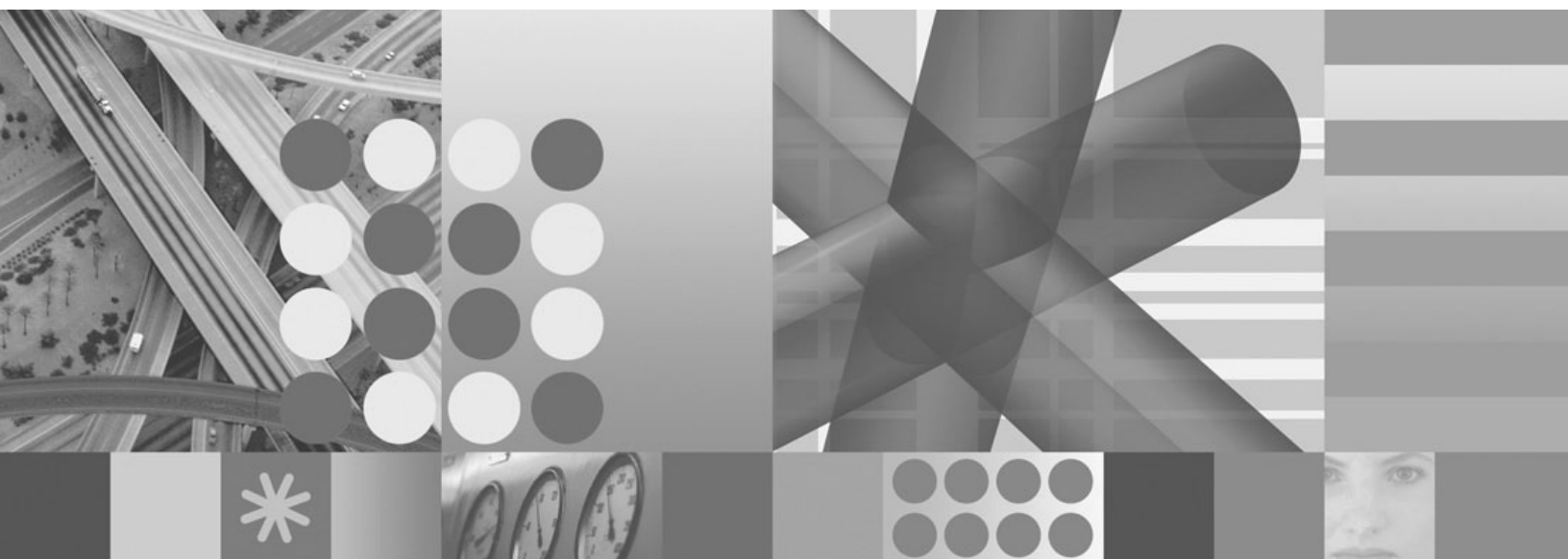


Version 2.1.1



Base Component Reference
March 2007

Version 2.1.1



Base Component Reference
March 2007

Note!

Before using this information and the product it supports, read the information in “Notices” on page 185.

Fourth Edition (March 2007)

This edition of the *IBM Tivoli System Automation for Multiplatforms Base Component Reference* applies to IBM Tivoli System Automation for Multiplatforms Version 2, Release 1, Modification 1, Fix Pack 6 (program number 5724-M00), and to all subsequent releases of this product until otherwise indicated in new editions.

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Contents

About this book	vii
Who should use this book	vii
How to use this book	vii
Where to find more information	vii
Conventions	viii
ISO 9000	viii
Related information.	viii
How to obtain publications	viii
How to reach us by e-mail	viii
 Summary of changes.	 ix
I What's new in Version 2, Release 1, Modification 1, Fix Pack 6	ix
 Chapter 1. IBM Tivoli System Automation commands	 1
RSCT RMC commands and files	2
Setting the environment variables	2
addrgmbr	4
chequ	8
chrel	11
chrg	16
chrgmbr	19
installSAM	22
lsequ	24
lsrel	27
lsrg	32
lsrgreq	37
I lssam	40
lssamctrl	43
mkequ	45
mkrel	49
mkrq	53
pidmon	56
prereqSAM	58
rgmbreq	59
rgreq	62
rmequ	65
rmrel	67
rmrg	71
rmrgmbr	73
samcfg	76
samctrl	78
samdiag	81
samlicm	84
sampolicy	85
uninstallSAM	87
Using expressions	88
SQL Restrictions	88
Supported Base Data Types	88
Structured Data Types	89
Data Types That Can Be Used for Literal Values	89
How Variable Names Are Handled	90
Operators That Can Be Used in Expressions	90
Default Precedence of Operators	92

Pattern Matching.	94
Examples of Expressions	94
Coding for XML policy.	95
Chapter 2. Policy XML reference	97
AutomationPolicy	98
Example	98
Attributes	98
Sub-elements	98
PolicyInformation	99
Example	99
Attributes	99
Sub-elements	99
Occurrence.	99
ControlInformation.	100
Example	100
Attributes	100
Sub-elements	100
Occurrence	100
Resource	101
Example	101
Attributes	101
Sub-elements	101
Occurrence	101
MoveGroup	102
Example	102
Attributes	102
Sub-elements	102
Occurrence	102
ConstituentResource	103
Example	103
Attributes	103
Sub-elements	103
Occurrence	103
ResourceGroup.	104
Example	104
Attributes	104
Sub-elements	104
Occurrence	105
Relationship	106
Examples	106
Attributes	106
Sub-elements	106
Occurrence	107
Equivalency	108
Example	108
Attributes	108
Sub-elements	108
Occurrence	109
ResourceReference	110
Example	110
Attributes	110
Sub-elements	110
Occurrence	110
IBM.ApplicationAttributes	111
Example	111

Attributes	111
Sub-elements	111
Occurrence	111
IBM.ServiceIPAttributes	112
Example	112
Attributes	112
Sub-elements	112
Occurrence	112
IBM.TestAttributes	113
Example	113
Attributes	113
Sub-elements	113
Occurrence	113
IBM.TieBreaker	114
Example	114
Attributes	114
Sub-elements	114
Occurrence	114
Members	115
Example	115
Attributes	115
Sub-elements	115
Description	116
Example	116
Attributes	116
Sub-elements	116
Owner	116
Example	116
Attributes	116
Sub-elements	116
InfoLink.	117
Example	117
Attributes	117
Sub-elements	117
Example XML policy	118
Chapter 3. Messages used with IBM Tivoli System Automation.	121
Messages generated by the sampolicy command	166
Messages generated by the plug-in of the System Automation for Multiplatforms end-to-end automation adapter	178
Notices	185
Trademarks	186
Index	187

About this book

This book contains the reference information like commands and messages of the IBM Tivoli System Automation for Multiplatforms base component running on xSeries®, zSeries®, iSeries®, pSeries® and AIX.

Who should use this book

This book is intended for system administrators who want to look up command and message information of the base component of IBM Tivoli System Automation for Multiplatforms.

The automation and failover capabilities of IBM Tivoli System Automation for Multiplatforms are described in the manual *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide*, SC33-8210.

The end-to end component of IBM Tivoli System Automation for Multiplatforms is described in the manual *IBM Tivoli System Automation for Multiplatforms End-to-End Automation Management*, SC33-8211.

How to use this book

This book provides reference-type information describing the IBM Tivoli System Automation commands and lists the messages that IBM Tivoli System Automation generates.

Where to find more information

IBM Tivoli System Automation Home Page

IBM Tivoli System Automation has a home page on the World Wide Web, which offers up-to-date information and services, and other items of interest to IBM Tivoli System Automation users.

You can find the IBM Tivoli System Automation home page at:

www.ibm.com/software/tivoli/products/sys-auto-linux/

Conventions

The following highlighting conventions are used in this book:

Bold	Identifies commands, subroutines, keywords, files, structures, directories, and other items whose names are predefined by the system. Also identifies graphical objects such as buttons, labels, and icons that the user selects.
<i>Italic</i>	Identifies parameters whose actual names or values are to be supplied by the user.
monospace	Identifies examples of specific data values, examples of text similar to what you might see displayed, examples of portions of program code similar to what you might write as a programmer, messages from the system, or information you should actually type.
(vertical bar)	Changes since the last edition of this document are marked with a vertical bar () in the left margin.

ISO 9000

ISO 9000 registered quality systems were used in the development and manufacturing of this product.

Related information

The following RSCT documents are part of your IBM Tivoli System Automation CD:

- *IBM Reliable Scalable Cluster Technology for Linux, Administration Guide*, SA22-7892.
- *IBM Reliable Scalable Cluster Technology for Linux, Technical Reference*, SA22-7893.
- *IBM Reliable Scalable Cluster Technology for Linux, Messages*, GA22-7894.
- *A Practical Guide for Resource Monitoring and Control (RMC)* , SG24-6615-00

RSCT documents can also be found at the following Web site:

www.ibm.com/servers/eserver/clusters/library/

You might also need to refer to the following IBM Redpaper:

- *Linux on IBM zSeries and S/390®: High Availability for z/VM® and Linux*

It can be found at the following Web site:

<http://publib-b.boulder.ibm.com/Redbooks.nsf/RedpaperAbstracts/redp0220.html>

How to obtain publications

The IBM Tivoli System Automation publications are also available (valid at the time of release) at these Web sites:

www.ibm.com/servers/eserver/clusters/library/
www.ibm.com/servers/eserver/zseries/software/sa/
www.ibm.com/software/sysmgmt/products/support/

How to reach us by e-mail

If you would like to contact us by e-mail, send your comments to eservdoc@de.ibm.com

Summary of changes

What's new in Version 2, Release 1, Modification 1, Fix Pack 6

New command "Issam"

Starting with Fix Pack 6 of V2.1.1, you can use the **Issam** command to list resource groups, nested groups, and contained members, and their operational states in a tree format. This allows you to quickly get a clear overview of all currently defined resources and their states. For details, see "Issam" on page 40.

Chapter 1. IBM Tivoli System Automation commands

These are the IBM Tivoli System Automation commands described here:

Command	Description	For details, see page:
addrgmbr	Adds one or more resources to a resource group	4
chequ	Changes a resource equivalency	8
chrel	Changes one or more managed relationships between resources	11
chrg	Changes persistent attribute values of a resource group (including starting and stopping a resource group)	16
chrgmbr	Changes the persistent attribute value(s) of a managed resource in a resource group	19
installSAM	Verifies that all installation prerequisites are met and installs the Base component of IBM Tivoli System Automation, including the end-to-end automation adapter	22
lsequ	Lists equivalencies and their attributes	24
lsrel	Lists managed relationships	27
lsrg	Lists persistent attribute values of a resource group or its resource group members	32
lsrgreq	Lists outstanding requests applied against resource groups or managed resources	37
Issam	Lists resource groups, their members (including nested groups), and their operational states in tree format, allowing you to obtain a quick overview of all currently defined resources and their states	40
Issamctrl	Lists IBM Tivoli System Automation controls	43
mkequ	Makes an equivalency resource	45
mkrel	Makes a managed relationship between resources	49
mkrq	Makes a resource group	53
pidmon	Searches the process list for a given command string	56
prereqSAM	Checks whether all prerequisites for the installation of the Base component of IBM Tivoli System Automation are met	58
rgmbrreq	Requests a managed resource to be started or stopped, or cancels the request	59
rgreq	Requests a resource group to be started, stopped or moved, or cancels the request	62
rmequ	Removes one or more resource equivalencies	65
rmrel	Removes a managed relationship between resources	67
rmrg	Removes a resource group	71
rmrgmbr	Removes one or more resources from the resource group	73
samcfg	Saves and restores the IBM Tivoli System Automation configuration	76
samctrl	Sets the IBM Tivoli System Automation control parameters	78
samdiag	Gathers snap-shot information on a resource	81
samlcm	Installs, lists and upgrades the product license	84
sampolicy	Activates, deactivates, and verifies a policy XML, saves a configuration, retrieves policy information	85

Command	Description	For details, see page:
uninstallSAM	Uninstalls all components of the Base component of IBM Tivoli System Automation	87

RSCT RMC commands and files

The following table lists the RSCT commands that you need for working with IBM Tivoli System Automation. The entry in the rightmost column of the table shows where you find a detailed description of the command:

- **RSCT Ref:** Refer to the appropriate man page or the *IBM Reliable Scalable Cluster Technology for Linux, Technical Reference, SA22-7893*.
- **Man page:** Refer to the appropriate man page.

Command	Description	For details, see
addrpnode	Adds a node to a cluster	RSCT Ref
chrsrc	Changes persistent attribute values of a resource within a specified resource class	RSCT Ref
lsrpdomain	Lists information about clusters	RSCT Ref
lsrpnnode	Lists information about nodes in a cluster	RSCT Ref
lsrsrc	Lists resources of a resource class	RSCT Ref
lssrc	Lists the status of subsystems	RSCT Ref
mkrpdomain	Creates a new cluster	RSCT Ref
mkrsrc	Creates resources of a specified resource class	RSCT Ref
preprpnode	Prepares the node before creating a cluster (security setup)	RSCT Ref
resetrsrc	Resets resources of a specified resource class	Man page
rmrpdomain	Removes a cluster	RSCT Ref
rmrpnnode	Removes a node from a cluster	RSCT Ref
rmrsrc	Removes resources of a specified resource class	RSCT Ref
runact	Runs an action on a resource class	RSCT Ref
startrpdomain	Brings a cluster online	RSCT Ref
startrpnode	Brings a node in a cluster online	RSCT Ref
startsrc	Brings an individual resource online	Man page
startsrc	Starts an individual subsystem	RSCT Ref
stoprpdomain	Brings a cluster offline	RSCT Ref
stoprpnode	Brings a node in a cluster offline	RSCT Ref
stopsrc	Brings an individual resource offline	Man page
stopsrc	Stops an individual subsystem	RSCT Ref

Setting the environment variables

CT_CONTACT

When the CT_CONTACT environment variable is set to a host name or IP address, the command contacts the Resource Monitoring and Control (RMC) daemon on the specified host. If the environment variable is not set, the command contacts the RMC daemon on the local system

where the command is being run. The resource class or resources that are displayed or modified by the command are located on the system to which the connection is established.

CT_LOCAL_SCOPE

The CT_LOCAL_SCOPE environment variable sets the RMC subsystem scope to the stand-alone environment. By default, the RMC subsystem monitors and controls the resources and resource classes on all nodes in the cluster. A cluster can consist of one or more nodes. When a cluster consists of one node, it is said to operate in a stand-alone environment. The scope of a command in the stand-alone environment is the local node. The scope of a command in a cluster environment of more than one node is the entire cluster. For a cluster of more than one node, to return or change resources or resource classes only on the node where RMC is running, set the CT_LOCAL_SCOPE environment variable to 1, as follows:

```
export CT_LOCAL_SCOPE=1
```

For example, assume that a cluster consists of nodes A, B, and C and the following command is run:

```
lsrsrc IBM.FileSystem
```

Resources for the file systems associated with nodes A, B, and C are returned.

If CT_LOCAL_SCOPE is set to 1 and the **addrgmbr** command is run on Node A, then only the file system resources associated with node A are returned.

CT_MANAGEMENT_SCOPE

The CT_MANAGEMENT_SCOPE environment variable must be set on all nodes for all users of IBM Tivoli System Automation.

Enter **CT_MANAGEMENT_SCOPE=2** (peer domain scope). The variable may be permanently set in the profile.

addrgmbr

Name

addrgmbr – Adds one or more resources to a resource group

Synopsis

addrgmbr [-h] [-f *data_input_file*] [-T] [-V]

addrgmbr [-h] -s [-m T | F] [-p A | O] [-T] [-V] -g *Resource_group* *Resource_class:"selection_string"*
[*Resource_class:"selection_string"* [...]]

addrgmbr [-h] [-m T | F] [-p A | O] [-T] [-V] -g *Resource_group*
Resource_class:Resource_name[:Node][,Resource_name[:Node][, ...]]
[*Resource_class:Resource_name[:Node][,Resource_name[:Node][, ...]] [...]]*

Description

The **addrgmbr** command adds one or more new resources to a resource group. If a *data_input_file* and the -f option is not specified, then either a selection string or a resource name must be specified when this command is used. A resource name or selection string must be specified with the resource class to which it belongs. A fixed resource must include the resource class and the node name at which it resides. A member resource cannot be included in more than one resource group at the same time. A member resource cannot be in a resource group and in an equivalency at the same time. Each member of the resource group must exist as an RMC resource before being added to a resource group. A resource group member can only be defined on an online node in a cluster.

You can only add multiple resources to a resource group if they are offline and if the nominal state of the resource group is offline. If the OpState of a resource to be added is online, the addition of that resource would cause an immediate stop of that resource. If the resource is in the process of stopping, then the addition of another resource would be rejected.

Member resources and their attribute flags can be specified on the command line as the syntax indicates or from a file when used with the -f option. The value must be the same data type that is defined for this resource attribute. Use the **lsrsrcdef** command to verify the data type and attribute field for each attribute.

Options

-f *data_input_file*

Name of the file which contains member resource attribute information.

-g *Resource_group*

The unique name of the resource group, to which the member resources are to be added. This represents the MemberOf attribute of the Managed Resource.

-h Help. Writes the command's usage statement to standard output.

-m TIF

Mandatory Attribute. Specifies whether this managed resource is required in the resource group.

T TRUE (the Default). These managed resources are required by the resource group.

F FALSE. These managed resources are not required by the resource group.

-p AIO

Specifies the method to be used when selecting a node for placing the resource on. The value can be:

A Any.

O Ordered. This is the default.

- s** Specifies that a selection string will be used instead of the resource name.
- T** Writes the command's trace messages to standard error. For your software-service organization's use only.
- V** Writes the command's verbose messages to standard output.

Parameters

Resource_class:"selection_string"

Specifies the selection string. The **-s** option determines this parameter. Each selection string must be preceded by a resource class. The specified selection string is applied to its corresponding *Resource_class* attributes to determine which resources are to be made members of the *Resource_group*. The *selection_string* and its resource class must be separated by the colon or " : " delimiter.

The selection string must be enclosed within either double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s IBM.Application:'Name == "testing"'
-s IBM.Application:'Name ?= "test"'
-s IBM.Application:'Name like "%"' ( For all resources)
```

For information on how to specify selection strings, see "Using expressions" on page 88.

Resource_class:Resource_name[:Node]

Member Resources. This specifies one or more member resources that are to be acted on. Resources belonging to different resource classes can also be specified using this syntax. However, member resources belonging to different classes must be separated by spaces. A member resource is identified by the resource's class (*Resource_class*), the resource's name (*Resource_name*), and optionally the node (*Node*) the resource is on. The *Resource_class*, *Resource* and *Node* must be separated by a colon. *Resource_class* is the name of the resource class the member resource belongs to. *Resource* is the name of the actual member resource in its class. The node may have to be included when trying to act on a fixed member resource. The node and its resource must be separated by the colon or ":" delimiter. Multiple resources belonging to the same resource class can also be specified and are separated by a comma: *Resource_class:Resource[:Node][,Resource[:Node][,...]]*

The member resources must exist in the resource group for the requested action to take place.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.
- 2** Error occurred with CLI script.
- 3** Incorrect flag on command line.
- 4** Incorrect parameter on command line.
- 5** Error occurred with RMC that was based on faulty command line input.
- 6** Resource specified was not found.
- 7** Resource already exists.

Security

This command requires root authority.

addrgmbr

Examples

1. To create member resources using the data input file, do the following:

- a. To generate a template to aid in the defining of these resources in a file, enter the command:

```
lsrsrdef -i IBM.ManagedResources >/tmp/MgdR.rdef
```
- b. Edit the file `/tmp/MgdR.rdef` with your preferred file editor: (Enter values for all of the attributes, substituting an appropriate value for the type, or leave it blank if you want the default value.)
- c. Run the **addrgmbr** command with the file as follows:

```
addrgmbr -f /tmp/MgdR.rdef
```

Sample Data Input file for addrgmbr:

You can enter values for all of the attributes and thus change the value shown below, or remove the line with the attribute if you want the default value.

PersistentResourceAttributes:

resource 1:

```
ManagedResource      = "0x001b 0xffff 0x35c05b13 0x00000000 0x9a6ee5e0 0x0de8934c"
MemberOf              = "charmC"
```

resource 2:

```
ManagedResource      = IBM.Application:Res1:node1
MemberOf              = "charmC"
Mandatory              = false
```

2. To add a member resource **tester** belonging to resource class IBM.Application, to a resource group **foo**, enter:

```
addrgmbr -g foo IBM.Application:tester
```

3. To add member resources **tester**, **Jfoo**, and **Dfoo**, belonging to resource class IBM.Application, to a resource group **foo**, enter:

```
addrgmbr -g foo IBM.Application:tester,Jfoo,Dfoo
```

4. To add member resources **tester** and **Jfoo** belonging to resource class IBM.Application, and fixed resource **en0** of class IBM.ServiceIP, residing at node number 1, to a resource group **foo**, enter:

```
addrgmbr -g foo IBM.Application:tester,Jfoo IBM.ServiceIP:en0:1
```

5. To add selected member resources of the resource class IBM.Application, to a resource group **foo** as a mandatory resource, enter:

```
addrgmbr -m T -g foo IBM.Application:jfoo,foo
```

Sample data input file.

```
PersistentResourceAttributes::
resource 1:
ManagedResource = "0x001b 0xffff 0x35c05b13 0x00000000
0x9a6ee5e0 0x0de8934c"
MemberOf = "charmC"
resource 2:
ManagedResource = "0x001b 0xffff 0x35c05b13 0x00000000
0xb4d7e1b0 0x0def4ba2"
MemberOf = "charmC"
Mandatory = 0
NominalState = 0
```

Files

`/usr/sbin/rsct/bin/addrgmbr` Location of the **addrgmbr** command.

`data_input_file`

See Also

The **samctrl**, **chrel**, **chrg**, **chrgmbr**, **lsrg**, **mkrg**, **mkrel**, **rmrel**, **rmrg**, **rmrgmbr** commands.

The **rmccli** General Information file.

The **Resource_Data_Input** file

chequ

Name

chequ – Changes an already-defined resource equivalency.

Synopsis

chequ [-h] [-i] -u a l d l r [-p A l O] [-m *Minimum_Necessary*] [-T] [-V] -S “*Static_select_string*”
Equivalency Resource_class

chequ [-h] [-i] -u r [-p A l O] [-m *Minimum_Necessary*] [-T] [-V] -D “*Dynamic_select_string*”
Equivalency Resource_class

chequ [-h] [-i] [-u a l d l r] [-p A l O] [-m *Minimum_Necessary*]
 [-c *New_Equiv*] [-T] [-V] *Equivalency* [*Resource_class:Resource_name[:Node]*]
 [,*Resource_name[:Node][,...]*]]

Description

The **chequ** command changes a resource equivalency. Resources can be added, removed, or totally replaced in an equivalency. All resources in an equivalency must be from the same resource class. Even the name of the equivalency can be changed with this command.

Equivalencies and their attribute flags can be specified on the command line as the syntax indicates. The value must be the same data type that is defined for the resource attributes. Use the **lsrsrdef** command to verify the data type and attribute field for each attribute.

Options

-u a l d l r

Update Equivalency resources.

a Adds the specified resources to the specified equivalency.

d Deletes the specified resources from the specified equivalency.

r Replace/Overwrite Equivalency resources. Replaces the equivalency resources with the specified equivalency resources.

-c *New_Equiv*

Specifies a new name that replaces the current *Equivalency* parameter.

-D “*Dynamic_selection_string*”

The specified selection string will be saved as the SelectString attribute for the concerned equivalency. This *dynamic_selection_string* is then applied to all resources of the specified resource class by the Recovery Manager to dynamically determine what members are to be included in the specified equivalency. This option must be used with the **r** option and can also not be combined with the *Resource_name[:Node]* operand. The selection string must be enclosed within double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-D 'Name == "testing"'
```

```
-D 'Name ?= "test"'
```

-D cannot be combined with -S.

-h Help. Writes the command’s usage statement to standard output.

-i Interactive Prompt. Prompt before changing equivalency.

-p A | O

Specifies the equivalency select-from policy. The value can be:

- A** Any
- O** Ordered

The default value is **Any**.

-m *Minimum_Necessary*

Minimum Necessary Equivalency. Specifies the minimum necessary members to make an equivalency valid.

-S "*Static_selection_string*"

The specified selection string will be applied to the specified resource class to determine the resources that make up the equivalency. These resources will then be saved as the MemberShip attribute for the concerned equivalency. This option cannot be combined with the *Resource_name* [: *Node*] operand. Resources can be added, deleted and replaced when using this string. The selection string must be enclosed within double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-S 'Name == "testing"'
-S 'Name ?= "test"'
```

-S cannot be combined with -D.

For information on how to specify selection strings, see “Using expressions” on page 88.

- T** Writes the command’s trace messages to standard error. For your software-service organization’s use only.
- V** Writes the command’s verbose messages to standard output.

Parameters

Equivalency

Specifies the unique name of the already defined equivalency to be changed.

Resource_class:Resource_name[:Node]

Specifies one or more resources that will be added to or deleted from the specified equivalency. All of the resources must be from the same resource class. An equivalency resource is identified by the resource class (*Resource_class*) and the resource name (*Resource_name*), and, optionally, the node (*Node*) at which the resource resides. *Resource_class*, *Resource_name*, and *Node* must be separated by a colon. *Resource_class* is the name of the Resource class the equivalency resource belongs to. The first resource or *Resource_name[:Node]* must be preceded by the *Resource_class* it belongs to and it must be separated by the colon (:) delimiter. Multiple resources can be specified and are separated by a comma. Since all resources must be from the same class, the *Resource_class* is to be specified only once as the syntax indicates.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.
- 2** Error occurred with CLI script.
- 3** Incorrect flag on command line.
- 4** Incorrect parameter on command line.
- 5** Error occurred with RMC that was based on faulty command line input.

chequ

- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

1. To add another resource **tester** that belongs to resource class IBM.Application to an equivalency called **foo**. type:
`chequ -u a foo IBM.Application:tester`
2. To delete a resource **tester1** that belongs to resource class IBM.Application from an equivalency called **test**, enter:
`chequ -u d test IBM.Application:tester1`
3. To add an equivalency called **Jfoo** with selected members of the resource class IBM.Application by using a select string, enter:
`chequ -u a -S "ResourceType==0" Jfoo IBM.Application`
4. To overwrite an equivalency called **Jfoo** with selected members of the resource class IBM.Application by using a dynamic select string, enter:
`chequ -u r -D "ResourceType==0" Jfoo IBM.Application`

Files

`/usr/sbin/rsct/bin/chequ` Location of the **chequ** command.

See Also

The **samctrl**, **lsequ**, **mkequ**, **rmequ** commands.

The **rmccli** General Information file

chrel

Name

chrel – Changes one or more managed relationships between resources.

Synopsis

```
chrel [-h] [-i] [-u a | d | r] -s "Selection_string" [-c relation_name] [-p relationship] [-o condition] [-W
New_Target_Class[:Resource_name[:Node][,New_Target_Class[:Resource_name[:Node][,...]]]] [-w
"New_Target_string"] [-T] [-V]
```

```
chrel [-h] [-i] [-u a | d | r] [-c relation_name] [-p relationship] [-o condition] [-W
New_Target_Class[:Resource_name[:Node][,New_Target_Class[:Resource_name[:Node][,...]]]] [-w
"New_Target_string"] [-T] [-V] Managed_Relation
```

```
chrel [-h] [-i] [-u a | d | r] [-c relation_name] [-p relationship] [-o condition]
[ -W New_Target_Class[:Resource_name[:Node][,New_Target_Class
[:Resource_name[:Node][,...]]]] [ -w "New_Target_string" ] -S Source_Class
[:Resource_name[:Node]] [ -s "Source_string" ] [-G Target_Class[:Resource_name[:Node]
[,Target_Class[:Resource_name[:Node][,...]]]] [-g "Target_string" ]
[-P Current_relationship] [-O Current_condition] [-T] [-V]
```

Description

The **chrel** command modifies a managed relationship between resources. The managed relationship is between a source resource and one or more target resources. The source resource must be a member of a resource group. A target resource does not have to be in a resource group. Managed relationships and their attributes can be specified on the command line as the syntax indicates. The attribute value must be of the same data type that is defined for the resource attribute. Use the **lsrsrcdef** command to verify the data type and attribute field for each attribute.

Options

-u a | d | r

Update targets.

- a** Add the specified new target resources to the relationship defined for the source resources.
- d** Delete the specified new target resources from the relationship defined for the source resources.
- r** Replaces (overwrites) the relationship defined for the source resource with the specified new target resources.

-o condition

Specifies the new condition to be used when a Location relationship (Collocated, AntiCollocated, Affinity, or AntiAffinity) is defined. The value can be the numeric value or the word (not case sensitive):

0x0000 or NoCondition

Specifies unconditional location relationship.

0x0001 or IfOnline

Specifies that the target resource is online.

0x0002 or IfOffline

Specifies that the target resource is offline, failed offline, or unknown.

chrel

0x0003 or IfNotOnline

Specifies that the target resource is not online.

0x0004 or IfNotOffline

Specifies that the target resource is neither offline nor failed offline.

-O condition

Specifies the condition value to query all the defined relationship to find a match with an existing condition. The value can be the numeric value or the word (not case sensitive):

0x0000 or NoCondition

Specifies unconditional location relationship.

0x0001 or IfOnline

Specifies that the target resource is online.

0x0002 or IfOffline

Specifies that the target resource is offline, failed offline, or unknown.

0x0003 or IfNotOnline

Specifies that the target resource is not online.

0x0004 or IfNotOffline

Specifies that the target resource is neither offline nor failed offline.

-g Target_string

The *Target_string* is applied to all resources of the resource class specified by the **-G** flag, to determine the targets of the relationship.

If the **-g** option is used to specify a target selection string, *Resource_name* and *Node* must not be specified for the **-G** option .

-G Target_class:[Resource_name[:Node]]

Specifies the target resources to add, delete or replace with the relationship. The target resource or resources will be used with the source and any other specified query to find a match from all of the defined relationships. A target resource is identified by the resource's class (*Target_class*), the resource name (*Resource_name*), and, optionally, the node (*Node*) at which the resource resides. *Target_class*, *Resource_name*, and *Node* must be separated by colons. Multiple target resources can be specified and are separated by commas. The colons are required, but omitting *Target_class* or *Resource_name* causes the previously specified class or name to be used when multiple target resources are specified.

If the **-g** option is used to specify a target selection string, *Resource_name* and *Node* must not be specified for the **-G** option.

-h Writes the command's usage statement to standard output.

-i Interactive. Prompt before changing relationships.

-c relation_name

Specifies the new name for the specified managed relationship. This change-of-name can only be applied to *one* relationship. This means that if a name change is required, Queries and Selection strings should match with only one relationship.

-p relationship

Specifies the new managed relationship to apply. The value can be the numeric value or the word (not case sensitive):

0x0001 or Collocated

Specifies that the source and the target resources are to be located on the same node.

0x0002 or AntiCollocated

Specifies that the source and the target resources are to be located on different nodes.

0x0003 or Affinity

Specifies that the source resource and its specified affinity resource are to be located on the same node, if possible.

0x0004 or AntiAffinity

Specifies that the source resource and its specified affinity resource are to be located on different nodes, if possible.

0x0005 or IsStartable

Specifies that the source and its target resources are startable.

0x0006 or StartAfter

Specifies that the source is to be started after the target resources.

0x0007 or DependsOn

Specifies that the target resources must be online before the source resource is started.

- A DependsOn relationship also includes an implicit collocation (see the description of Collocated relationship in the *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide*) between the source and target resources.
- If a target resource fails, the source resource will also be stopped.

0x0008 or DependsOnAny

Specifies that the target must be online before the source resource is started. It is identical to the DependsOn relationship except that it does not provide the collocated constraint for the start sequence. Therefore the source and target resources may not be started on the same node.

0x0009 or StopAfter

Specifies that the source resource may not be stopped until after the target resource has been brought offline.

0x000A or ForcedDownBy

Specifies that the source resource must be forced offline in the event that either the target resource goes offline unexpectedly or the target resource itself is forced offline.

-P relationship

Specifies the managed relationship value used to query all the defined relationships to find a match. The value can be a numeric value or the word (not case sensitive):

0x0001 or Collocated

Specifies that the source and the target resources are to be located on the same node.

0x0002 or AntiCollocated

Specifies that the source and the target resources are to be located on different nodes.

0x0003 or Affinity

Specifies that the source resource and its specified affinity resource are to be located on the same node, if possible.

0x0004 or AntiAffinity

Specifies that the source resource and its specified affinity resource are to be located on different nodes, if possible.

0x0005 or IsStartable

Specifies that the source and its target resources are startable.

0x0006 or StartAfter

Specifies that the source is to be started after the target resources.

0x0007 or DependsOn

Specifies that the target resources must be online before the source resource is started.

- A DependsOn relationship also includes an implicit collocation (see the description of Collocated relationship in the *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide*) between the source and target resources.
- If a target resource fails, the source resource will also be stopped.

0x0008 or DependsOnAny

Specifies that the target must be online before the source resource is started. It is identical to the DependsOn relationship except that it does not provide the collocated constraint for the start sequence. Therefore the source and target resources may not be started on the same node.

0x0009 or StopAfter

Specifies that the source resource may not be stopped until after the target resource has been brought offline.

0x000A or ForcedDownBy

Specifies that the source resource must be forced offline in the event that either the target resource goes offline unexpectedly or the target resource itself is forced offline.

-w *New_Target_string*

Specifies the target selection string for the resources to add, delete or replace with the relationship. *New_Target_string* is applied to all resources of the resource class specified by the **-G** option to determine the targets of the relationship.

If the **-g** option is used to specify a target selection string, *Resource_name* and *Node* must not be specified for the **-G** option .

-W *New_Target_Class: Resource_name[: Node]*

New Target resources. These resources will be added, deleted or replaced as required to or from the current list of target resources for the matching relationships. A target resource is identified by the resource's class (*Resource_class*), the resource's name (*Resource_name*), and optionally the node (*Node*) the resource is on. The *Resource_class*, *Resource_name* and *Node* must be separated by a colon. Multiple target resources can be specified and are separated by a comma. The colons are required but omitting the *Resource_class* or *Resource_name* causes the previously specified class or name to be used when specifying multiple target resources.

If the **-g** flag is used to specify a target selection string, *Resource_name* and *Node* must not be specified for **-G**.

-s *Selection_string*

Specifies the source selection string of the relationship to change. *Selection_string* is applied to all resources of the resource class specified by the **-S** option to determine the source of the relationship. The result of the selection may contain one or more resources.

If the **-s** option is used to specify a source selection string, *Resource_name* and *Node* must not be specified for the **-S** option .

-S *Source_class:[Resource_name[:Node]]*

Specifies the source resource of the relationship to change. A source resource is identified by the resource class (*Resource_class*) of the resource, the resource name (*Resource_name*), and, optionally, the node (*Node*) at which the resource resides. The result of the selection may contain one or more resources.

If the **-s** option is used to specify a source selection string, *Resource_name* and *Node* must not be specified for the **-S** option.

-T Writes the command's trace messages to standard error. For your software-service organization's use only.

-V Writes the command's verbose messages to standard output.

Parameters

Managed_Relation

Name of the managed relationship to be changed. Using the **-c** flag, even the name of the relationship can be modified.

Exit Status

- 0 Command has run successfully.
- 1 Error occurred with RMC.
- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

1. To add a relationship for a resource **tester** that belongs to resource class IBM.Application with target resources from resource class IBM.Application, whose ResourceType is set to zero, enter:

```
chrel -u a -S IBM.Application:tester -W IBM.Application -w "ResourceType==0" -G IBM.Application -g "ResourceType==1"
```
2. To modify a relationship for a source resource **narten** that belongs to resource class IBM.Application to add resources **tr0** and **en0** of resource class IBM.NetworkInterface, enter:

```
chrel -u a -S IBM.Application:narten -W IBM.NetworkInterface:tr0,:en0
```

Files

/usr/sbin/rsct/bin/chrel Location of the **chrel** command.

See Also

The **addrgmbr**, **chequ**, **chrg**, **chrgmbr**, **lsrg**, **mkequ**, **mkrel**, **mkrg**, **rmequ**, **rmrel**, **rmrg**, **rmrgmbr** commands.

The **rmccli** General Information file

chrg

Name

chrg – Changes persistent attribute values of one or more resource groups (including starting and stopping resource groups).

Synopsis

chrg [-h] [-i] [-u a | d | r] -s "selection_string" [-l relationship] [-n node_name | -e equiv_name] [-o nominal_state] [-p priority] [-N Owner] [-D Description] [-I InfoLink] [-T] [-V] [-x node1, ...noden]

chrg [-h] [-i] [-u a | d | r] [-c new_name] [-l relationship] [-n node_name | -e equiv_name] [-o nominal_state] [-p priority] [-N Owner] [-D Description] [-I InfoLink] [-T] [-V] [-x node1, ...noden] *Resource_group* [...]

Description

The **chrg** command changes the persistent attribute values of one or more resource groups. The name of the resource group is specified by *Resource_group*. The resource groups to be changed can also be determined using the selection string with the -s option. The name of a resource group can also be changed with this command using the -c option. IBM Tivoli System Automation will then update all the associated member resources with this change. To allow IBM Tivoli System Automation to monitor and control these resource groups, the resource group must be in an Online Nominal State.

Options

-c new_name

Specifies the new *Resource_group* name. Renames the *Resource_group* name with *new_name*.

-e equiv_name

Specifies the equivalency name of the nodes on which the *Resource_group* can run. This option cannot be combined with the -n option. To set the resource group with the equivalency of all nodes in the cluster, specify *equiv_name* as the string ALL.

-h Writes the command's usage statement to standard output.

-i Interactive. Prompt before changing resource groups.

-u a | d | r

Specifies what should be done with the specified node list. Note that these options require the -x option.

a Adds the specified nodes to the list of excluded nodes.

d Deletes the specified nodes from the list.

r Replaces the exclude list with the specified nodes.

-x node1, ...noden

Specifies the excluded node list. Only to be used in conjunction with -u a | d | r.

-l relationship

Specifies the location relationship among the members of the resource group. The location relationship value can be entered as the numeric value or as the word (not case sensitive):

0x0000 or None

None. Specifies that member resources of the resource group can be on any node

0x0001 or Collocated

Specifies that member resources of the resource group are to be located on the same node.

- n** *node_name*
Specifies the node on which the *Resource_group* can run. This option cannot be combined with the **-e** option .
- o** *nominal_state*
Specifies the Nominal state of the resource group, which can be online or offline. Nominal state values can be entered as the numeric value or as the word (not case sensitive):

0x0000 or Online
Online. Specifies that the desired state of *Resource_group* is online.

0x0001 or Offline
Offline. Specifies that the desired state of *Resource_group* is offline.
- p** *priority*
Specifies the relative importance of this resource group compared to other resource groups. Priority can be any integer from 0 to 200: the higher the integer, the higher the priority. The default priority value is 0.
- N** *Owner*
A string with the name of the owner or contact for the group.
- D** *Description*
A string describing the purpose of the group.
- I** *InfoLink*
A string containing special instructions for the group, or a link to special instructions.
- s** *Selection_string*

Specifies the source selection string of the persistent attribute values to change. *Selection_string* is applied to all existing resource groups.

The selection string must be enclosed within either double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name ?= "test"'
-s 'Name like "%"' ( For all resources)
```


For information on how to specify selection strings, see “Using expressions” on page 88.
- T** Writes the command’s trace messages to standard error. For your software-service organization’s use only.
- V** Writes the command’s verbose messages to standard output.

Parameters

Resource_group

The unique name of the resource group to be changed. This resource group must already exist for this operation to succeed. Multiple resource groups can be specified but must be separated by spaces.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.
- 2** Error occurred with CLI script.
- 3** Incorrect flag on command line.

chrg

- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

1. To change the persistent-attribute location relationship to Collocated, Nominal state to Online, and the priority value to 34 of a resource group called **foo** , enter:

```
chrg -l collocated -o 0 -p 34 foo
```
2. To change the name of resource group **foo** to **clusterfoo** with location relationship now changed to None, and allowed node name of cluster, enter:

```
chrg -c clusterfoo -l 0 -n cluster foo
```
3. To change the location relationship to **None**, and allowed node name **cluster** for all resource groups containing the name **foo**, enter:

```
chrg -l none -n cluster -s 'Name like "%foo%"'
```

Files

/usr/sbin/rsct/bin/chrg Location of the **chrg** command.

See Also

The **addrgmbr**, **samctrl**, **chrgmbr**, **lsrg**, **mkg**, **rmrg**, **rmrgmbr** commands.

The **Resource_Data_Input** file.

The **rmccli** General Information file.

chrgmbr

Name

chrgmbr – Changes the persistent attribute value(s) of a managed resource in a resource group

Synopsis

```
chrgmbr [-h] [-i] [a l d l r] [-c New_group] [-m T | F] [-T] [-V]
-g Resource_group [-p A | O]
```

```
chrgmbr [-h] [-i] -s [a l d l r] -c New_group] [-m T | F] [-T] [-V]
-g Resource_group] [-p A | O] "selection_string"
```

```
chrgmbr [-h] [-i] [a l d l r] [-c New_group] [-m T | F] [-T] [-V]
-s [-g Resource_group] [-p A | O] [Resource_class: "selection_string" [Resource_class: "selection_string" [... ]]
```

```
chrgmbr [-h] [-i] [a l d l r] [-c New_group] [-m T | F] [-T] [-V]
-g Resource_group] [-p A | O] Resource_class:Resource_name[:Node][,Resource_name[:Node]][,...]]
[Resource_class:Resource_name[:Node][,Resource_name[:Node]][,...]] [... ]]
```

Description

The **chrgmbr** command changes the attributes of the specified member resources. When the selection string is the only parameter, then it is applied directly to IBM.ManagedResource class. Otherwise, a resource name or selection string must be specified with the class to which it belongs. This command allows the user to specify changes to the Mandatory attribute of a managed resource by using the **-m** option and also allows the user to change the resource group to which the resource belongs by using the **-c** option. A fixed resource must include the resource class and the node name at which it resides. The resource class and resource name, the resource name and the node must be separated by a colon.

Options

-c *New_group*

Specifies a new resource group name, which changes the MemberOf attribute of the managed resource. This option specifies the *Resource_group*, or changes the *Resource_group* of which this managed resource is a member, to the *New_group*.

-g *Resource_group*

Specifies the name of the resource group of which the resources are members. This represents the MemberOf attribute of the Managed Resource.

-h Writes the command's usage statement to standard output.

-i Interactive. Prompt before changing resource groups.

a l d l r

Specifies what should be done with the specified node list.

a Adds the specified nodes to the list of excluded nodes.

d Deletes the specified nodes from the list.

r Replaces the exclude list with the specified nodes.

-m T | F

Specifies whether this managed resource is required in the resource group.

T TRUE. These managed resources are required by the resource group.

F FALSE. These managed resources are not required by the resource group.

chrgmbr

- s** Specifies that a selection string will be used.
- T** Writes the command's trace messages to standard error. For your software-service organization's use only.
- V** Writes the command's verbose messages to standard output.
- p AIO**
 - Specifies the method to be used when selecting a node for placing the resource on. The value can be:
 - A** Any.
 - O** Ordered. This is the default.

Parameters

Resource_class

Specifies the name of the resource class to which the member resource belongs. The resource and the resource class must be separated by the colon (:) delimiter. Also the selection_string and its resource_class must be separated by the colon (:) delimiter.

Resource_class:"selection_string"

The -s option flag determines this operand. Each selection string must be preceded by a resource class. Resource_class indicates the name of the resource class the selection_string will be applied to. The selection_string and its Resource Class must be separated by the colon (:) delimiter. The specified selection string will be applied to its corresponding Resource_class attributes to determine which member resources are to be changed. The selection string must be enclosed within double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name ?= "test"'
-s 'Name like "%"' ( For all resources)
```

For information on how to specify selection strings, see "Using expressions" on page 88.

Resource_class:Resource_name[:Node]

This specifies one or more member resources that are to be changed. Resources belonging to different resource classes can also be specified using this syntax. However, member resources belonging to different classes must be separated by spaces. A member resource is identified by the resource's class (Resource_class), the resource's name (Resource_name), and optionally the node (Node) the resource is on. The Resource_class, Resource_Name and Node must be separated by a colon.

Resource_class is the name of the resource class the member resource belongs to.

Resource_name is the name of the actual member resource in its class. Node is the name of the node the resource is located on. The Node is required when attempting to change a fixed member resource. The Node and its resource must be separated by the colon delimiter (:). Multiple resources belonging to the same resource class can also be specified and are separated by a comma. In this case the first resource or Resource_name[:Node] of a resource class must be preceded by the resource_class it belongs to and it must be separated by the colon delimiter (:), while the remaining resources are separated by a comma.

Resource_class:Resource_name[:Node][Resource_name[:Node][,...]]

The member resources must exist in the resource group for it to be changed.

Selection_string

Specifies the selection string. The -s option determines this parameter. When this is the only parameter, then the selection string is applied to the member resources. But when included with Resource_class, each selection string in this case will be applied to its corresponding Resource_class attributes to determine which resources are to be modified in the Resource_group. The selection_string and its resource_class must be separated by the colon (:) delimiter.

delimiter. The selection string must be enclosed within either double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name ?= "test"'
-s 'Name like "%"' ( For all resources)
```

Exit Status

- 0 Command has run successfully.
- 1 Error occurred with RMC.
- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

- To change the Mandatory attribute to TRUE of a member resource **tester** that belongs to resource class IBM.Application, enter:
`chrgmbr -m T IBM.Application:tester`
- To change the resource group to which member resources **tester**, **Jfoo**, and **Dfoo** of resource class IBM.Application belong from the current resource group **foo** to resource group **footest**, enter:
`chrgmbr -c footest -g foo IBM.Application:tester,Jfoo,Dfoo`
- To change the Mandatory attribute to FALSE of selected member resources of resource group **foo** with ResourceType attribute set to one, belonging to resource class IBM.Application, enter:
`chrgmbr -m F -s -g foo IBM.Application:"ResourceType==1"`

Files

/usr/sbin/rsct/bin/chrgmbr Location of the **chrgmbr** command.

See Also

The **addrgmbr**, **samctrl**, **chrel**, **chrg**, **lsrg**, **mkrel**, **mkrg**, **mkrg**, **rmrel**, **rmrgmbr** commands.

The **rmccli** General Information file.

installSAM

Name

installSAM – Checks that all installation or upgrade prerequisites are met and installs or upgrades the Base component of IBM Tivoli System Automation, including the end-to-end automation adapter.

Synopsis

installSAM [**--noliccheck**] [**--noupgrade**] [**-d** *inst_pkg_dir*] [**-l** *log_file*]

Description

The **installSAM** command first invokes the **prereqSAM** command, which checks that all prerequisites for the installation or upgrade of the Base component of IBM Tivoli System Automation are met. If the system passes the check, **installSAM** verifies that the license file is available and installs or upgrades the component, including the end-to-end automation management adapter. Information about the actions that are performed during both the prerequisites check and the installation are recorded in a log file. The default log file is `/tmp/installSAM.<#>.log`, where `<#>` is a sequential number; the highest number identifies the most recent log file.

Typically, no options need to be specified. The available options allow you to install or upgrade the component although no license file is available (**--noliccheck**), to prevent an upgrade (**--noupgrade**), to install the component although the **installSAM** script is not in the package directory (**-d**), and to specify that a log file other than `/tmp/installSAM.<#>.log` is to be used (**-l**).

Options

--noliccheck

Allows you to install or upgrade the Base component although no license file is available. This option is used by packages with which IBM Tivoli System Automation is bundled. If you specify the option, the fact is recorded in the log file.

--noupgrade

Prevents an upgrade of the Base component although an upgrade is required. You can use this option, for example, if only an initial installation is desired or to find out whether an upgrade would occur if the option were not specified.

-d *inst_pkg_dir*

Allows the installation of packages from the specified directory although the **installSAM** script is not available in the directory. This option is used by packages with which IBM Tivoli System Automation is bundled.

-l *log_file*

Logs information generated by the **installSAM** command to the specified log file.

Exit Status

These are the return codes returned by the **installSAM** command during the license check and installation. For information about the return codes returned during the prerequisites check, refer to “prereqSAM” on page 58.

- 0** The installation or upgrade completed successfully.
- 1** `<package installer>` returned a return code other than 0; the return code and the corresponding message can be found in the log file. Package installer is:
 - **AIX:** `installp`
 - **Linux:** `rpm`
- 2** Package *sam* is already installed at the same version.

- 3 Package *sam* is already installed at a higher version.
- 4 Option – **–noupgrade** was specified and package *sam* was found installed at a lower version than the package version. No upgrade was performed.
- 5 The node on which the installation task must be performed is online. The task was not performed.
- 6 The license file for the Base component of IBM Tivoli System Automation was not found, or no installed license could be detected, or the installation of the license failed.
- 7 **installSAM** was unable to continue because directories or files could not be detected or other conditions are not met.

Security

This command requires root authority.

lsequ

Name

lsequ – Lists already-defined resource equivalencies and their attributes.

Synopsis

lsequ [-h] [-s "*selection_string*"] [-e *Equivalency*] [-A p | d | b] [-l | -t | -d | -D *Delimiter*] [-T] [-V] [*Attr...*]

Description

The **lsequ** command lists the Equivalencies. If the equivalency name is omitted, *all* of the defined equivalencies will be listed. If an equivalency is specified, the persistent attributes of the specified equivalency will be listed. If the *Attr* operand is specified, the attributes specified for the equivalency will be listed.

If the attribute flag is specified, the persistent or/and dynamic attributes of the equivalencies will be listed. If specified, the *Attr* operand will override the **-A** flag. The *Attr* operand must be a valid equivalency attribute, when listing equivalency information. When the *Attr* operands are specified, the exact value of these attributes will be listed. Otherwise, some of these attribute values are translated into English words.

Options

-A p | d | b

Attribute type. By default, only persistent attributes are displayed. To view all the attributes of the member resources, this option must be used with **-A b** attribute type. The value can be:

- p** Display only persistent attributes. For best performance, specify this value.
- d** Display only dynamic attributes.
- b** Display both persistent and dynamic attributes.

-d Specifies delimiter-formatted output. The default delimiter is a colon (:). Use the **-D** option if you wish to change the default delimiter.

-D *Delimiter*

Specifies delimiter-formatted output that uses the specified delimiter. Use this option to specify something other than the default colon (:); for example, when the data to be displayed contains colons. Use this option to specify a delimiter of one or more characters.

-e *Equivalency*

The name of the defined Equivalency to be listed.

-h Writes the command's usage statement to standard output.

-l Specifies long formatted output. Each attribute is displayed on a separate line. This is the default display format.

-s "*Selection_string*"

Specifies a selection string. Used without the **-e** option, this option is applied to all the defined equivalencies. If the **-e** option is specified with a selection string, then this selection is applied only to the specified equivalency. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name ?= "test"'
```

Only persistent attributes may be included in a selection string.

For information on how to specify selection strings, see “Using expressions” on page 88.

- t** Specifies tabular formatted output. Each attribute is displayed in a separate column, one resource per line.
- T** Writes the command’s trace messages to standard error. For your software-service organization’s use only.
- V** Writes the command’s verbose messages to standard output.

Parameters

Attr Specifies the names of one or more attributes whose values are to be displayed. These attributes must be separated by spaces.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.
- 2** Error occurred with CLI script.
- 3** Incorrect option on command line.
- 4** Incorrect parameter on command line.
- 5** Error occurred with RMC that was based on faulty command line input.
- 6** Resource specified was not found.
- 7** Resource already exists.

Security

This command requires root authority.

Examples

1. To list all currently-defined equivalencies, enter:

```
lsequ
```

Output:

Displaying Equivalencies:

```
foo
foo1
equ1
equ2
```

2. To list the persistent attributes of the equivalency **foo**, enter:

```
lsequ -A p -e foo
```

Output:

Displaying Equivalency Information:
Persistent Attributes
for Equivalency "foo".

Equivalency 1:

```
Name = foo
MemberClass = IBM.Application
Resource:Node[Membership] = {IBM.Application:Nate}
SelectString = ""
SelectFromPolicy = Any
MinimumNecessary = 1
```

lsequ

3. To list all the attributes of the equivalency **equ1**, enter:

```
lsequ -A b -e equ1
```

Output:

```
Displaying Equivalency Information:
All Attributes
For Equivalency "NetInt".
Equivalency 1:
Name                               = equ1
MemberClass                        = IBM.Application
Resource:Node [Membership ]        = {Nate:node1,Shoo:node2}
SelectString                       = ""
SelectFromPolicy                   = Ordered
MinimumNecessary                   = 1
Resource:Node [ValidSelectResources ] = {Nate:node1,Shoo:node2}
Resource:Node [InvalidResources ]  = {}
AutomationDetails[CompoundState]   = Undefined
```

4. To list all the attributes of the equivalency **equ1** in verbose mode, enter:

```
lsequ -V -A b -e equ1
```

Output:

```
Starting to list equivalency information.
Displaying Equivalency Information:
All Attributes
For Equivalency "NetInt".
Equivalency 1:
Name                               = equ1
MemberClass                        = IBM.Application
Resource:Node [Membership ]        = {Nate:node1,Shoo:node2}
SelectString                       = ""
SelectFromPolicy                   = Ordered
MinimumNecessary                   = 1
Resource:Node [ValidSelectResources ] = {Nate:node1,Shoo:node2}
Resource:Node [InvalidResources ]  = {}
AutomationDetails[CompoundState]   = Undefined
    [DesiredState]                  = Undefined
    [ObservedState]                  = Online
    [BindingState]                   = Undefined
    [AutomationState]                = Undefined
    [ControlState]                   = Undefined
    [HealthState]                    = Not Applicable
Completed listing equivalency information.
```

5. To list the dynamic attributes of equivalency **foo**, enter:

```
lsequ -A d -e foo
```

Files

/usr/sbin/rsct/bin/lsequ Location of the **lsequ** command.

See Also

The **chequ**, **samctrl**, **mkequ**, **rmequ** commands.

The **rmccli** General Information file

Isrel

Name

Isrel – Lists an already-defined managed relationship and its attributes.

Synopsis

Isrel [-h] [-s "*selection_string*"] [-A p | d | b] [-l | -t | -d | -D *Delimiter*] [-T] [-V] [Attr...]

Isrel [-h] [-M *relation_name*] [-A p | d | b] [-l | -t | -d | -D *Delimiter*] [-T] [-V] [Attr...]

Isrel [-h] [-S *Source_Class[:Resource_name[:Node]]*] [-s "*Source_string*"]
[-G *Target_Class[:Resource_name[:Node]]*, *Target class[:Resource_name[:Node]][...]]*] [-g "*Target_string*"] [-P *Current_relationship*]
[-O *Current_condition*] [-A p | d | b] [-l | -t | -d | -D *Delimiter*]
[-T] [-V] [Attr...]

Description

The **Isrel** command lists the managed relationships. If the relationship name is omitted, *all* managed relationships will be listed. If the resource relationship is specified, the persistent attributes of the specified relationship will be listed. If the *Attr* parameter is specified, the attributes specified for the relationship will be listed.

If the attribute option is specified, the persistent or dynamic attributes of the relationships will be listed. If specified, the *Attr* parameter will override the -A option. The *Attr* parameter must be a valid relationship attribute when listing relationship information. If the *Attr* parameters are specified, the exact value of these attributes will be listed. Otherwise, some of these attribute values are translated to English words.

Options

-A p | d | b

Specifies an attribute type. By default, only persistent attributes are displayed. This option can be used only when no attribute names are specified on the command line. To view all the persistent attributes of the member resources, this flag must be used with -p attribute type.

p Displays only persistent attributes.

d Displays only dynamic attributes.

b Displays both persistent and dynamic attributes.

For best performance, specify the -A p option.

-d Specifies delimiter-formatted output. The default delimiter is a colon (:). Use the -D option if you wish to change the default delimiter.

-D *Delimiter*

Specifies delimiter-formatted output that uses the specified delimiter. Use this option to specify something other than the default colon (:); for example, when the data to be displayed contains colons. Use this option to specify a delimiter of one or more characters.

-g *Target_string*

The *Target_string* is applied to all resources of the resource class specified by the -G flag, to determine the targets of the relationship.

If the -g option is used to specify a source selection string, *Resource_name* and *Node* must not be specified for the -G option .

-G *Target_class[:Resource_name[:Node]]*

Specifies the target resources to display with the relationship. The target resource or resources will be used with the source and any other specified query to find a match from all of the defined relationships. A target resource is identified by the resource's class (*Target_class*), the resource name (*Resource_name*), and, optionally, the node (*Node*) at which the resource resides. *Target_class*, *Resource_name*, and *Node* must be separated by colons. Multiple target resources can be specified and are separated by commas. The colons are required, but omitting *Target_class* causes the previously specified class to be used when multiple target resources are specified.

If the **-g** option is used to specify a target selection string, *Resource_name* and *Node* must not be specified for the **-G** option.

-h Writes the command's usage statement to standard output.

-l Specifies long formatted output. Each attribute is displayed on a separate line. This is the default display format.

-M *relation_name*

Specifies the name of the managed relationship to be listed.

-P *Current_relationship*

Specifies the managed relationship value used to query all the defined relationships to find a match. The value can be a numeric value or the word (not case sensitive):

0x0001 or Collocated

Specifies that the source and the target resources are to be located on the same node.

0x0002 or AntiCollocated

Specifies that the source and the target resources are to be located on different nodes.

0x0003 or Affinity

Specifies that the source resource and its specified affinity resource are to be located on the same node, if possible.

0x0004 or AntiAffinity

Specifies that the source resource and its specified affinity resource are to be located on different nodes, if possible.

0x0005 or IsStartable

Specifies that the source and its target resources are startable.

0x0006 or StartAfter

Specifies that the source is to be started after the target resources.

0x0007 or DependsOn

Specifies that the target resources must be online before the source resource is started and includes an implicit collocation between the source and target resources.

0x0008 or DependsOnAny

Specifies that the target must be online before the source resource is started. It is identical to the DependsOn relationship except that it does not provide the collocated constraint for the start sequence. Therefore the source and target resources may not be started on the same node.

0x0009 or StopAfter

Specifies that the source resource may not be stopped until after the target resource has been brought offline.

0x000A or ForcedDownBy

Specifies that the source resource must be forced offline in the event that either the target resource goes offline unexpectedly or the target resource itself is forced offline.

-O *Current_condition*

If condition query. Specifies the condition value to query all the defined relationships to find a match. The value can be the numeric value or the word (not case sensitive) as shown below:

0x0000 or NoCondition

Specifies unconditional location relationship.

0x0001 or IfOnline

Specifies that the target resource is online.

0x0002 or IfOffline

Specifies that the target resource is offline, failed offline, or unknown.

0x0003 or IfNotOnline

Specifies that the target resource is not online.

0x0004 or IfNotOffline

Specifies that the target resource is neither offline nor failed offline

-s "*selection_string*"

Specifies a selection string. This option without the **-S** option will be applied to all the defined relationships and its attribute fields. All selection strings must be enclosed within either double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
```

```
-s 'Name ?= "test"'
```

Only persistent attributes may be listed in a selection string.

For information on how to specify selection strings, see “Using expressions” on page 88.

-s *Source_string*

Specifies the source selection string of the relationship to list. The *Source_string* is applied to all resources of the resource class specified by the **-S** option to determine the source of the relationship. The result of the selection may contain one or more resources.

If the **-s** option is used to specify a source selection string, *Resource_name* and *Node* must not be specified for the **-S** option .

-S *Source_class[:Resource_name[:Node]]*

Specifies the source resource of the relationship to list. A source resource is identified by the resource class (*Resource_class*) of the resource, the resource name (*Resource_name*), and, optionally, the node (*Node*) at which the resource resides. The result of the selection may contain one or more resources.

If the **-s** option is used to specify a source selection string, *Resource_name* and *Node* must not be specified for the **-S** option.

- t** Specifies tabular formatted output. Each attribute is displayed in a separate column, one resource per line.
- T** Writes the command's trace messages to standard error. For your software-service organization's use only.
- V** Writes the command's verbose messages to standard output.

Parameters

Attr Specifies the names of one or more attributes whose values are to be displayed. These attributes

Isrel

must be separated by spaces. When the **-m** option is specified, these attributes must match the member resource attribute fields; when the **-m** option is not specified, the attributes must match the resource group attribute fields.

Node Specifies the node name. The node name may have to be included when an attempt has been made to list a fixed member resource. The node and its resource must be separated by the colon (:).

Resource_class

Specifies the name of the resource class to which the member resource belongs. The resource and the resource class must be separated by spaces.

Resource_name

Specifies the resource name. One or more resources may be specified along with the resource class to which it belongs. Each resource or set of resources must be preceded by its resource class. The resource and the resource class must be separated by spaces.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.
- 2** Error occurred with CLI script.
- 3** Incorrect flag on command line.
- 4** Incorrect parameter on command line.
- 5** Error occurred with RMC that was based on faulty command line input.
- 6** Resource specified was not found.
- 7** Resource already exists.

Security

This command requires root authority.

Examples

1. To list all the currently-defined managed relationships enter:

```
lsrel
```

Output:

```
Displaying Managed Relations :
Name      Resource:Node[Source]      ResourceGroup[Source]
foo       IBM.Application:ja         Foo
jaffinity IBM.Application:ja         Foo
          IBM.ResourceGroup:john   Ja
```

2. To list the persistent attributes of the managed relationship **foo**, enter:

```
lsrel -A p -M foo
```

Output is as follows:

```
Displaying Managed Relationship Information:
Persistent Attributes
for Managed Relationship "foo".
```

```
Managed Relationship 1:
Class:Resource:Node[Source] = IBM.Application:ja:nodename
```

```

Class:Resource:Node[Target] = {IBM.Application:Nate:Nodename}
Relationship                 = Collocated
Conditional                  = NoCondition
Name                         = foo

```

3. To list the managed relationship that match the source **foo** from class IBM.Application, having a Collocated relationship value with target resource **narten** from class IBM.ResourceGroup, enter:

```
lsrel -S IBM.Application:Foo -P Collocated -G IBM.ResourceGroup:narten
```

Output is as follows:

Displaying Managed Relationship Information:

Managed Relationship 1:

```

Name                         = Foo
Class:Resource:Node[Source] = IBM.Application:Foo
Class:Resource:Node[Target] = {IBM.ResourceGroup:Narten ,IBM.Application:ja}
Relationship                 = Collocated
Conditional                  = NoCondition
ResourceGroup[Source]       = charm

```

4. To list the dynamic attributes of the managed relationship name **foo**, enter:
5. To list the persistent attributes of the managed relationship name **foo** by using a selection string, enter:

```
lsrel -A d -M foo
```

```
lsrel -A p -s 'Name == "foo"'
```

Files

/usr/sbin/rsct/bin/lsrel Location of the **lsrel** command.

See Also

The **addrgmbr**, **samctrl**, **chrg**, **chrgmbr**, **mkrgr**, **rmrg**, **rmrgmbr** commands.

The **rmccli** General Information file.

lsrg

Name

lsrg – Lists already-defined resource groups and their members.

Synopsis

```
lsrg [-h] [ -m] [ -s "Selection_string"] [-A p | d | b] [-l | -t | -d | -D Delimiter] [-g Resource_group] [-T]
[-V] [ [Attr...]
```

```
lsrg [-h] [ -m] -c [ -s "Selection_string"] [-A p | d | b] [-l | -t | -d | -D Delimiter] [-g Resource_group]
[-T] [-V]
```

```
Resource_class:Resource[:Node][,Resource[:Node][,...]][Resource_class:Resource[:Node][,Resource
[:Node][,...]] [... ]
```

Description

The **lsrg** command lists resource groups or the members of a resource group. If the resource group name is omitted, all of the resource groups are listed. If the resource group name is specified without the **-m** option, the persistent attributes of the specified group will be listed. If the *Attr* parameter is specified, then the attributes specified for the resource group are listed. If the *Attr* parameter is specified here, the attributes specified for the resource group will be listed.

If the resource group name is specified with the **-m** option, the members of that resource group will be listed. If the attribute option (**-A**) is specified, the persistent or dynamic attributes of the resource group members will be listed. Default for the **-m** option will list the members Resource class name, Resource name and the MemberOf attribute. If the *Attr* operand is specified, the attributes specified for the managed resources (member resources) will be listed.

The *Attr* parameter if specified will override the **-A** option. The *Attr* parameter must be a valid resource group attribute when listing resource group information, and likewise be a valid member resource attribute when listing a managed resource. If the *Attr* parameters are specified, then the exact value of these attributes will be listed. Otherwise, some of these attribute values are translated into English words.

Options

-A p | d | b

Specifies an attribute type. By default, only persistent attributes are displayed. This option can be used only when no attribute names are specified on the command line. To view all the persistent attributes of the member resources, this flag must be used with **p** attribute type.

- p** Displays only persistent attributes.
- d** Displays only dynamic attributes.
- b** Displays both persistent and dynamic attributes.

For best performance, specify the **-A p** option.

- c** Specifies the resource and its class. This option indicates that parameters are resource classes, resource names, and, optionally, node names. The attributes of the member resources are listed or displayed. The attributes and selection strings when this option is used are applied to member resources and not the resource groups; therefore, these attributes must exist for the member resources.
- d** Specifies delimiter-formatted output. The default delimiter is a colon (:). Use the **-D** option if you wish to change the default delimiter.

-D Delimiter

Specifies delimiter-formatted output that uses the specified delimiter. Use this option to specify something other than the default colon (:); for example, when the data to be displayed contains colons. Use this option to specify a delimiter of one or more characters.

-g Resource_group

Displays resource group information such as the name and the persistent and dynamic attributes of the defined resource group. When the **-g** option is used with the **-m** option and the **-c** option, the member resources have to belong to the specified resource group.

-h Writes the command's usage statement to standard output.**-l** Specifies long formatted output. Each attribute is displayed on a separate line. This is the default display format.**-m** Specifies member resources and lists or displays the attributes of the member resources. The attributes and selection strings when this option is used are applied to member resources and not the resource groups; therefore, the attribute fields must exist for the member resources.**-s "Selection_string"**

Specifies a selection string. This option without the **-m** option is applied to the resource-group attribute fields; with the **-m** option or **-c** option, the selection string is applied to the member-resource attribute fields. All selection strings must be enclosed within either double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name ?= "test"'
```

For information on how to specify selection strings, see “Using expressions” on page 88.

-t Specifies tabular formatted output. Each attribute is displayed in a separate column, one resource per line.**-T** Writes the command's trace messages to standard error. For your software-service organization's use only.**-V** Writes the command's verbose messages to standard output.

Parameters

Attr Specifies the names of one or more attributes whose values are to be displayed. These attributes must be separated by spaces. When the **-m** option is specified, these attributes must match the member resource attribute fields; when the **-m** option is not specified, the attributes must match the resource group attribute fields.

Node Specifies the node name. The node name may have to be included when an attempt has been made to list a fixed member resource. The node and its resource must be separated by the colon (:) delimiter.

Resource_class

Specifies the name of the resource class to which the member resource belongs. The resource and the resource class must be separated by the colon (:) delimiter.

Resource_name

Specifies the resource name. One or more resources may be specified along with the resource class to which it belongs. Each resource or set of resources must be preceded by its resource class. The resource and the resource class must be separated by the colon (:) delimiter.

Exit Status

0 Command has run successfully.

lsrg

- 1 Error occurred with RMC.
- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

1. To list all the currently-defined resource groups, enter:

```
lsrg
```

Output is similar to:

Resource Group Names:

```
foo
clusterfoo
```

2. To list all the attributes of the resource group **foo**, enter:

```
lsrg -A b -g foo
```

Output is as follows:

```
Displaying Resource Group Information:
All Attributes
For Resource Group "foo".
Resource Group 1:
Name                      = "foo"
MemberLocation            = Collocated
Priority                   = 22
AllowedNodes              = "node1"
NominalState              = Online
OpState                   = Offline
TopGroup                  = foo
AutomationDetails[CompoundState] = Automation
```

3. To list all the attributes of the resource group **foo** in verbose mode, enter:

```
lsrg -A b -V -g foo
```

Output is as follows:

```
Starting to list resource group information.
Displaying Resource Group information:
All Attributes
For Resource Group "foo".

Resource Group 1:
  Name          = "foo"
  MemberLocation = Collocated
  Priority       = 22
  AllowedNodes  = "node1"
  NominalState  = Online
  OpState       = Offline
  TopGroup      = foo
  AutomationDetails[CompoundState] = Automation
                  [DesiredState]   = Online
```

```

[ObservedState] = Pending Online
[BindingState]  = Bound
[AutomationState] = Internal
[ControlState]  = Startable
[HealthState]   = Not Applicable

```

Completed listing resource group information.

4. To list the attributes of the members of resource group **foo**, enter:

```
lsrg -m -V -Ab -g foo
```

Output is as follows:

Starting to list member resource information.

Displaying Member Resource information:

for Resource Group "foo".

Member Resource 1:

```
Resource:Node [ManagedResource] = IBM.Application:charm
```

```
Mandatory = False
```

```
MemberOf = foo
```

```
AutomationDetails = [10,1,100,2,80,1,0]
```

```
AutomationDetails[CompoundState] = Automation
```

```
[DesiredState] = Online
```

```
[ObservedState] = Pending Online
```

```
[BindingState] = Bound
```

```
[AutomationState] = Internal
```

```
[ControlState] = Startable
```

```
[HealthState] = Not Applicable
```

Completed listing member resource information.

5. To list the persistent attributes of the member resources of resource group **foo**, enter:

```
lsrg -m -A p -g foo
```

Output is as follows:

Displaying Member Resource information:

for Resource Group "foo".

Member Resource 1:

```
Resource:Node[ManagedResource] = IBM.Application:charm
```

```
Mandatory = False
```

```
MemberOf = foo
```

6. To list the persistent attributes of the member resources of a resource group **foo** using a selection string, enter:

```
lsrg -m -A p -s 'MemberOf == "foo"'
```

Output is as follows:

Displaying Member Resource information:

for Resource Group "foo".

Member Resource 1:

```
Resource:Node[ManagedResource] = IBM.Application:charm
```

```
Mandatory = False
```

```
MemberOf = foo
```

7. To list the attributes of a managed resource, enter:

```
lsrg -m
```

Output is as follows:

Displaying Member Resource information:

```
Class:Resource:Node[ManagedResource]Mandatory MemberOf OpState
```

```
IBM.Application:WebServer True DemoRG Online
```

```
IBM.ServiceIP:WebIP True DemoRG Online
```

Files

/usr/sbin/rsct/bin/lsrg

Location of the **lsrg** command.

lsrg

See Also

The **addrgmbr**, **samctrl**, **chrel**, **chrg**, **chrgmbr**, **mkrel**, **mkrg**, **rmrel**, **rmrg**, **rmrgmbr** commands.

The **rmccli** General Information file.

lsrreq

Name

lsrreq – lists the outstanding requests applied against the resource groups or managed resources.

lsrreq belongs to a group of commands (rgreq, rgmbrreq, and lsrreq) which allow an operator to introduce persistent requests into IBM Tivoli System Automation. Using this set of commands the operator can start, stop, cancel, or move resource groups and managed resources.

Synopsis

lsrreq [-h] [-L] [-m] [-I | -t | -d | -D *Delimiter*] [-g *Resource_group*] [-T] [-V]

lsrreq [-h] [-L] [-m] [-I | -t | -d | -D *Delimiter*] [-T] [-V] [-L]
Resource_class:Resource[:Node][,Resource[:Node][,...]]
[Resource_class:Resource[:Node][,Resource[:Node][,...]]]

lsrreq [-h] [-L] [-m] [-I | -t | -d | -D *Delimiter*] -s [-T] [-V] *Resource_class:"Selection_String"*
[Resource_class:"Selection_String" [...]]

Description

The **lsrreq** command lists the outstanding requests applied against the resource groups or managed resources. By means of the **lsrreq** command either the active or all the outstanding requests may be listed. The "-m" option will only list the action requests on the managed or member resources. Otherwise, the action requests on the resource groups will be listed.

-h Help. Writes the command's usage statement to standard output.

-g *Resource_group*
 The name of the resource group whose actions are to be listed.

-L Lists all the action requests on the specified resource group or managed resources. If this option is not specified then only the active requests will be displayed or listed.

-m Member Resources. Lists or displays the actions on the member resources.

-s Specifies that a selection string will be used.

-I Long formatted output. Each attribute will be displayed on a separate line. This is the default display format.

-t Tabular formatted output. Each attribute will be displayed on a separate column, one resource per line.

-d Default delimiter formatted output. Default delimiter is a colon. Use the -D option if you wish to change the delimiter.

-D *Delimiter*
 Delimiter formatted output. Use this flag to specify something other than the default colon(:). An example is when the data to be displayed contains colons. One or more characters can be used as the Delimiter.

-T Trace. Writes the command's trace messages to standard error. For software-service organization's use only.

-V Verbose. Writes the command's verbose messages to standard output.

Parameters

Resource_class:"selection_string"

The **-s** option flag determines this operand. Each selection string must be preceded by a resource class. *Resource_class* indicates the name of the Resource class the *selection_string* will be applied to. The *selection_string* and its *Resource_class* must be separated by colon or ":" delimiter. The specified selection string will be applied to its corresponding *Resource_class* attributes to determine which member resources are to be removed from the Resource_group. The selection string must be enclosed within double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

- s IBM.Application:`Name=="testing"``
- s IBM.Application:`Name ?="test"``
- s IBM.Application:`Name like "%%"` (For all resources)

For information on how to specify selection strings, see "Using expressions" on page 88.

Resource_class:Resource[:Node]

Member Resources. This specifies one or more member resources whose action requests are to be listed. Resources belonging to different resource classes can also be specified using this syntax. However, member resources belonging to different classes must be separated by spaces. A member resource is identified by the resource's class (*Resource_class*), the resource's name (*Resource*), and optionally the node (*Node*) the resource is on. The *Resource_class*, *Resource* and *Node* must be separated by a colon. *Resource_class* is the name of the resource class the member resource belongs to. *Resource* is the name of the actual member resource in its class. The node may have to be included when trying to act on a fixed member resource. The node and its resource must be separated by the colon or ":" delimiter. Multiple resources belonging to the same resource class can also be specified and are separated by a comma:

Resource_class:Resource[:Node][,Resource[:Node][,...]]

The member resources must exist in the resource group for the requested action to take place.

Exit Status

- 0 Command has run successfully.
- 1 Error occurred with RMC.
- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

- To list the active action requests on the resource group RG1, enter:
lsrgreq -g RG1
- To list the requests on all the resources belonging to resource group RG1 in tabular format, enter:

```
lsrgreq -m -g RG1
```

Displaying Member Resource request information:

Active Requests

For Resource Group "RG1":

Member Resource 1:

Class:Resource:Node[ManagedResource] = IBM.Application:R1

Priority = Force

Action = start

Source = Operator

ActiveStatus = Active

Member Resource 2:

Class:Resource:Node[ManagedResource] = IBM.Application:R2

Priority = low

Action = start

Source = ExtSched

ActiveStatus = Active

3. To list all the action requests applied to resource group RG1 , enter:

```
lsrgreq -L -t -g RG1
```

Displaying Resource Group request information:

All request information

For Resource Group "RG1".

ResourceGroup	Priority	Action	Source	NodeList	ActiveStatus	MoveStatus
RG1	low	stop	ExtSched	{}	InActive	None
RG1	High	start	Automation	{}	Active	None
RG1	Force	stop	Operator	{}	Active	None

Files

/usr/sbin/rsct/bin/lsrgreq Location of the **lsrgreq** command.

See Also

The **addrgmbr**, **chrg**, **chrgmbr**, **lsrg**, **mkrgr**, **rgreq**, **rmrg**, and **rmrgmbr** commands.

Issam

Name

Issam – lists resource groups, their members (including nested groups), and their operational states in tree format.

Synopsis

Issam [-h] [-top] [-g *Resource_group*] [-s "*selection_string*"] [-nocolor] [-T]

Description

The **Issam** command lists resource groups, their members (including nested groups), and their operational states in tree format.

Options

-h Help. Writes the command's usage statement to standard output.

-g *Resource_group*

Displays only the specified top-level resource group and its members in tree format.

-nocolor

Displays output without color-highlighting.

-s "*selection_string*"

Specifies a selection string for the resource group. All selection strings must be enclosed within either double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name ?= "test"'
```

-top Displays the output at the top of the screen and refreshes the output every 10 seconds.

-T Writes the command's trace messages to standard error. For your software-service organization's use only.

Output format:

```
[ <OpState> "IBM.ResourceGroup:"<GroupName> ["Request="<RequestStateList>]
    ["Automation="<AutomationMode>]
    ["Control="<ControlState>]
    ["Binding="<BindingState>]
    "Nominal="<NominalState>
  [ "-" <OpState> "IBM.ResourceGroup:"<GroupName> ["Request="<RequestStateList>]
    ["Automation="<AutomationMode>]
    ["Control="<ControlState>]
    ["Binding="<BindingState>]
    "Nominal="<NominalState>
  ]*
  [ "-" <OpState> <ResourceClass>:"<FixedResourceName>":"<NodeName>
    ["Request="<RequestStateList>]
    ["Control="<ControlState>]
    ["Binding="<BindingState>]
    ["Node="<NodeState>]
  ]*
  [ "-" <OpState> <ResourceClass>:"<FloatingResourceName> ["Request="<RequestStateList>]
    ["Control="<ControlState>]
    ["Binding="<BindingState>]
    [ "-" <OpState> <ResourceClass>:"<ConstituentResourceName>":"<NodeName>
      ["Node="<NodeState>]
    ]+
  ]*
]+
```

Interpreting the output:

```

| <OpState> - OpState of group/resource
|   Color-coding scheme:
|     "Unknown" - Blue
|     "Offline" - Blue
|     "Online" - Green
|     "Failed offline" - Red
|     "Stuck online" - Red
|     "Pending online" - Yellow
|     "Pending offline" - Yellow
|
| <GroupName> - Name of the resource group
| <ResourceClass> - Name of the resource class
| <FixedResourceName> - Name of a fixed resource
| <FloatingResourceName> - Name of a floating resource
| <ConstituentResourceName> - Name of a constituent resource
| <NodeName> - Name of a node (short host name)
|
| <RequestStateList> - If requests are present, one or more request states
|                     with source indicator are shown
| <RequestState>["<SourceIndicator>"]
| [ ("<RequestState>":"<SourceIndicator>["+<RequestState>":"<SourceIndicator> ]+")" ]
|
| <RequestState> - Request action
|   Color-coding scheme:
|     "Online" - Green if inactive, yellow if active
|     "Offline" - Blue if inactive, yellow if active
|     "Lock" - Red
|     "Move" - Not color-coded if inactive, yellow if active
|
| <SourceIndicator> - First letter of the request source:
|   "O" - Operator (if operator request is first in list, this indicator is not shown)
|   "A" - Automation
|   "E" - ExtSchedul
|   "U" - Unknown
|
| <AutomationState> - Automation attribute from lssamctrl (in red color)
|   "Manual" - Automation disabled for this domain
|
| <NodeState> - Some states of a node (in red color)
|   "Offline" - Node is offline
|   "Excluded" - Node is excluded (if a node is offline, "Excluded" is not shown)
|
| <ControlState> - Some states of the AutomationDetails ControlState (in yellow color)
|   "StartInhibited" - Start of dependent resource is not satisfactory
|                     (only if winning request and nominal state are Online)
|   "StopInhibited" - Stop of dependent resource is not satisfactory
|                     (only if winning request and nominal state are Offline)
|
| <BindingState> - Some states of the AutomationDetails BindingState (in red color)
|   "Unbindable" - Configuration is incorrect
|   "Sacrificed" - No system available to comply with configuration
|   "Sacrificial" - No system available to comply with configuration
|
| <NominalState> - Nominal State
|   Color-coding scheme:
|     Online - Green
|     Offline - Blue

```

Exit Status

- 0 Command has run successfully.
- 1 An error occurred.

Issam

Security

This command requires root authority, or a user ID with appropriate permissions.

Examples

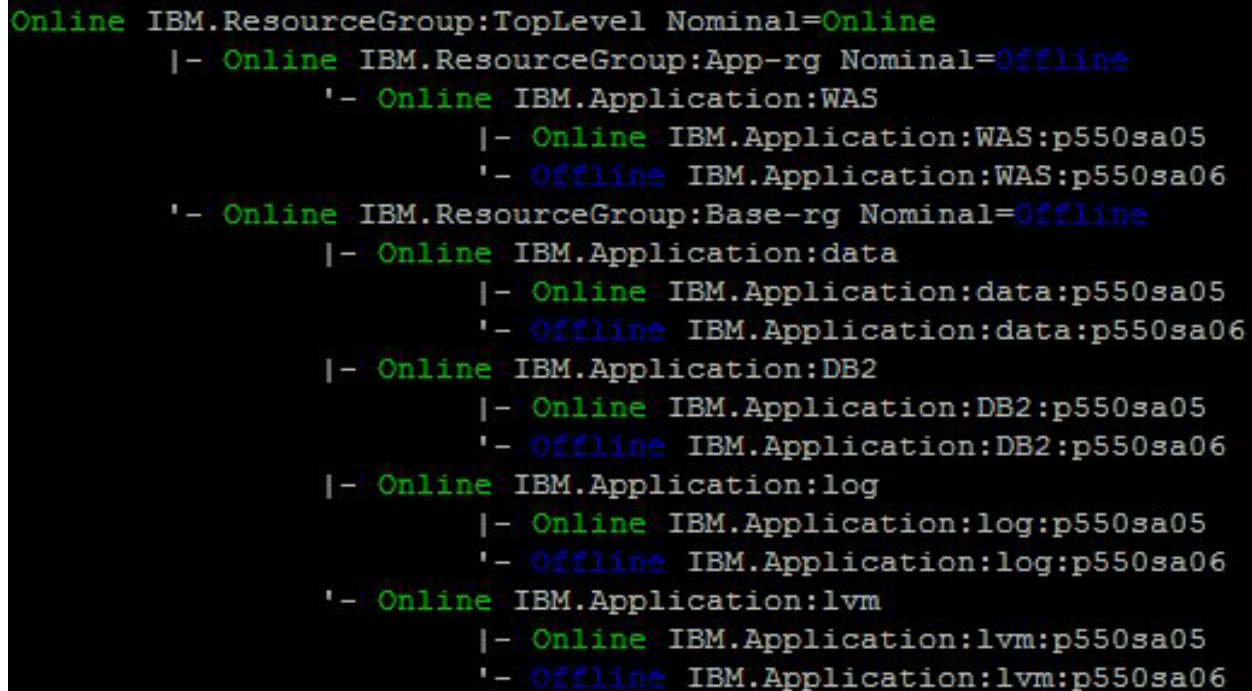
To list all resource groups and their members, type the following command:

```
lssam
```

Output:

```
Online IBM.ResourceGroup:grp1 Nominal=Online
|- Offline IBM.Application:res1:node1
Offline IBM.ResourceGroup:grp2 Nominal=Offline
|- Offline IBM.Application:res2:node2
Online IBM.ResourceGroup:grp3 Request=Online Nominal=Offline
|- Online IBM.Application:res3
|- Online IBM.Application:res3:node1
|- Failed offline IBM.Application:res3:node2
```

Sample screen capture:



```
Online IBM.ResourceGroup:TopLevel Nominal=Online
|- Online IBM.ResourceGroup:App-rg Nominal=Offline
|- Online IBM.Application:WAS
|- Online IBM.Application:WAS:p550sa05
|- Offline IBM.Application:WAS:p550sa06
'- Online IBM.ResourceGroup:Base-rg Nominal=Offline
|- Online IBM.Application:data
|- Online IBM.Application:data:p550sa05
|- Offline IBM.Application:data:p550sa06
|- Online IBM.Application:DB2
|- Online IBM.Application:DB2:p550sa05
|- Offline IBM.Application:DB2:p550sa06
|- Online IBM.Application:log
|- Online IBM.Application:log:p550sa05
|- Offline IBM.Application:log:p550sa06
'- Online IBM.Application:lvm
|- Online IBM.Application:lvm:p550sa05
|- Offline IBM.Application:lvm:p550sa06
```

Files

`/usr/sbin/rsct/bin/lssam` Location of the **lssam** command.

Issamctrl

Name

Issamctrl – lists already defined IBM Tivoli System Automation control parameters and its attributes.

Synopsis

Issamctrl [-h] [-A p | d | b] [-l | -t | -d | -D *Delimiter*] [-T] [-V] [*Attr...*]

Description

The **Issamctrl** command lists the control parameter values already set for IBM Tivoli System Automation. If the *Attr* operand is specified, then the value of the attributes specified will be listed. If the attribute flag -A is specified then the persistent or/and dynamic attributes of IBM Tivoli System Automation will be listed. The *Attr* operand if specified will override the -A flag. The *Attr* operand must be a valid attribute of IBM Tivoli System Automation Control Class. When the *Attr* operands are specified then the exact value of these attributes will be listed. Otherwise, some of these attribute values are translated to English words.

Options

-h Help. Writes the command's usage statement to standard output.

-A p | d | b

Attribute type. By default only persistent attributes are displayed. To view all the persistent attributes of the member resources this flag must be used with *p* attribute type.

- *p* - Displays only persistent attributes.
- *d* - Displays only dynamic attributes.
- *b* - Displays both persistent and dynamic attributes.

For best performance specify the -A *p* flag.

-l Long formatted output. Each attribute will be displayed on a separate line. This is the default display format.

-t Tabular formatted output. Each attribute will be displayed on a separate column, one resource per line.

-d Default delimiter formatted output. Default delimiter is a colon. Use the -D flag if you wish to change the delimiter.

-D *Delimiter*

Delimiter formatted output. Use this flag to specify something other than the default colon(:). An example is when the data to be displayed contains colons. One or more characters can be used as the Delimiter.

-T Trace. Writes the command's trace messages to standard error. For your software-service organization's use only.

-V Writes the command's verbose messages to standard output.

Parameters

Attr The name of the attributes whose values are to be displayed. These attributes must be separated by spaces.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.

Issamctrl

- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

To list all the currently defined IBM Tivoli System Automation parameters, type the following command:

```
Issamctrl
```

Output:

Displaying IBM Tivoli System Automation Control Information:

```
SAMControl:
  Timeout          = 60
  RetryCount       = 3
  Automation       = Auto
  ExcludedNodes    = {}
  ResourceRestartTimeout = 5
  ActiveVersion    = [1.2.0.0,Tue 04 May 2004 12:30:48 PM EDT]
  Enable Publisher = Disabled
```

Files

/usr/sbin/rsct/bin/Issamctrl Location of the **Issamctrl** command.

See Also

The **samctrl** command.

The **rmccli** General Information file

mkequ

Name

mkequ – Makes a resource equivalency.

Synopsis

mkequ [-h] -f *data_input_file* [-T] [-V]

mkequ [-h] [-p **A** | **O**] [-m *Minimum_Necessary*] [-T] [-V] -S "*Static_select_string*" *Equivalency Resource_class*

mkequ [-h] [-p **A** | **O**] [-m *Minimum_Necessary*] [-T] [-V] -D "*Dynamic_select_string*" *Equivalency Resource_class*

mkequ [-h] [-p **A** | **O**] [-m *Minimum_Necessary*] [-T] [-V] *Equivalency Resource_class:Resource_name[:Node][,Resource_name[:Node][,...]]*

Description

The **mkequ** command makes a resource equivalency among the specified resources. The resources must all be from the same resource class.

Equivalencies and their attribute flags can be specified on the command line as the syntax indicates or from a file when the -f option is specified. The value must be of the same data type that is defined for this resource attribute. Use the **lsrsrctdef** command to verify the data type and attribute field for each attribute.

Options

-D "*dynamic_select_string*"

Dynamic Selection String. The specified selection string will be saved as the SelectString attribute for the concerned equivalency. This *selection_string* is then applied to all resources of the specified resource class by the Recovery Manager, to dynamically determine what members are to be included in the specified equivalency. This option cannot be combined with the *Resource_name[:Node]* parameter. The selection string must be enclosed within double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-D 'Name == "testing"'
```

```
-D 'Name ?= "test"'
```

-D cannot be combined with -S.

For information on how to specify selection strings, see "Using expressions" on page 88.

-f *data-input_file*

Specifies the name of the file that contains equivalency attribute information.

-h Writes the command's usage statement to standard output.

-p **A** | **O**

Specifies the equivalency select-from policy. The value can be:

A Any

O Ordered

The default value is **Any**.

mkequ

-S "*static_select_string*"

Static Selection String. The specified selection string will be applied to the specified resource class, to determine the resources that make up the equivalency. These resources will then be saved as the Membership attribute for the equivalency. This option cannot be combined with the *Resource_name* [:*Node*] parameter. The selection string must be enclosed within double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-S 'Name == "testing"'
```

```
-S 'Name != "test"'
```

-S cannot be combined with -D.

For information on how to specify selection strings, see "Using expressions" on page 88.

-m *Minimum-Necessary*

Minimum Necessary Equivalency. Specifies the minimum necessary members to make an equivalency valid. The default value is 1.

-T Writes the trace messages of the command to standard error. For your software service organization's use only.

-V Writes the verbose messages of the command to standard error.

Parameters

Equivalency

Specifies the unique name of the new equivalency to be created. Equivalency names cannot contain the Dollar symbol (\$).

Resource_class:Resource_name[:Node]

Specifies one or more resources that will be members of the equivalency. All of the resources must be from the same resource class. A equivalency resource is identified by the resource name (*Resource_name*), and, optionally, the node (*Node*) where the resource resides.

Resource names cannot contain the Dollar symbol (\$). *Resource_name* and *Node* must be separated by colons. Multiple resources can be specified and are separated by a comma. *Resource_class* is the name of the resource class the equivalency resource belongs to. The first resource or *Resource_name[:Node]* must be preceded by the *Resource_class* it belongs to and it must be separated by the colon (:) delimiter. Multiple resources can be specified and are separated by a comma. Since all resources must be from the same class the *Resource_class* is to be specified only once as the syntax indicates.

Exit Status

- | | |
|---|--|
| 0 | Command has run successfully. |
| 1 | Error occurred with RMC. |
| 2 | Error occurred with CLI script. |
| 3 | Incorrect flag on command line. |
| 4 | Incorrect parameter on command line. |
| 5 | Error occurred with RMC that was based on faulty command line input. |
| 6 | Resource specified was not found. |
| 7 | Resource already exists. |

Security

This command requires root authority.

Examples

1. To create an equivalency using the data input file, do the following:
 - a. To generate a template to aid in the defining of these resources in a file, enter:


```
lsrsrcdef -i IBM.Equivalency >& /tmp/Equ.rdef
```
 - b. Edit the file `/tmp/Equ.rdef` with your preferred text editor:(Enter values for all of the attributes, substituting an appropriate value for the type, or leave it blank if you want the default value.)
 - c. Run the **mkequ** command with the file as follows:


```
mkequ -f /tmp/Equ.rdef
```

Sample Data Input file for mkequ:

You can enter values for all of the attributes and thus change the value shown below, or remove the line with the attribute if you want the default value.

PersistentResourceAttributes:

resource 1:

```
Name           = "Equiv"
MemberClass    = "IBM.NetworkInterface"
Membership     = "{0x000..."
```

resource 2:

```
Name           = "Equiv2"
MemberClass    = "IBM.Application"
Membership     = "{App1,App2,App3}"
SelectFromPolicy = "Any"
MinimumNecessary = 2
```

resource 3:

```
Name           = "Equiv3"
MemberClass    = "IBM.Test"
SelectString   = 'Name ?="Test"'
SelectFromPolicy = "uint32"
MinimumNecessary = "uint32"
```

2. To make an equivalency called **foo** with all the members of the resource class IBM.Application, enter:


```
mkequ -S 'Name like "%"' foo IBM.Application
```
3. To make an equivalency called **foo** with selected members **tester**, **Jfoo**, and **Dfoo** of the resource class IBM.Application, and set its policy to ordered, enter:


```
mkequ -p 0 foo IBM.Application:tester,Jfoo,Dfoo
```
4. To make an equivalency called **Jfoo** with selected members of the resource class IBM.Application by using a static select string, enter:


```
mkequ -S "ResourceType==0" Jfoo IBM.Application
```
5. To make an equivalency called **Jfoo** with selected members of the resource class IBM.Application using a dynamic select string , enter:


```
mkequ -D "ResourceType==0" Jfoo IBM.Application
```

Files

`/usr/sbin/rsct/bin/mkequ`

Location of the **mkequ** command.

`data_input_file`

See the examples, and see the man page for **Resource_Data_Input** file.

mkequ

See Also

The **chequ**, **chrgmbr**, **lsequ**, **mkrel**, **rmequ** commands.

The **rmccli** General Information file

The **Resource_Data_Input** file.

mkrel

Name

mkrel – Makes a managed relationship between resources.

Synopsis

mkrel [-h] -f *data_input_file* [-T] [-V]

mkrel [-h] [-p *relationship*] [-o *condition*] -S *Source_class* [:*Resource_name*[:*Node*]] [-s "*Source_selection_string*"]
 -G *Target_class*[:*Resource_name*[:*Node*]][,*Target_class*[:*Resource_name*[:*Node*]][,...]] [-g "*Target_selection_string*"] [-T] [-V] [*Managed_Relation*]

Description

The **mkrel** command makes a relationship between resources. The relationship is between a source resource and one or more target resources. The source resource must be a member of a resource group. A target resource does not have to be in a resource group.

Managed relationships and their attribute flags can be specified on the command line as the syntax indicates or from a file when used with the -f option. The value must be the same data type that is defined for this resource attribute. Use the **lsrsrdef** command to verify the data type and attribute field for each attribute.

Although optional, it is recommended to specify a name for the managed relationship.

Options

-o *condition*

Specifies an if condition to be used when a LocateWith relationship (Collocated, AntiCollocated, Affinity, or AntiAffinity) is defined. The value can be a numeric value or a word (not case sensitive):

0x0000 or NoCondition

Specifies unconditional location relationship.

0x0001 or IfOnline

Specifies that the target resource is online.

0x0002 or IfOffline

Specifies that the target resource is offline, failed offline, or unknown.

0x0003 or IfNotOnline

Specifies that the target resource is not online.

0x0004 or IfNotOffline

Specifies that the target resource is neither offline nor failed offline.

-f *data-input_file*

Specifies the name of the file that contains managed-relationship attribute information.

-g *Target_selection_string*

Specifies the target selection string, which is applied to all resources of the resource class specified by the -G option to determine the targets of the relationship.

If the -g option is used to specify a target selection string, *Resource_name* and *Node* must not be specified for the -G option.

-G *Target_class*[:*Resource_name*[:*Node*]]

Specifies the target resources of the relationship. A target resource is identified by the resource class (*Target_class*) of the resource, the resource name (*Resource_name*), and, optionally, the node (*Node*) at which the resource resides.

Resource names cannot contain the Dollar symbol (\$). *Target_class*, *Resource_name*, and *Node* must be separated by colons. Multiple target resources can be specified and are separated by commas. The colons are required, but omitting *Target_class* or *Resource_name* causes the previously specified class or name to be used when multiple target resources are specified.

If the **-g** option is used to specify a target selection string, *Resource_name* and *Node* must not be specified for the **-G** option.

-h Writes the command's usage statement to standard output.

-p *relationship*

Specifies the managed relationship to apply. The value can be a numeric value or a word (not case sensitive):

0x0001 or Collocated

Specifies that the source and the target resources are to be located on the same node.

0x0002 or AntiCollocated

Specifies that the source and the target resources are to be located on different nodes.

0x0003 or Affinity

Specifies that the source resource and its specified affinity resource are to be located on the same node if possible.

0x0004 or AntiAffinity

Specifies that the source resource and its specified affinity resource are to be located on different nodes if possible.

0x0005 or IsStartable

Specifies that the source and its target resources are startable.

0x0006 or StartAfter

Specifies that the source is to be started after the target resources.

0x0007 or DependsOn

Specifies that the target resources must be online before the source resource is started and includes an implicit collocation between the source and target resources.

0x0008 or DependsOnAny

Specifies that the target must be online before the source resource is started. It is identical to the DependsOn relationship except that it does not provide the collocated constraint for the start sequence. Therefore the source and target resources may not be started on the same node.

0x0009 or StopAfter

Specifies that the source resource may not be stopped until after the target resource has been brought offline.

0x000A or ForcedDownBy

Specifies that the source resource must be forced offline in the event that either the target resource goes offline unexpectedly or the target resource itself is forced offline.

-s *Source_selection_string*

Specifies the source selection string, which is applied to all resources of the resource class specified by the **-S** option to determine the source of the relationship. The result of the selection must contain only one resource.

If the **-s** option is used to specify a source selection string, *Resource_name* and *Node* must not be specified for the **-S** option.

-S *Source_class[:Resource_name[:Node]]*

Specifies the source resource of the relationship. A source resource is identified by the resource class (*Source_class*) of the resource, the resource name (*Resource_name*), and, optionally, the node (*Node*) at which the resource resides.

Resource names cannot contain the Dollar symbol (\$). *Source_class*, *Resource_name*, and *Node* must be separated by colons.

If the **-s** option is used to specify a source selection string, *Resource_name* and *Node* must not be specified for the **-S** option.

-T Writes the command's trace messages to standard error. For your software-service organization's use only.

-V Writes the command's verbose messages to standard output.

Parameters

Managed_Relation

Optional name of the managed relationship. The name of a managed relationship cannot contain the Dollar symbol (\$).

If there are several managed relationships with the same source resource, it is recommended that you specify a name for the managed relationship. Otherwise the relationships will be consolidated into a single managed relationship after a policy save and activate action with the **sampolicy** command.

Exit Status

- 0 Command has run successfully.
- 1 Error occurred with RMC.
- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

1. To create a new relationship using the data input file, do the following:
 - a. To generate a template to aid in the defining of these relationships in a file, enter:


```
lsrsrcdef -i IBM.ManagedRelationship > /tmp/Rel.rdef
```
 - b. Edit the file */tmp/Rel.rdef* with your preferred text editor:(Enter values for all of the attributes, substituting an appropriate value for the type or leaving it blank if you want the default value.)
 - c. Run the **mkrel** command with the file as follows:


```
mkrel -f /tmp/Rel.rdef
```

Sample Data Input file for mkrel:

You can enter values for all of the attributes and thus change the value shown below, or remove the line with the attribute if you want the default value.

mkrel

PersistentResourceAttributes:

resource 1:

Name = "Rel1"
Source = "0x606b 0xffff 0x0fe8018b 0x3343381b 0x0e8341f8 0x7da8a450"
Target = {"0x606b 0xffff 0x0fe8018b 0x3343381b 0x0e8341fa 0x42a72de8", "0x...."
Relationship = anticollocated
Conditional = i fooffline

resource 2:

Source = IBM.Application:App1
Target = "{IBM.NetworkInterface:eth0:node2,IBM.Application:App0}"
Relationship = collocated

2. To make a relationship named myrel for a resource **tester** that belongs to resource class IBM.Application with target resources from resource class IBM.Application, whose ResourceType is set to one, enter:

```
mkrel -p collocated -S IBM.Application:tester -G IBM.Application -g "ResourceType==1" myrel
```

3. To make an Affinity relationship called **test** for a resource **tester** belonging to resource class IBM.Application with target resource **tester1** belonging to resource class IBM.Application and target resources **Jfoo** belonging to resource class IBM.Application, enter:

```
mkrel -p affinity -S IBM.Application:tester -G IBM.Application:tester1,Jfoo test
```

4. To define a Collocated relationship named myrel for a source resource **narten** of class IBM.Application to target resources **tr0** and **en0** of class IBM.ServiceIP, enter:

```
mkrel -p 1 -S IBM.Application:narten -G IBM.ServiceIP:tr0,:en0 myrel
```

5. To define a Collocated relationship named myrel for a source resource from a selection string applied to the class IBM.Application with target resources **tr0** and **en0** of class IBM.ServiceIP, enter:

```
mkrel -p collocated -S IBM.Application -s 'Name=="narten"' -G IBM.ServiceIP:tr0,:en0 myrel
```

Files

/usr/sbin/rsct/bin/mkrel Location of the **mkrel** command.

data_input_file See the examples, and see the man page for **Resource_Data_Input** file.

See Also

The **addrgmbr**, **chequ**, **chrel**, **chrg**, **chrgmbr**, **lsrg**, **mkequ**, **mkrq**, **rmequ**, **rmrel**, **rmrg**, **rmrgmbr** commands.

The **rmccli** General Information file

The **Resource_Data_Input** file.

mkrp

Name

mkrp – Makes one or more new resource groups.

Synopsis

mkrp [-h] -f *data_input_file* [-T] [-V]

mkrp [-h] [-l *relationship*] [-n *node_name* | -e *equiv_name*] [-p *priority*] [-N *Owner*] [-D *Description*] [-I *InfoLink*] [-T] [-V] [-x *node1, ...noden*] *Resource_group* [...]

Description

The **mkrp** command defines (makes) one or more new resource groups that can be monitored and controlled by IBM Tivoli System Automation. A resource group can only be defined on an online node in a cluster. A resource group definition defines the following to IBM Tivoli System Automation:

- Where the resource group is allowed to run,
- Relative importance of resource group to other resource groups, and
- Location relationship among the member resources of the resource group.

The new resource groups will default to an Offline state. This is to allow a user or administrator to fully configure the resource group and its resources, before allowing IBM Tivoli System Automation to take control of the resource group.

To allow IBM Tivoli System Automation to monitor and control the resource groups, the resource group must be in Online State or condition. See the **chrg** command to set this or any other option on an existing resource group.

The resource group and its attribute options can be specified on the command line as the syntax indicates or from a file when the -f option is used. The value must be the same data type that is defined for this resource attribute. Use the **lsrsrcdef** RMC command to verify the data type and attribute field for each attribute.

Options

-e *equiv_name*

Specifies the equivalency name of the nodes on which the *Resource_group* can run. This option cannot be combined with the -n option. The default value is ALL, which implies an equivalency of all nodes in the cluster.

-f *data_input_file*

Name of the file which contains resource group attribute information.

-h Writes the command's usage statement to standard output.

-l *relationship*

Specifies the location relationship among the members of the resource group. The location relationship value can be:

0x0000 or None

Specifies that member resources of the resource group can be on any node

0x0001 or Collocated

Specifies that member resources of the resource group are to be located on the same node.

The default value is **Collocated**.

mkrg

-n *node_name*

Specifies the node on which the *Resource_group* can run. This option cannot be combined with the **-e** option. The default value is ALL, which implies all nodes in the cluster.

-p *priority*

Specifies the relative importance of this resource group compared to other resource groups. Priority can be any integer from 0 to 200: the higher the integer, the higher the priority. The default priority value is 0.

-N *Owner*

A string with the name of the owner or contact for the group.

-D *Description*

A string describing the purpose of the group.

-I *InfoLink*

A string containing special instructions for the group, or a link to special instructions.

-T

Writes the command's trace messages to standard error. For your software-service organization's use only.

-V

Writes the command's verbose messages to standard output.

-x *node1, ...noden*

Specifies the excluded node list.

Parameters

Resource_group

The unique name of the new resource group(s) to be created. Note that resource group names cannot contain the Dollar symbol (\$).

Exit Status

- | | |
|---|--|
| 0 | Command has run successfully. |
| 1 | Error occurred with RMC. |
| 2 | Error occurred with CLI script. |
| 3 | Incorrect flag on command line. |
| 4 | Incorrect parameter on command line. |
| 5 | Error occurred with RMC that was based on faulty command line input. |
| 6 | Resource specified was not found. |
| 7 | Resource already exists. |

Security

This command requires root authority.

Examples

1. To create resource groups using the data input file, do the following:
 - a. To generate a template to aid in the defining of these resources in a file, enter:

```
lsrsrcdef -i IBM.ResourceGroup >& /tmp/RG.rdef
```
 - b. Edit the file */tmp/RG.rdef* with your preferred text editor: (Enter values for all of the attributes, substituting the appropriate value for the type, or remove the line with the attribute if you want the default value.)
 - c. Run the **mkrg** command with the file as follows:

```
mkrp -f /tmp/RG.rdef
```

Sample Data Input file for mkrp:

You can enter values for all of the attributes and thus change the value shown below, or remove the line with the attribute if you want the default value.

PersistentResourceAttributes:

resource 1:

```
Name           = InputFile1a
MemberLocation  = "1"
Priority        = "32"
NominalState    = "1"
```

resource 2:

```
Name           = InputFile1b
MemberLocation  = collocated
NominalState    = offline
AllowedNode     = narten
```

resource 3:

```
Name           = InputFile1c
MemberLocation  = 1
Priority        = 2
NominalState    = offline
AllowedNode     = "0x00010001 0x00000000 0x0069684c 0x0d065e26 0x30060ab9"
```

- To define a new resource group called **foo** with all default values, enter:

```
mkrp foo
```

- To define new resource groups called **foo** and **foo1** with location relationship "none", and allowed node name "cluster1", enter:

```
mkrp -l none -n cluster1 foo foo1
```

- To define a new resource group called **foo** with location relationship "Collocated", , priority value of 22, and allowed equivalency name "cluster1", enter:

```
mkrp -l collocated -e cluster1 -p 22 foo
```

Files

/usr/sbin/rsct/bin/mkrp Location of the **mkrp** command.

data_input_file

See Also

The **addrgmbr**, **samctrl**, **chrg**, **chrgmbr**, **lsrg**, **rmrg**, **rmrgmbr** commands.

The **Resource_Data_Input** file.

The **rmccli** General Information file.

pidmon

Name

pidmon – Searches process list for command string or takes OpState from file.

Synopsis

pidmon [-h] [-d *debugmode*] [-u *uid*] [-c] *command_string*

pidmon [-h] [-d *debugmode*] -f *opstate_file*

Description

The **pidmon** command searches the process list for a given command string. If the command string was found, the RMC OpState Online is returned. The **pidmon** command can be used as a generic monitor for the IBM.Application resource class. Optional the RMC OpState can be taken from a specified file.

Options

- h Writes the command's usage statement to standard output.
- d *debugmode* Specifies the debug mode.
- u *uid* Specifies a user id for the command string search.
- c Command string search (this is default).
- f OpState is taken from file.

Parameters

- debugmode** can be one of the following options:
- 1 Write debug messages to syslog.
 - 2 Write debug messages to standard output/error.
 - 3 Write detailed debug messages to standard output/error and syslog.
- uid** Searches process list for command string which belongs to the specified user id. RMC_OPSTATE_ ONLINE is only reported if there is a process with the specified command string and owner of this process is uid.
- opstate_file** This is a plain text file containing just one of the RMC OpStates shown below. The **pidmon** command reads this text file and returns OpState from the file.

Exit Status

Against usual command convention **pidmon** does not return 0 on success or another value on error. It returns the RMC OpState. An exit status of 0 means RMC OpState unknown which indicates an error in the **pidmon** command. Valid RMC OpStates are:

- 0 RMC_OPSTATE_UNKNOWN.
- 1 RMC_OPSTATE_ONLINE.
- 2 RMC_OPSTATE_OFFLINE
- 3 RMC_OPSTATE_FAILED_OFFLINE
- 4 RMC_OPSTATE_STUCK_ONLINE
- 5 RMC_OPSTATE_PENDING_ONLINE

6 RMC_OPSTATE_PENDING_OFFLINE

Security

This command does not require special permissions.

Examples

1. Searches for the process with the command string ' /bin /bash ' and returns OpState online (exit status 1).

```
pidmon ' /bin/bash/ '
echo $?
1
```

2. Searches for the process with the command string ' /bin /bash ' , but it does not belong to the user id foo. **pidmon** returns OpState offline (exit status 2).

```
pidmon -u foo ' /bin/bash/ '
echo $?
2
```

3. **pidmon** reads myopstate file, which only contains the number '3', and returns OpState failed offline (exit status 3).

```
pidmon -f myopstate
echo $?
3
```

4. Use the **pidmon** command as a generic monitor command for an IBM.Application resource definition:

```
lsrsrc -s "Name='syslogd'" IBM.Application
resource 1:
    Name                = "syslogd"
    ResourceType        = 0
    AggregateResource    = "0x3fff 0xffff 0x00000000 0x00000000 0x00000000 0x00000000"
    StartCommand         = "/etc/init.d/syslog start"
    StopCommand          = "/etc/init.d/syslog stop"
    MonitorCommand       = "/usr/sbin/rsct/bin/pidmon '/sbin/syslogd'"
    ....
```

Files

/usr/sbin/rsct/bin/pidmon Location of the **pidmon** command.

See Also

The **MonitorCommand** attribute of IBM.Application as described under Attributes used by IBM.Application in the *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide* manual.

prereqSAM

Name

prereqSAM – Checks that all prerequisites for the installation or upgrade of the Base component of IBM Tivoli System Automation, including the end-to-end automation adapter, are met.

Synopsis

prereqSAM [-d *inst_pkg_dir*] [-l *log_file*]

Description

The **prereqSAM** command checks whether all prerequisites for the installation or upgrade of the Base component of IBM Tivoli System Automation are met. The command is invoked by the **installSAM** command but can also be run separately. If invoked separately, you can specify options that allow you run the check although the **prereqSAM** script is not in the package directory (-d), and to specify that a log file other than the default is to be used (-l).

The name of the default log file is /tmp/prereqSAM.<#>.log, where <#> is a sequential number; the highest number identifies the most recent log file.

Options

-d *inst_pkg_dir*

Allows you to perform the prerequisites check based on NLS files in the specified directory although the **prereqSAM** script is not available in the directory. **prereqSAM** is not dependent on the packages to be installed but needs the directory for its message files.

-l *log_file*

Logs information generated by the **prereqSAM** command to the specified log file.

Exit Status

These are the return codes returned by the **prereqSAM** regardless of whether the command is invoked by the **installSAM** script or separately.

- | | |
|----|---|
| 0 | The system passed the prerequisite check. The version of the operating system is supported and all prerequisite packages were found installed at the correct version. The log file contains the names and versions of the installed packages. |
| 20 | An installed package does not have the correct version. The log file contains the names and versions of the missing packages. |
| 21 | A package was not found installed. |
| 22 | The operating system version is not supported. |
| 23 | The prerequisites check could not be performed. A file may be missing. Refer to the log file for a detailed description of the problem. |

Security

This command does not require root authority.

rgmbrreq

Name

rgmbrreq – Requests for a managed resource to be started, stopped, or cancelled.

rgmbrreq belongs to a group of commands (rgreq, rgmbrreq, and lsrgreq) which allow an operator to introduce persistent requests into IBM Tivoli System Automation. Using this set of commands the operator can start, stop, cancel, or move resource groups and managed resources.

Synopsis

```
rgmbrreq [-h] [-p priority] -o action [-S source] [-u userID] [-c comments] [-T] [-V]
Resource_class:Resource[:Node][,Resource[:Node][,...]]
[Resource_class:Resource[:Node][,Resource[:Node][,...]][...]]
```

```
rgmbrreq [-h] [-p priority] -o action -s [ -S source] [-u userID] [-c comments] [-T] [-V]
Resource_class:"Selection_String" [Resource_class:"Selection_String" [...]]
```

Description

By means of the **rgmbrreq** command the operator or any originator (source) asks for the managed resource to be started, stopped, or cancelled. Start and Stop requests will last until explicitly removed or cancelled by the operator. A request coming from the same source replaces a former request from that source - that is, it cancels the previous request automatically. A move request is not allowed for a managed resource. A stop or a start request can be cancelled by the same source that enabled it.

Options

-h Help. Writes the command's usage statement to standard output.

-p *priority*

Determines how important the request is with regard to other requests within the resource structure. The priority allows IBM Tivoli System Automation to solve conflicting requests for the same resource. Can be one of the following:

low low priority. This is the default.

high high priority.

force takes precedence of request posted with high priority.

-o *action*

is the actual action request. It can be one of the following:

start sets the nominal state of the resource to online.

stop sets the nominal state of the resource to offline.

cancel

cancels a previously entered request. The request is identified by the source of the request (-S parameter) and the resource name.

-s Specifies that a selection string will be used.

-S *source*

Identifies the originator of the request. This can be one of the following strings:

- Operator
- ExtSched
- Automation

Any others will be allowed, but will get the lowest priority. If source is not specified then, it will default to "Operator". When cancelling the request, the same source string must be specified. Note that each source can only have one active request of each type against each resource. If the source makes a second request directly against the resource, it will replace their first request. The source option allows the installation to identify the different organizational units and the roles they are playing. Another usage is to distinguish between who made or where the request came from, for example from the operator versus an automation shell script.

-u *userID*

The user or operator Id of the originator of the request. This can be any string. If the string contains blanks, it must be enclosed in quotes.

-c *comments*

A string representing a remark that might be related to the request. If the string contains blanks, it must be enclosed in quotes.

-T

Trace. Writes the command's trace messages to standard error. For your software-service organization's use only.

-V

Verbose. Writes the command's verbose messages to standard output.

Parameters

Resource_class:"selection_string"

The **-s** option flag determines this operand. Each selection string must be preceded by a resource class. *Resource_class* indicates the name of the Resource class the *selection_string* will be applied to. The *selection_string* and its *Resource_class* must be separated by colon or ":" delimiter. The specified selection string will be applied to its corresponding *Resource_class* attributes to determine which member resources are to be removed from the *Resource_group*. The selection string must be enclosed within double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

- s IBM.Application:`Name=="testing"``
- s IBM.Application:`Name ?="test"``
- s IBM.Application:`Name like "%%"` (For all resources)

For information on how to specify selection strings, see "Using expressions" on page 88.

Resource_class:Resource[:Node]

Member Resources. This specifies one or more member resources that are to be acted on. Resources belonging to different resource classes can also be specified using this syntax. However, member resources belonging to different classes must be separated by spaces. A member resource is identified by the resource's class (*Resource_class*), the resource's name (*Resource_name*), and optionally the node (*Node*) the resource is on. The *Resource_class*, *Resource* and *Node* must be separated by a colon. *Resource_class* is the name of the resource class the member resource belongs to. *Resource* is the name of the actual member resource in its class. The node may have to be included when trying to act on a fixed member resource. The node and its resource must be separated by the colon or ":" delimiter. Multiple resources belonging to the same resource class can also be specified and are separated by a comma:

Resource_class:Resource[:Node][,Resource[:Node][,...]]

The member resources must exist in the resource group for the requested action to take place.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.

- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

1. To request a start action on application App1 of IBM.Application on Node1, enter:
`rgmbrreq -o start IBM.Application:App1:Node1`

Files

/usr/sbin/rsct/bin/rgmbrreq Location of the **rgmbrreq** command.

See Also

The **addrgmbr**, **chrg**, **chrgmbr**, **lsrg**, **lsrgreq**, **mkg**, **rgreq**, **rmrg**, and **rmrgmbr** commands.

rgreq

Name

rgreq – Requests for a resource group to be started, stopped, cancelled, or moved.

rgreq belongs to a group of commands (**rgreq**, **rgmbrreq**, and **lsrgreq**) which allow an operator to introduce persistent requests into IBM Tivoli System Automation. Using this set of commands the operator can start, stop, cancel, or move resource groups and managed resources.

Synopsis

rgreq [-h] [-p *priority*] -o *action* [-S *source*] [-n *node1,...,noden*] [-u *userID*] [-c *comments*] [-T] [-V]
Resource_group

Description

The **rgreq** allows requests into IBM Tivoli System Automation against resource groups. The operator or any originator (also called source) asks for the resource group to be started, stopped, cancelled or moved. Start and Stop requests will last until explicitly removed or cancelled by the operator. A request coming from the same source replaces a former request from that source - it cancels the previous request automatically. Start and Stop requests cancel each other, but Move requests do not. Since Move and Start/Stop request are of different types, both a Move request and a Start or a Stop request from the same source against the same resource may be allowed. For example, request a resource group to start, then request it to move. When the resource group has been moved, the Start request should still be in place. A Move request is automatically removed when the move action is carried out or cancelled by the recovery resource manager (IBM.RecoveryRM). A Move request cannot be cancelled by any source. Stop and Start requests may be cancelled at any time. However, the cancel requests must come from the same source as the original Start and Stop requests.

Options

-h Help. Writes the command's usage statement to standard output.

-p *priority*

Determines how important the request is with regard to other requests within the resource structure. The priority allows IBM Tivoli System Automation to solve conflicting requests for the same resource. Can be one of the following:

low low priority. This is the default.

high high priority.

force takes precedence of request posted with high priority.

-o *action*

is the actual action request. It can be one of the following:

start sets the nominal state of the resource to online.

stop sets the nominal state of the resource to offline.

move moves the resource group and its underlying resources to another node in the cluster. This is the process of stopping an active set of resources and starting them on a different node(s) in a coordinated fashion.

cancel

cancels a previously entered request. The request is identified by the source of the request (-S parameter) and the resource name. Unlike the start/stop the move action cannot be cancelled.

-S *source*

identifies the originator of the request. This can be one of the following strings:

- Operator
- ExtSched
- Automation

Other originators are allowed, but will get the lowest priority. If source is not specified then, it will default to "Operator". When cancelling the request, the same source string must be specified. There are two types of request. Start and Stop requests are of one type, and the Move request is of another type. Note that each source can only have one active request of each type against each resource. If the source makes a second request directly against the resource, it will replace their first request. The source option allows the installation to distinguish where the request came from, for example from the operator versus an automation shell script.

-n *node1,..nodes*

The originating nodes. This option can only be applied for a move action. It identifies the nodes to move the resource group or its underlying resources from. This option is required for an anticollocated resource group.

-u *userID*

The user or operator Id of the originator of the request. This can be any string. If the string contains blanks, it must be enclosed in quotes.

-c *comments*

A string representing a remark that might be related to the request. If the string contains blanks, it must be enclosed in quotes.

-T Trace. Writes the command's trace messages to standard error. For your software-service organization's use only.

-V Verbose. Writes the command's verbose messages to standard output.

Parameters

Resource_group

the name of the resource group. This is the entry point at which the request is introduced into the resource structure and from which it propagates outwards.

Exit Status

- | | |
|----------|--|
| 0 | Command has run successfully. |
| 1 | Error occurred with RMC. |
| 2 | Error occurred with CLI script. |
| 3 | Incorrect flag on command line. |
| 4 | Incorrect parameter on command line. |
| 5 | Error occurred with RMC that was based on faulty command line input. |
| 6 | Resource specified was not found. |
| 7 | Resource already exists. |

Security

This command requires root authority.

rgreq

Examples

1. To move all the resources from node1 in resource group RG1, enter:
`rgreq -n node1 -o move RG1`
2. To stop all the resources in resource group RG2, enter:
`rgreq -o stop RG2`

Files

`/usr/sbin/rsct/bin/rgreq` Location of the **rgreq** command.

See Also

The **lsrgreq**, **mkrg**, **chrg**, **rmrg**, **lsrg** commands.

rmequ

Name

rmequ – Removes one or more already-defined resource equivalencies.

Synopsis

rmequ [-h] [-i] -s "*selection_string*" [-T] [-V] [*Equivalency* [...]]

rmequ [-h] [-i] [-T] [-V] *Equivalency* [...]

Description

The **rmequ** command removes one or more resource equivalencies specified by *Equivalency* parameters or equivalencies derived from selection strings.

Options

-h Writes the command's usage statement to standard output.

-i Interactive. Prompt before removing equivalencies.

-s "*selection_string*"

Specifies the equivalency selection string. This *selection_string* is applied to all the existing equivalencies when an equivalency parameter is not specified. When equivalency parameters are specified, then the specified selection string is only applied to the specified equivalency parameters. The selection string must be enclosed within double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name != "test"'
```

For information on how to specify selection strings, see "Using expressions" on page 88.

-T Writes the command's trace messages to standard error. For your software-service organization's use only.

-V Writes the command's verbose messages to standard output.

Parameters

Equivalency

Specifies the name of the defined resource equivalency to be removed. Multiple equivalencies may be specified, but must be separated by spaces.

Exit Status

- 0 Command has run successfully.
- 1 Error occurred with RMC.
- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.

rmequ

- 7 Resource already exists.

Security

This command requires root authority.

Examples

1. To remove an equivalency called **foo**, enter:
`rmequ foo`
2. To remove equivalencies called **foo**, **foo1**, and **foo2**, enter:
`rmequ foo foo1 foo2`

Files

/usr/sbin/rsct/bin/rmequ Location of the **rmequ** command.

See Also

The **chequ**, **samctrl**, **lsequ**, **mkequ** commands.

The **rmccli** General Information file

rmrel

Name

rmrel – Removes a managed relationship between resources,

Synopsis

rmrel [-h] [-i] -s "*selection_string*" [-T] [-V]

rmrel [-h] [-i] -S *Source_Class[:Resource_name[:Node]]* [-s "*Source_string*"
[-G *Target_Class[:Resource_name[:Node]][,Target_class[:Resource_name
[:Node][, ...]]*][-g "*Target_string*"] [-P *Current_relationship*]
[-O *Current_condition*] [-T] [-V]

rmrel [-h] [-i] [-T] [-V] *Managed_Relation* [*Managed_Relation ...*]

Description

The **rmrel** command removes a relationship between resources. The relationship to be removed is determined by the source parameter (*Source_class[:Resource_name[:Node]]*) or by the selection string when it is applied to the relationship itself or the name(s) of the managed relationship(s).

Options

-O *Current_condition*

Specifies the condition value to query all defined relationships, in order to find a match. The value can be the numeric value or the word (not case sensitive):

0x0000 or NoCondition

Specifies unconditional location relationship.

0x0001 or IfOnline

Specifies that the target resource is online.

0x0002 or IfOffline

Specifies that the target resource is offline, failed offline, or unknown.

0x0003 or IfNotOnline

Specifies that the target resource is not online.

0x0004 or IfNotOffline

Specifies that the target resource is neither offline nor failed offline.

-g *Target_string*

The *Target_string* is applied to all resources of the resource class specified by the -G flag, to determine the targets of the relationship.

If the -g option is used to specify a target selection string, *Resource_name* and *Node* must not be specified for the -G option .

-G *Target_class[:Resource_name[:Node]]*

Specifies the target resource to be used with the target query, and any other specified query, to find a match from all defined relationships. A target resource is identified by the class of the resource (*Target_class*), the name of the resource (*Resource_name*), and optionally the node (*Node*) on which the resource is located. The *Resource_class*, *Resource_name* and *Node* must be separated by a colon. Multiple target resources can be specified and are separated by a comma. The colons are required, but if the *Target_class* is omitted, the previously-specified class will be used when specifying multiple target resources.

rmrel

If the **-g** option is used to specify a target selection string, *Resource_name* and *Node* must not be specified for the **-G** option.

-h Writes the command's usage statement to standard output.

-i Interactive. Prompt before removing relationships.

-P *Current_relationship*

Specifies the managed relationship value used to query all the defined relationships to find a match. The value can be a numeric value or the word (not case sensitive):

0x0001 or Collocated

Specifies that the source and the target resources are to be located on the same node.

0x0002 or AntiCollocated

Specifies that the source and the target resources are to be located on different nodes.

0x0003 or Affinity

Specifies that the source resource and its specified affinity resource are to be located on the same node, if possible.

0x0004 or AntiAffinity

Specifies that the source resource and its specified affinity resource are to be located on different nodes, if possible.

0x0005 or IsStartable

Specifies that the source and its target resources are startable.

0x0006 or StartAfter

Specifies that the source is to be started after the target resources.

0x0007 or DependsOn

Specifies that the target resources must be online before the source resource is started and includes an implicit collocation between the source and target resources.

0x0008 or DependsOnAny

Specifies that the target must be online before the source resource is started. It is identical to the DependsOn relationship except that it does not provide the collocated constraint for the start sequence. Therefore the source and target resources may not be started on the same node.

0x0009 or StopAfter

Specifies that the source resource may not be stopped until after the target resource has been brought offline.

0x000A or ForcedDownBy

Specifies that the source resource must be forced offline in the event that either the target resource goes offline unexpectedly or the target resource itself is forced offline.

-s *"selection_string"*

Specifies the selection string. If the **-s** option is specified without the **-S** option, the selection string associated with it will be applied to all managed relationships of resources. The selection string must be enclosed within either double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name ?= "test"'
```

For information on how to specify selection strings, see "Using expressions" on page 88.

-s *Source_string*

Specifies the source selection string. The *Source_string* is applied to all resources of the resource class specified by the **-S** option to determine the source of the relationship. The result of the selection may contain one or more resources.

If the **-s** option is used to specify a source selection string, *Resource_name* and *Node* must not be specified for the **-S** option .

-S *Source_class[:Resource_name[:Node]]*

Specifies the source resource of the query. This source resource, with any other query that may be specified, will be queried against all defined relationship to find a match. A source resource is identified by the class of the resource (*Source_class*), the name of the resource (*Resource_name*), and optionally the node (*Node*) on which the resource is located. The *Resource_class*, *Resource_Name* and *Node* must be separated by a colon.

If the **-s** option is used to specify a source selection string, *Resource_name* and *Node* must not be specified for the **-S** option.

-T Writes the command's trace messages to standard error. For your software-service organization's use only.

-V Writes the command's verbose messages to standard output.

Parameters

Managed_Relation

Name of the managed relationship to be removed. Multiple relationships can be specified on the command line, but have to be separated by spaces.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.
- 2** Error occurred with CLI script.
- 3** Incorrect flag on command line.
- 4** Incorrect parameter on command line.
- 5** Error occurred with RMC that was based on faulty command line input.
- 6** Resource specified was not found.
- 7** Resource already exists.

Security

This command requires root authority.

Examples

1. To remove a relationship for a resource **tester** that belongs to resource class IBM.Application, enter:

```
rmrel -S IBM.Application:tester
```
2. To remove the relationship of a resource by using a selection string, enter:

```
rmrel -s 'Name == "tester"'
```
3. To remove a relationship for a source resource **foo** from a selection string applied to the class IBM.Application, enter:

```
rmrel -s 'Name=="foo"' -S IBM.Application
```
4. To remove all relationship for source resources from class IBM.Application:

```
rmrel -s 'Name like "%"' -S IBM.Application
```
5. To remove relationship for resources with targets from class IBM.Application with a collocated relationship and a specific condition, enter:

```
rmrel -S IBM.Application:narten -G IBM.Application:ha,:test -P collocated -O 1
```

rmrel

6. To remove relationships named **narten** and **foo**, enter:

```
rmrel narten foo
```

Files

/usr/sbin/rsct/bin/rmrel Location of the **rmrel** command.

See Also

The **addrgmbr**, **chequ**, **chrel**, **chrg**, **chrgmbr**, **lsrg**, **mkequ**, **mkrel**, **mkrg**, **rmequ**, **rmrg**, **rmrgmbr** commands.

The **rmccli** General Information file.

rmrg

Name

rmrg – Removes one or more already-defined resource groups.

Synopsis

rmrg [-h] [-i] -s "*selection_string*" [-T] [-V] [*Resource_group* ...]

rmrg [-h] [-i] [-T] [-V] *Resource_group* [...]

Description

The **rmrg** command removes one or more resource groups specified by the *Resource_group* parameter, or that match the specified selection string. The member resources associated with the removed resource groups, are also removed by IBM Tivoli System Automation. If any member of the resource groups to be deleted are part of a managed relationship between resources, the managed relationships are also removed by IBM Tivoli System Automation. The resource group must already exist for it to be removed. If the resource group to be removed is still online, the resource group is not removed.

This implies that all resource groups that are nested within the resource group to be removed are also removed recursively. If you want to prevent contained resource groups from being deleted recursively, proceed as follows:

1. Remove these resource groups as members from the resource group to be removed using the **rmrgmbr** command.
2. Remove the containing resource group.

When the -h option is specified, this command's usage statement is written to standard output. All verbose messages are also written to standard output.

All trace messages are written to standard error.

Parameters

Resource_group

The name of the defined resource group to be removed. Multiple resource groups can be specified but must be separated by spaces.

Options

- h Writes the command's usage statement to standard output.
- i Interactive. Prompt before removing relationships.
- s "*selection_string*" Specifies the selection string. If the *Resource_group* parameters are not specified, the selection string will be applied to all existing resource groups. The selection string must be enclosed within either double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:
 - s 'Name == "testing"'
 - s 'Name ?= "test"'
 - s 'Name like "%"' (For all resources)
- T Writes the command's trace messages to standard error. For your software-service organization's use only.
- V Writes the command's verbose messages to standard output.

rmrg

Exit Status

- 0 Command has run successfully.
- 1 Error occurred with RMC.
- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.
- 6 Resource specified was not found.
- 7 Resource already exists.

Security

This command requires root authority.

Examples

1. To remove a resource group called **foo**, enter:

```
rmrg foo
```
2. To remove resource groups called **foo**, **foo1**, and **foo2**, enter:

```
rmrg foo foo1 foo2
```
3. To prompt before removing resource groups called **foo** and **foo2**, enter:

```
rmrg -i foo foo2
```
4. To remove a resource group called **foo** using a select string, enter:

```
rmrg -s 'Name=="foo"'
```
5. To remove all resource groups containing the word **foo** as part of its name, enter:

```
rmrg -s 'Name ?="foo"'
```

Files

/usr/sbin/rsct/bin/rmrg Location of the **rmrg** command.

See Also

The **addrgmbr**, **samctrl**, **chrg**, **chrgmbr**, **lsrg**, **mkrg**, **rmrgmbr** commands.

The **rmccli** General Information file

rmrgmbr

Name

rmrgmbr – Removes one or more resources from their resource group.

Synopsis

rmrgmbr [-h] [-i] [-T] [-V] -g *Resource_group*

rmrgmbr [-h] [-i] -s [-T] [-V] [-g *Resource_group*] "*selection string*"

rmrgmbr [-h] [-i] -s [-T] [-V] [-g *Resource_group*]
Resource_class:"*selection_string*" [*Resource_class*:"*selection_string*" [...]]

rmrgmbr [-h] [-i] [-T] [-V] [-g *Resource_group*]
Resource_class:*Resource_name* [:*Node*][,*Resource_name*[:*Node*][,...]]
[*Resource_class*:*Resource_name* [:*Node*][,*Resource_name*[:*Node*][,...]] [...]]

Description

The **rmrgmbr** command removes all the member resources of the specified resource group, only the specified member resources of the specified resource group, or the member resources that match the selection string. IBM Tivoli System Automation ensures that the associated relationship and equivalency are also updated, if possible. When the selection string is the only parameter, then it is applied directly to the IBM.ManagedResource class.

A resource name or selection string must be specified with the resource class to which it belongs. The user must input the resource class, resource name, and the node number or name if it is a fixed resource. The resource class and the resource name, the resource name and the node must be separated by a colon.

Options

- h Writes the command's usage statement to standard output.
- i Interactive. Prompt before removing relationships.
- g *Resource_group*
Specifies the unique name of the resource group from which the member resources are to be removed.
- s Specifies that a selection string will be used instead of the resource name.
- T Writes the command's trace messages to standard error. For your software-service organization's use only.
- V Writes the command's verbose messages to standard output.

Parameters

Resource_class

Specifies the name of the resource class to which the member resource belongs. The resource and the resource class must be separated by the colon (:) delimiter.

Resource_class:*Resource_name*[:*Node*]

This specifies one or more member resources that are to be removed from the specified resource group. Resources belonging to different resource classes can also be specified using this syntax. However, member resources belonging to different classes must be separated by spaces. A member resource is identified by the resource's class (*Resource_class*), the resource's name (*Resource_name*), and optionally the node (*Node*) the resource is on. The *Resource_class*,

Resource_Name and Node must be separated by a colon. Resource_class is the name of the resource class the member resource belongs to. Resource_name is the name of the actual member resource in its class. The Node may have to be included when trying to remove a fixed resource from the resource group. The Node and its resource must be separated by the colon (:) delimiter.

Multiple resources belonging to the same resource class can also be specified and are separated by a comma. In this case the first resource or Resource_name[:Node] of a resource class must be preceded by the Resource_class it belongs to and it must be separated by the colon (:) delimiter while the remaining resources are separated by a comma.

Resource_class:Resource_name[:Node]

The member resources must exist in the resource group for it to be removed.

Resource_class:"selection_string"

Selection string. The -s option flag determines this operand. Each selection string must be preceded by a resource class. *Resource_class* indicates the name of the resource class the selection_string will be applied to. The selection_string and its Resource Class must be separated by the colon (:) delimiter. The specified selection string will be applied to its corresponding resource_class attributes to determine which member resources are to be removed from the resource_group. The selection string must be enclosed within double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name ?= "test"'
-s 'Name like "%"' ( For all resources)
```

For information on how to specify selection strings, see “Using expressions” on page 88.

Selection_string

Specifies the selection string. The -s option determines this parameter. When this is the only parameter, then the selection string is applied to the member resources. But, when the selection string is included with *Resource_group*, the selection string will be applied to the member resources that belong to the specified resource group. When each of the selection strings are preceded by a resource class, the specified selection string in this case will be applied to its corresponding *Resource_class* attributes, to determine which resources are to be removed from the Resource_group. The selection string must be enclosed within either double or single quotation marks. If the selection string contains double quotation marks, enclose the entire selection string in single quotation marks. For example:

```
-s 'Name == "testing"'
-s 'Name ?= "test"'
-s 'Name like "%"' (For all resources)
```

For information on how to specify selection strings, see “Using expressions” on page 88.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.
- 2** Error occurred with CLI script.
- 3** Incorrect flag on command line.
- 4** Incorrect parameter on command line.
- 5** Error occurred with RMC that was based on faulty command line input.
- 6** Resource specified was not found.
- 7** Resource already exists.

Security

This command requires root authority.

Examples

1. To remove a member resource **tester** that belongs to resource class IBM.Application from a resource group **foo**, enter:
`rmrgmbr -g foo IBM.Application:tester`
2. To remove member resources **tester**, **Jfoo**, and **Dfoo** that belong to resource class IBM.Application, from resource group **foo**, enter:
`rmrgmbr -g foo IBM.Application:tester,Jfoo,Dfoo`
3. To remove member resources **tester** and **Jfoo** that belong to resource class IBM.Application and fixed resource **en0** that belongs to class IBM.ServiceIP, enter:
`rmrgmbr IBM.Application:tester,Jfoo IBM.ServiceIP:en0`
4. To remove selected member resources of the resource class IBM.Application from a resource group **foo** whose ResourceType is set, enter:
`rmrgmbr -s -g foo IBM.Application:"ResourceType==1"`
5. To remove all member resources of resource group **foo** by using a selection string, enter:
`rmrgmbr -s 'MemberOf == "foo"'`

Files

/usr/sbin/rsct/bin/rmrgmbr Location of the **rmrgmbr** command.

See Also

The **addrgmbr**, **chrel**, **chrg**, **chrgmbr**, **lsrel**, **lsrg**, **mkrel**, **mkg**, **rmrel**, **rmrg**, commands.

The **rmccli** General Information file.

samcfg

Name

samcfg – Saves and restores the IBM Tivoli System Automation configuration. This command can still be used, but it is recommended to use the sampolicy command as described under “sampolicy” on page 85.

Synopsis

samcfg [-h] [-T] [-V] -S [*Filename*]

samcfg [-h] [-T] [-V] -R [*Filename*]

Description

The **samcfg** command saves and restores the configuration of IBM Tivoli System Automation.

Options

- h Help. Writes the command's usage statement to standard output.
- S Save Action. Saves the current IBM Tivoli System Automation configuration to a file.
- R Restore. Restores the configuration from a file.
- T Trace. Writes the command's trace messages to standard error. For your software-service organization's use only.
- V Writes the command's verbose messages to standard output.

Parameters

Filename

Name of the file or absolute path with file name where the configuration will be saved to or restored from. The default path is **/var/ct/{cluster}/cfg/IBM.RecoveryRM**. This file will contain the configuration data. *Filename* is optional for the save operation. The default file name for save will follow the following format:

{domain}_samcfg<month><day><yr>.{index}

where

domain domain (cluster) name

index file version, current index +1, default is 0
Example: CHARM_samcfg022703.2, bignet_samcfg022303.0

The user must provide the file name for the restore operation. If an absolute path is not specified, the file will be expected to be found at the default path specified above.

Exit Status

- 0 Command has run successfully.
- 1 Error occurred with RMC.
- 2 Error occurred with CLI script.
- 3 Incorrect flag on command line.
- 4 Incorrect parameter on command line.
- 5 Error occurred with RMC that was based on faulty command line input.

6 Resource specified was not found.

7 Resource already exists.

Security

This command requires root authority.

Examples

Files

/usr/sbin/rsct/bin/samctrl Location of the **samctrl** command.

See Also

The **lssamctrl** command.

The **rmccli** General Information file

samctrl

Name

samctrl – Sets the IBM Tivoli System Automation control parameters.

Synopsis

samctrl [-h] -m [-f] [-T] [-V] [*new_activeversion*]

samctrl[-h] [-e P|-d P] [-M T|F] [-u a | d | r] [-t *Timeout*] [-r *Retry_count*]
[-o *ResourceRestartTimeout*] [-T] [-V] [*Node* [*Node* [...]]]

Description

The **samctrl** command sets the default control parameter values for IBM Tivoli System Automation. This command, when used, must change at least one control parameter for IBM Tivoli System Automation.

Options

- e P** Enables the TEC (Tivoli Enterprise Console) publisher. Publisher is enabled.
- d P** Publisher is disabled. This is the default.
- f** Force Migration. It requires the -m option. A force option (-mf) can be specified if user insists to upgrade the code version when the joined IBM Tivoli System Automation daemon count is less than the total defined node count and the installed version number information of the down daemon is lower than the rest of the up daemons.
- h** Writes the command's usage statement to standard output.
- m** Migration. This is used to trigger a IBM Tivoli System Automation code version migration complete action.
- M T|F**
 - T (True)** Manual. Specifies that all control operations will not be controlled and monitored by System Automation Manager.
 - F (False)** Automated. Specifies that all control operations will be controlled and monitored by System Automation Manager.
- u a | d | r**

Specifies that one or more nodes are to be added, removed, or replaced with the excluded list of nodes.

 - a** Adds one or more specified nodes to the excluded list of nodes for control operations.
 - d** Deletes one or more specified nodes from the excluded list of nodes for control operations.
 - r** Replaces one or more specified nodes with the excluded list of nodes for control operations.
- r *Retry_count***

Specifies the default number of retries a control operation can perform before the operation is declared as failed.
- o *ResourceRestartTimeout***

Resource Restart Timeout value. Specifies the default timeout value (in seconds) before a failed resource is restarted. IBM Tivoli System Automation waits for the specified period of time before it restarts the resource on another node.

-t Timeout

Specifies the default timeout value (in seconds) of a control operation. A control operation is declared stalled or failed if the operation is not successfully completed within the specified time interval.

-T Writes the command's trace messages to standard error. For your software-service organization's use only.

-V Writes the command's verbose messages to standard output.

Parameters

Node Specifies the name of one or more nodes that will be added, removed or replaced with the excluded node list for control operations. The **-u** option and its parameter determines the action required to update the excluded node list.

new_activeversion

This specifies the desired new active version value for IBM Tivoli System Automation. It requires the **-m** option

Exit Status

- 0** Command has run successfully.
- 1** Error occurred with RMC.
- 2** Error occurred with CLI script.
- 3** Incorrect flag on command line.
- 4** Incorrect parameter on command line.
- 5** Error occurred with RMC that was based on faulty command line input.
- 6** Resource specified was not found.
- 7** Resource already exists.

Security

This command requires root authority.

Examples

1. Set IBM Tivoli System Automation to be in automated mode, with retries at 4 , resource restart timeout as 5 seconds.

```
samctrl -M F -r 4 -o 5
```
2. Exclude some nodes from IBM Tivoli System Automation Control:

```
samctrl -u a narten jarden varten
```
3. Migrate to the latest version possible, enter the following:

```
samctrl -m
```
4. To force a migration to the latest version possible, enter the following:

```
samctrl -m -f
```

Files

/usr/sbin/rsct/bin/samctrl Location of the **samctrl** command.

See Also

The **Issamctrl** command.

samdiag

The **rmccli** General Information file

samdiag

Name

samdiag – allows to request detailed information on a resource.

Synopsis

samdiag [-h] [-T] [-V] [-x *extra_info*] -r *Resource_handle*

samdiag [-h] [-T] [-V] [-x *extra_info*] -g *Resource_group*

samdiag [-h][-T] [-V] [-x *extra_info*] **Resource_class:Resource:[Node]**

samdiag [-h] [-T] [-V] [-x *extra_info*] -e *Engine_name*

Description

You can request detailed resource information using this command. You can invoke it on any node where a IBM Tivoli System Automation daemon is active.

Note: The samdiag command provided for Release 1 of IBM Tivoli System Automation could only be executed on the node where the master daemon was running on. So running samdiag on a Release 2 daemon will generate an error if Release 1 and Release 2 daemons coexist in the same cluster, and if the master daemon is on a Release 1 node.

samdiag provides the following information about a specified resource:

- Status
- Dependencies
- Binding constraints
- Outstanding actions
- Flags and exceptions
- Requests and votes
- History
- Variables

Options

-h Writes the command's usage statement to standard output.

-T Writes the command's trace messages to standard error. For your software-service organization's use only.

-V Writes the command's verbose messages to standard output.

-x *extra_info*

Extra Information. This option requests for extra information on the specified resource. The operand "extra_info" can have the following valid strings:

reqs	requests information.
votes	votes information.
hist	history information.
vars	variable information.
all	all information.

samdiag

-g *Resource_group*

The name of the resource group. This implies that a resource group is specified.

-r *Resource_handle*

Resource handle. This option implies that a resource handle of a resource is specified.

-e *Engine_name*

Engine resource name. This option implies that an engine name of a resource is specified. These are the engine name formats currently in use:

- Cluster
- Resource_name/<type>/Resource_class[/Node]

Cluster This implies that diagnostic information is requested on the cluster or shared domains known to IBM Tivoli System Automation.

Resource_name/<type>/Resource_class[/Node]

This is the most commonly used engine name format. Here the engine resource is identified by the resource's name (Resource_name), the <type> of resource, the resource's class(Resource_class), and optionally the node (Node) the resource is on. The Resource_class, Resource_Name and Node must be separated by a forward slash ("/"). Resource_class is the name of the Resource class the resource belongs to. Resource_name is the name of the actual resource in its class. The Node may have to be included when trying to act on a fixed resource. The Node and its resource must be separated by the forward slash or "/" delimiter. The <type> of the resource can be any of the following:

ResGroup

For resource groups.

Equivalency

For equivalencies.

Fixed For fixed resources.

Float For floating resources.

Parameters

Resource_class: Resource_name[:Node]

Member Resources. This specifies one resource that is to be acted on. A resource is identified by the resource's class (Resource_class), the resource's name (Resource_name), and optionally the node (Node) the resource is on. *Resource_class*, *Resource_Name*, and *Node* must be separated by a colon. *Resource_class* is the name of the Resource class the resource belongs to.

Resource_name is the name of the actual resource in its class. The Node may have to be included when trying to act on a fixed resource. The Node and its resource must be separated by the colon or ":" delimiter.

Exit Status

- | | |
|---|--|
| 0 | Command has run successfully. |
| 1 | Error occurred with RMC. |
| 2 | Error occurred due to an underlying error in the command script. |
| 3 | Incorrect flag on command line. |
| 4 | Incorrect parameter on command line. |
| 5 | Error occurred due to an user error. |
| 6 | Resource specified was not found. |

Security

This command requires root authority.

Files

/usr/sbin/rsct/bin/samdiag Location of the **samdiag** command.

See Also

The **lssamctrl** command.

The **rmccli** General Information file

samlicm

Name

samlicm – allows to install, list, and upgrade the product license.

Synopsis

samlicm [-h] [-s] [-t] [-i *license_file*]

Description

The **samlicm** command installs, lists, and upgrades the product license for IBM Tivoli System Automation. Since every node in the cluster checks for a license, the license has to be installed on every single node in the cluster. Depending on the installation medium a try and buy or full license has already been installed during product installation. Use the **samlicm** command to check your license status or upgrade a try and by license to a full license.

Options

- h** Writes the command's usage statement to standard output.
- s** Prints the license status to standard output. Use this option to see when your license expires.
- t** Tests the license. Use this option to check the installed license
- i *license_file***
 Installs or upgrades the product license with the specified license file. Use the **-i** option for both, the initial license installation and license upgrade.

Exit Status

- 0** Command has run successfully.
- 1** Error occurred during command processing.

Security

This command requires root authority.

Examples

1. Install a license or upgrade a license:
`samlicm -i try_buy.lic`

If everything works fine you will not get any output from the command. In case of an error the error message will be written to standard error, and the corresponding exit status is returned.

Files

/usr/sbin/rsct/bin/samlicm Location of the **samlicm** command.

See Also

The IBM License Use Management (LUM) documentation.

sampolicy

Name

sampolicy – Checks if the policy in an input file is valid, activates the policy from this file, and deactivates the current policy. Also saves the current policy to a file in XML format and can retrieve the policy information from this file. Chapter 2, “Policy XML reference,” on page 97 describes how to create an XML file.

See “Messages generated by the sampolicy command” on page 166 for messages generated by the sampolicy command.

Synopsis

sampolicy -h

sampolicy [-T] [-V] -a *Filename*

sampolicy [-T] [-V] -d

sampolicy [-T] [-V] -s [*Filename*]

sampolicy [-T] [-V] -c *Filename*

sampolicy [-T] [-V] -i *Filename*

Description

The **sampolicy** command is a Java utility program that will read the IBM Tivoli System Automation XML policy from an XML document file, parse, validate, and send the configuration requests to the RecoveryRM daemon and other referenced RSCT resource managers (e.g. GlobalResRM) within the RSCT Peer Domain. The sampolicy command can also be used to save a snapshot of the current IBM Tivoli System Automation configuration to a XML document file.

Options

- h** Help. Writes the command's usage statement to standard output.
- T** Trace. Writes the command's trace messages to standard error. For your software-service organization's use only.
- V** Writes the command's verbose messages to standard output.
- a** Activates the policy from a file.

Note: When a new policy gets activated, all existing resources are deleted. This includes the System Automation for Multiplatforms end-to-end automation adapter policy. If needed it must be reactivated by using the Define function of the System Automation for Multiplatforms adapter configuration dialog. This is described in the 'Configuring the System Automation for Multiplatforms end-to-end automation adapter' section in the *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide*, SC33-8210. You can omit this step if you save the current policy first, then edit the output XML file without changing the resource definitions for the System Automation for Multiplatforms end-to-end automation adapter policy, and finally activate this policy.

- d** Deactivates the current running policy.

Note: Deactivation deletes all existing resources. This includes the System Automation for Multiplatforms end-to-end automation adapter policy. If needed it must be reactivated by

sampolicy

using the Define function of the System Automation for Multiplatforms adapter configuration dialog. This is described in the 'Configuring the System Automation for Multiplatforms end-to-end automation adapter' section in the *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide*, SC33-8210.

- s** Saves the current configuration in XML format to a file.
- c** Checks if the policy in the input file is valid.
- i** Retrieves the policy information from a file.

Parameters

Filename

Name of the file or absolute path of the file name containing the policy XML. *Filename* is required for the options -a, -c, -i, and optional for the option -s. If no filename is provided, the default path is **/var/ct/{domain-name}/cfg**. The default file name is **sampolicy<month><day><year><time>.xml**

Security

This command requires root authority.

Examples

1. To activate a policy, enter:
`sampolicy -a /usr/xml/myPolicy.xml`
2. To deactivate a policy, enter:
`sampolicy -d`
3. To save the policy to a file, enter:
`sampolicy -s /usr/xml/currentpolicy.xml`

Files

/usr/sbin/rsct/bin/sampolicy Location of the **sampolicy** command.

Exit Status

- 0** Command completed successfully.
- 1** Command parsing failed.
- 2** Command processing failed.
- 3** Java runtime not found.

uninstallSAM

Name

uninstallSAM – Uninstalls all components of the Base component of IBM Tivoli System Automation.

Synopsis

uninstallSAM [**-d** *inst_pkg_dir*] [**-l** *log_file*]

Description

The **uninstallSAM** command checks that the domain is offline and cancels the uninstallation if it is online, uninstalls all components of the Base component of IBM Tivoli System Automation in the proper order, and records information about the performed actions in a log file. The name of the default log file is `/tmp/uninstallSAM.<#>.log`, where `<#>` is a sequential number; the highest number identifies the most recent log file.

Typically, no options need to be specified. The available options allow you to uninstall the component although the **uninstallSAM** script is not in the package directory (**-d**) and to specify that a log file other than the default is to be used (**-l**).

Options

-d *inst_pkg_dir*

Allows you to perform the uninstallation based on NLS files in the specified directory although the **uninstallSAM** script is not available in the directory. **uninstallSAM** is not dependent upon the packages to be installed, but needs the directory for its message files.

-l *log_file*

Logs information generated by the **uninstallSAM** command to the specified log file.

Exit Status

- 0** The uninstallation completed successfully.
- 1** `<package uninstaller>` returned a return code other than 0; the return code and the corresponding message can be found in the log file. `<package uninstaller>` is:
 - **AIX:** `installp`
 - **Linux:** `rpm`
- 2** The peer domain is online. No uninstallation was performed.
- 3** **uninstallSAM** was unable to continue because directories or files could not be detected. This return code also applies if the **-d** option specifies a directory that does not exist, or if the subdirectory with files does not exist.

Security

This command requires root authority.

Using expressions

The information in this section is for advanced users who want to:

- Modify predefined expressions.
- Select resources.
- Filter audit log records by compiling and running a complex mathematical expression against a set of values.

Permissible data types, operators, and operator order of precedence are described below. RMC uses these functions to match a selection string against the persistent attributes of a resource and to implement the evaluation of an event expression or a rearm expression.

An expression is similar to a C language statement or the WHERE clause of an SQL query. It is composed of variables, operators, and constants. The C and SQL syntax styles may be intermixed within a single expression. The following table relates the RMC terminology to SQL terminology:

RMC	SQL
attribute name	column name
select string	WHERE clause
operators	predicates, logical connectives
resource class	table

SQL Restrictions

SQL syntax is supported for selection strings, with the following restrictions:

- Only a single table may be referenced in an expression.
- Queries may not be nested.
- The IS NULL predicate is not supported because there is no concept of a NULL value.
- The period (.) operator is not a table separator (for example, table.column). Rather, in this context, the period (.) operator is used to separate a field name from its containing structure name.
- The pound sign (#) is hard-coded as the escape character within SQL pattern strings.
- All column names are case sensitive.
- All literal strings must be enclosed in either single or double quotation marks. Bare literal strings are not supported because they cannot be distinguished from column and attribute names.

Supported Base Data Types

The term *variable* is used in this context to mean the column name or attribute name in an expression. Variables and constants in an expression may be one of the following data types that are supported by the RMC subsystem:

Symbolic Name	Description
CT_INT32	Signed 32-bit integer
CT_UINT32	Unsigned 32-bit integer
CT_INT64	Signed 64-bit integer
CT_UINT64	Unsigned 64-bit integer
CT_FLOAT32	32-bit floating point
CT_FLOAT64	64-bit floating point
CT_CHAR_PTR	Null-terminated string
CT_BINARY_PTR	Binary data – arbitrary-length block of data

CT_RSRC_HANDLE_PTR	Resource handle – an identifier for a resource that is unique over space and time (20 bytes)
--------------------	--

Structured Data Types

In addition to the base data types, aggregates of the base data types may be used as well. The first aggregate data type is similar to a structure in C in that it can contain multiple fields of different data types. This aggregate data type is referred to as *structured data* (SD). The individual fields in the structured data are referred to as *structured data elements*, or simply *elements*. Each element of a structured data type may have a different data type which can be one of the base types in the preceding table or any of the array types discussed in the next section, except for the structured data array.

The second aggregate data type is an array. An array contains zero or more values of the same data type, such as an array of CT_INT32 values. Each of the array types has an associated enumeration value (CT_INT32_ARRAY, CT_UINT32_ARRAY). Structured data may also be defined as an array but is restricted to have the same elements in every entry of the array.

Data Types That Can Be Used for Literal Values

Literal values can be specified for each of the base data types as follows:

Array An array or list of values may be specified by enclosing variables or literal values, or both, within braces {} or parentheses () and separating each element of the list with a comma. For example: { 1, 2, 3, 4, 5 } or ("abc", "def", "ghi").

Entries of an array can be accessed by specifying a subscript as in the C programming language. The index corresponding to the first element of the array is always zero; for example, List [2] references the third element of the array named List. Only one subscript is allowed. It may be a variable, a constant, or an expression that produces an integer result. For example, if List is an integer array, then List[2]+4 produces the sum of 4 and the current value of the third entry of the array.

Binary Data

A binary constant is defined by a sequence of hexadecimal values, separated by white space. All hexadecimal values comprising the binary data constant are enclosed in double quotation marks. Each hexadecimal value includes an even number of hexadecimal digits, and each pair of hexadecimal digits represents a byte within the binary value. For example:

```
"0xabcd 0x01020304050607090a0b0c0d0e0f1011121314"
```

Character Strings

A string is specified by a sequence of characters surrounded by single or double quotation marks (you can have any number of characters, including none). Any character may be used within the string except the null '\0' character. Double quotation marks and backslashes may be included in strings by preceding them with the backslash character.

Floating Types

These types can be specified by the following syntax:

- A leading plus (+) or minus (-) sign
- One or more decimal digits
- A radix character, which at this time is the period (.) character
- An optional exponent specified by the following:
 - A plus (+) or minus (-) sign
 - The letter 'E' or 'e'
 - A sequence of decimal digits (0–9)

Integer Types

These types can be specified in decimal, octal, or hexadecimal format. Any value that begins with

Using Expressions

the digits 1-9 and is followed by zero or more decimal digits (0-9) is interpreted as a decimal value. A decimal value is negated by preceding it with the character '-'. Octal constants are specified by the digit 0 followed by 1 or more digits in the range 0-7. Hexadecimal constants are specified by a leading 0 followed by the letter x (uppercase or lowercase) and then followed by a sequence of one or more digits in the range 0-9 or characters in the range a-f (uppercase or lowercase).

Resource Handle

A fixed-size entity that consists of two 16-bit and four 32-bit words of data. A literal resource handle is specified by a group of six hexadecimal integers. The first two values represent 16-bit integers and the remaining four each represent a 32-bit word. Each of the six integers is separated by white space. The group is surrounded by double quotation marks. The following is an example of a resource handle:

```
"0x4018 0x0001 0x00000000 0x0069684c 0x00519686 0xaf7060fc"
```

Structured Data

Structured data values can be referenced only through variables. Nevertheless, the RMC command line interface displays structured data (SD) values and accepts them as input when a resource is defined or changed. A literal SD is a sequence of literal values, as defined in “Data Types That Can Be Used for Literal Values” on page 89, that are separated by commas and enclosed in square brackets. For example, ['abc',1,{3,4,5}] specifies an SD that consists of three elements: (a) the string 'abc', (b) the integer value 1, and (c) the three-element array {3,4,5}.

Variable names refer to values that are not part of the expression but are accessed while running the expression. For example, when RMC processes an expression, the variable names are replaced by the corresponding persistent or dynamic attributes of each resource.

The elements of a structured data value can be accessed by using the following syntax:

```
<variable name>.<element name>
```

For example, a.b

The variable name is the name of the table column or resource attribute, and the element name is the name of the element within the structured data value. Either or both names may be followed by a subscript if the name is an array. For example, a[10].b refers to the element named b of the 11th entry of the structured data array called a. Similarly, a[10].b[3] refers to the fourth element of the array that is an element called b within the same structured data array entry a[10].

How Variable Names Are Handled

Variable names refer to values that are not part of an expression but are accessed while running the expression. When used to select a resource, the variable name is a persistent attribute. When used to generate an event, the variable name is a dynamic attribute. When used to select audit records, the variable name is the name of a field within the audit record.

A variable name is restricted to include only 7-bit ASCII characters that are alphanumeric (a-z, A-Z, 0-9) or the underscore character (_). The name must begin with an alphabetic character. When the expression is used by the RMC subsystem for an event or a rearm event, the name can have a suffix that is the '@' character followed by 'P', which refers to the previous observation.

Operators That Can Be Used in Expressions

Constants and variables may be combined by an operator to produce a result that in turn may be used with another operator. The resulting data type or the expression must be a scalar integer or floating-point value. If the result is zero, the expression is considered to be FALSE; otherwise, it is TRUE.

Note: Blanks are optional around operators and operands unless their omission causes an ambiguity. An ambiguity typically occurs only with the word form of operator (that is, AND, OR, IN, LIKE, etc.). With these operators, a blank or separator, such as a parenthesis or bracket, is required to

distinguish the word operator from an operand. For example, aANDb is ambiguous. It is unclear if this is intended to be the variable name aANDb or the variable names a, b combined with the operator AND. It is actually interpreted by the application as a single variable name aANDb. With non-word operators (for example, +, -, =, &&, etc.) this ambiguity does not exist, and therefore blanks are optional.

The set of operators that can be used in strings is summarized in the following table:

Operator	Description	Left Data Types	Right Data Types	Example	Notes
+	Addition	Integer,float	Integer,float	"1+2" results in 3	None
-	Subtraction	Integer,float	Integer,float	"1.0-2.0" results in -1.0	None
*	Multiplication	Integer,float	Integer,float	"2*3" results in 6	None
/	Division	Integer,float	Integer,float	"2/3" results in 1	None
-	Unary minus	None	Integer,float	"-abc"	None
+	Unary plus	None	Integer,float	"+abc"	None
..	Range	Integers	Integers	"1..3" results in 1,2,3	Shorthand for all integers between and including the two values
%	Modulo	Integers	Integers	"10%2" results in 0	None
	Bitwise OR	Integers	Integers	"2 4" results in 6	None
&	Bitwise AND	Integers	Integers	"3&2" results in 2	None
~	Bitwise complement	None	Integers	~0x0000ffff results in 0xffff0000	None
^	Exclusive OR	Integers	Integers	0x0000aaaa^0x0000ffff results in 0x00005555	None
>>	Right shift	Integers	Integers	0x0fff>>4 results in 0x00ff	None
<<	Left shift	Integers	Integers	"0x0fff<<4" results in 0xffff0	None
==	Equality	All but SDs	All but SDs	"2==2" results in 1	Result is true (1) or false (0)
=				"2=2" results in 1	
!=	Inequality	All but SDs	All but SDs	"2!=2" results in 0	Result is true (1) or false (0)
<>				"2<>2" results in 0	
>	Greater than	Integer,float	Integer,float	"2>3" results in 0	Result is true (1) or false (0)
>=	Greater than or equal	Integer,float	Integer,float	"4>=3" results in 1	Result is true (1) or false (0)
<	Less than	Integer,float	Integer,float	"4<3" results in 0	Result is true (1) or false (0)
<=	Less than or equal	Integer,float	Integer,float	"2<=3" results in 1	Result is true (1) or false (0)
=_	Pattern match	Strings	Strings	"abc"=_ "a.*" results in 1	Right operand is interpreted as an extended regular expression

Using Expressions

Operator	Description	Left Data Types	Right Data Types	Example	Notes
!_	Not pattern match	Strings	Strings	"abc"!_"a.*" results in 0	Right operand is interpreted as an extended regular expression
=? LIKE like	SQL pattern match	Strings	Strings	"abc"=? "a%" results in 1	Right operand is interpreted as a SQL pattern
!? NOT LIKE not like	Not SQL pattern match	Strings	Strings	"abc"!?"a%" results in 0	Right operand is interpreted as a SQL pattern
< IN in	Contains any	All but SDs	All but SDs	"{1..5} <{2,10}" results in 1	Result is true (1) if left operand contains any value from right operand
>< NOT IN not in	Contains none	All but SDs	All but SDs	"{1..5}><{2,10}" results in 1	Result is true (1) if left operand contains no value from right operand
&<	Contains all	All but SDs	All but SDs	"{1..5}&<{2,10}" results in 0	Result is true (1) if left operand contains all values from right operand
 OR or	Logical OR	Integers	Integers	"(1<2) (2>4)" results in 1	Result is true (1) or false (0)
&& AND and	Logical AND	Integers	Integers	"(1<2)&& (2>4)" results in 0	Result is true (1) or false (0)
! NOT not	Logical NOT	None	Integers	"!(2==4)" results in 1	Result is true (1) or false (0)

Default Precedence of Operators

When integers of different signs or size are operands of an operator, standard C style casting is implicitly performed. When an expression with multiple operators is evaluated, the operations are performed in the order defined by the precedence of the operator. The default precedence can be overridden by enclosing the portion or portions of the expression to be evaluated first in parentheses ().

For example, in the expression "1+2*3", multiplication is normally performed before addition to produce a result of 7. To evaluate the addition operator first, use parentheses as follows: "(1+2)*3". This produces a result of 9. The default precedence rules are shown in the following table. All operators in the same table cell have the same or equal precedence.

Operators	Description
.	Structured data element separator
~	Bitwise complement
!	Logical not
NOT	
not	
-	Unary minus
+	Unary plus
*	Multiplication
/	Division
%	Modulo
+	Addition
-	Subtraction
<<	Left shift
>>	Right shift
<	Less than
<=	Less than or equal
>	Greater than
>=	Greater than or equal

Using Expressions

Operators	Description
==	Equality
!=	Inequality
=?	SQL match
LIKE	
like	
!?	SQL not match
=_	Reg expr match
!_	Reg expr not match
?=	Reg expr match (compat)
<	Contains any
IN	
in	
><	Contains none
NOT IN	
not in	
&<	Contains all
&	Bitwise AND
^	Bitwise exclusive OR
	Bitwise inclusive OR
&&	Logical AND
	Logical OR
,	List separator

Pattern Matching

Two types of pattern matching are supported; extended regular expressions and that which is compatible with the standard SQL LIKE predicate. This type of pattern may include the following special characters:

- The percentage sign (%) matches zero or more characters.
- The underscore (_) matches exactly one character.
- All other characters are directly matched.
- The special meaning for the percentage sign and the underscore character in the pattern may be overridden by preceding these characters with an escape character, which is the pound sign (#) in this implementation.

Examples of Expressions

Some examples of the types of expressions that can be constructed follow:

1. The following expressions match all rows or resources that have a name which begins with 'tr' and ends with 'O', where 'Name' indicates the column or attribute that is to be used in the evaluation:

```
Name =~'tr.*0'
Name LIKE 'tr%0'
```

- The following expressions evaluate to TRUE for all rows or resources that contain 1, 3, 5, 6, or 7 in the column or attribute that is called IntList, which is an array:

```
IntList|<{1,3,5..7}
IntList in (1,3,5..7)
```

- The following expression combines the previous two so that all rows and resources that have a name beginning with 'tr' and ending with '0' and have 1, 3, 5, 6, or 7 in the IntList column or attribute will match:

```
(Name LIKE "tr%0")&&(IntList|<{1,3,5..7})
(Name=~'tr.*0') AND (IntList IN {1,3,5..7})
```

Coding for XML policy

When specifying expressions in an XML file which may be used as input for the sampolicy command, some characters shown in the following table must be specified in such a way that they are treated as operators instead as XML control characters.

Table 1. Specifying expressions in an XML file

Character	specified in XML like
&	&
<	<
>	>

Chapter 2. Policy XML reference

This chapter lists the XML elements, sub-elements, and attributes of the base component of IBM Tivoli System Automation for Multiplatforms. For each element, the following information is provided:

Name	The name and a short description of the element.
Examples	One or more examples showing how the element is used.
Attributes	Descriptions of the element's attributes.
Sub-element	The name and a short description of the sub-element.
Occurrence	Mentions the occurrence of the element.

Note that when specifying expressions in an XML file which may be used as input for the sampolicy command, some characters must be specified in such a way that they are treated as operators instead as XML control characters. These characters are shown in Table 1 on page 95.

When you create an XML file, it is recommended to use the official XML policy file template SAMTemplate.xml located in the /usr/sbin/rsct/samples/policy directory. To use this template, copy the file to your working directory and rename it according to your file naming conventions.

To create the XML policy file, you can use any commercial, shareware, or free-ware XML or ASCII editor as long as the editor allows you to save the file in UTF-8 format. XML files in any other format will be rejected by the policy checker.

If you use an XML editor to create the XML policy file, the editor will create the basic XML policy template for you. Additionally, most XML editors have a validation function that ensures that your XML code conforms to the relevant schema. When you want to use these functions, you must ensure that the XML editor knows where to find the relevant schema. The schema for the base component policy is defined in the files SAMPolicy.xsd and SAMSimpleTypes.xsd. They are located in the directory /usr/sbin/rsct/samples/policy.

AutomationPolicy

The AutomationPolicy element is the starting element of the XML policy definition and encompasses all other elements.

Example

```
<AutomationPolicy productID="SAM" version="2.1"
  xmlns="http://www.ibm.com/TSA/Policy.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.ibm.com/TSA/Policy.xsd SAMPolicy.xsd ">
  <PolicyInformation>
    <PolicyName>First SAfMP policy</PolicyName>
    <AutomationDomainName>lnxcluster</AutomationDomainName>
    <PolicyToken>1.1.1</PolicyToken>
    <PolicyDescription>this is the description of the policy
    ----- 2005 02/23 andersen initial version -----
    </PolicyDescription>
    <PolicyAuthor>Oliver Andersen</PolicyAuthor>
  </PolicyInformation>

</AutomationPolicy>
```

Attributes

version	Mandatory. It identifies the minimum version of IBM Tivoli System Automation which is required to apply this policy XML. The maximum number of characters supported is 32.
xmlns	Mandatory, fixed value, "http://www.ibm.com/TSA/Policy.xsd". It identifies the default name space for the XML schema.
xmlns:xsi	Mandatory, fixed value, "http://www.w3.org/2001/XMLSchema-instance". It identifies the XML schema format for this policy XML.
xsi:schemaLocation	Mandatory, fixed value, "http://www.ibm.com/TSA/Policy.xsd SAMPolicy.xsd ". It identifies the XML schema. The XML schema contains the syntax rules for a valid XML policy file.
product ID	Mandatory, fixed value, "SAM". It identifies the kind of policy contained in the AutomationPolicy element.

Sub-elements

The sub-elements listed here are described later in this chapter.

PolicyInformation

ControllInformation

Resource

MoveGroup

ConstituentResource

ResourceGroup

Relationship

Equivalency

ResourceReference

IBM.ApplicationAttributes

IBM.ServiceIPAttributes

IBM.TestAttributes

IBM.TieBreaker

PolicyInformation

Mandatory element. The PolicyInformation element uses the sub-elements listed in the following to provide an identification of the policy.

Example

```
<PolicyInformation>
  <PolicyName> First SAfMP Policy </PolicyName>
  <AutomationDomainName> Friendly </AutomationDomainName>
  <PolicyToken> 1.0.1 </PolicyToken>
  <PolicyAuthor> Michael Atkins </PolicyAuthor>
  <PolicyDescription>
    This document contains the policy for Friendly Domain.

    Change History:
    -----
    Date      Name      Description
    -----
    01/12/05  Michael Atkins  Initial Policy
    -----
  </PolicyDescription>
</PolicyInformation>
```

Attributes

None.

Sub-elements

PolicyName Mandatory. Assigns a name to the policy.

AutomationDomainName

Mandatory. Specifies the IBM Tivoli System Automation for Multiplatforms cluster name to which this policy applies.

PolicyToken Mandatory. Versioning tag defined by the user.

PolicyAuthor Optional. Shows the name of the policy's author.

PolicyDescription

Optional. It may, for example, contain comments like the purpose of the policy XML.

Occurrence

Once.

ControlInformation

Optional element. For the base component of IBM Tivoli System Automation it sets the control parameters shown under *Sub-Elements*. It sets the same parameters as in the samctrl command (see “samctrl” on page 78).

Example

```
<ControlInformation>
  <Timeout>20</Timeout>
  <RetryCount>5</RetryCount>
  <ExcludedNode>lnxxdr33</ExcludedNode>
  <ExcludedNode>lnxxdr34</ExcludedNode>
  <ResourceRestartTimeout>30</ResourceRestartTimeout>
  <EnablePublisher>TEC</EnablePublisher>
  <EnablePublisher>XDR</EnablePublisher>
</ControlInformation>
```

Attributes

None.

Sub-elements

- Timeout** Optional. It specifies the default timeout interval for IBM Tivoli System Automation control operations in seconds. Valid values are numbers from 1 to 360. The default value for this element is 60.
- RetryCount** Optional. It specifies the default number of retries an IBM Tivoli System Automation control operation can perform before it is treated as failed. Valid values are numbers between 1 and 10. The default is 3.
- ExcludedNode** Optional. It specifies one entry of the list of excluded nodes. This element may occur multiple times. Its maximum number of characters is 256.
- ResourceRestartTimeout** Optional. It specifies the timeout in seconds before a failed resource is restarted. Its default is 5 and the allowed values are 2 to 360.
- EnablePublisher** Optional. It specifies one entry of the list of enabled publishers. It may occur multiple times and its maximum number of characters is 64.

Occurrence

0 to 1.

Resource

Optional element. It describes fixed resources. It is referenced from the elements ResourceGroup, Equivalency, or Relationship.

Example

```
<Resource name="xdrerpdlxxdr31" class="IBM.Application" node="lnxxdr31">
  <ClassAttributesReference>
    <IBM.ApplicationAttributes name="Application1"/>
  </ClassAttributesReference>
</Resource>
```

Attributes

name	Mandatory, user defined. It has a maximum of 64 characters.
node	Mandatory. It has a maximum of 256 characters. Name of the node on which the resource runs.
class	Mandatory. It can be one of the values IBM.Application, IBM.Test, or IBM.ServiceIP.

These attributes make up an unique key. The ResourceGroup element must use this key to refer to the resource.

Sub-elements

ClassAttributesReference

Mandatory. This element specifies the attributes of the resource. It can only be IBM.ApplicationAttributes, IBM.ServiceIPAttributes, or IBM.TestAttributes as corresponding to the value of the class attribute.

Occurrence

Multiple times.

MoveGroup

Optional element. It describes floating resources within the IBM Tivoli System Automation environment.

Example

```
<MoveGroup name="DB2" class="IBM.Application">
  <ClassAttributesReference>
    <IBM.ApplicationAttributes name="Application2"/>
  </ClassAttributesReference>
  <Members>
    <ConstituentResource name="DB2" class="IBM.Application" node="lnxxdr10" />
    <ConstituentResource name="DB2" class="IBM.Application" node="lnxxdr11" />
  </Members>
</MoveGroup>
```

Attributes

- | | |
|--------------|---|
| name | Mandatory, user defined. It identifies the floating resource and has a maximum of 64 characters. It must be equal to the names of the ConstituentResource elements. |
| class | Mandatory. It can be one of the values IBM.Application, IBM.Test, or IBM.ServiceIP. |

These attributes make up the unique key of a move group. A Relationship element must use this key to refer to this move group.

Sub-elements

ClassAttributesReference

Mandatory. This element specifies the attributes of the resource. It can only be IBM.ApplicationAttributes, IBM.ServiceIPAttributes, or IBM.TestAttributes as corresponding to the value of the class attribute.

- | | |
|----------------|--|
| Members | Optional. Members elements can only be constituent resources 0 to n times (see the "ConstituentResource" on page 103 element). |
|----------------|--|

Occurrence

0 to multiple times.

ConstituentResource

Optional element. It must be used to describe members of a MoveGroup (floating resources).

Example

```
<ConstituentResource name="DB2" class="IBM.Application" node="lnxxdr10"/>
```

Attributes

name	Mandatory, user defined. It has a maximum number of 64 characters. It must be equal to the name of the MoveGroup element as shown in the example section of the MoveGroup element description.
node	Mandatory. It has maximum number of 256 characters. Name of the node on which the resource runs.
class	Mandatory. It can be one of the values IBM.Application, IBM.Test, or IBM.ServiceIP.

These attributes make up the unique key of a constituent resource. A MoveGroup element must use this key to refer to the resource.

Sub-elements

None.

Occurrence

0 to multiple times.

ResourceGroup

Optional element. It describes groups of resources within the IBM Tivoli System Automation environment.

Example

```
<ResourceGroup class="IBM.ResourceGroup" name="erpdgroup">
  <DesiredState>Online</DesiredState>
  <InfoLink>www.ibm.com/TSA/xDR</InfoLink>
  <Priority>100</Priority>
  <Members>
    <Resource name="xdrerpd" class="IBM.Application" node="lnxxdr31" mandatory="true"/>
  </Members>
</ResourceGroup>
```

Attributes

name	Mandatory, user defined. It identifies the groups of resources and has a maximum of 64 characters.
class	Mandatory. It has the fixed value IBM.ResourceGroup.

These attributes make up the unique key of a resource group. A Relationship element must use this key to refer to this resource group.

Sub-elements

DesiredState	Optional. Defines the operation state the resource should obtain in the end. IBM Tivoli System Automation for Multiplatforms tries to bring up and keep all resources in a resource group to this state. Valid states are: <ul style="list-style-type: none">• Offline: the resource should be stopped (This is the default value).• Online: the resource should be started.
Description	Optional. Provides more information about the resource. See “Description” on page 116 for details about the Description element.
Owner	Optional. Provides the name of the resource owner. See “Owner” on page 116 for details about the Owner element.
InfoLink	Optional. Provides a link where more information can be found. See “InfoLink” on page 117 for details about the InfoLink element.
Members	Optional. Can be resources, resource groups, or move groups. See “Members” on page 115 for details about the Members element.
MemberLocation	Optional. It specifies the default location of resources in the resource group. Allowed values are None and Collocated. Collocated is the default.
Priority	Optional. It specifies the priority of this resource group in relation to other resource groups. This sub-element is used to resolve conflicts. Its default is 0 and the allowed values are 0 to 200.
AllowedNode	Optional. It specifies the set of nodes the resources of a resource group are allowed to run on. Allowed values are All, a name of one node or the name of an equivalency of nodes. All is the default.
ExcludedNode	Optional. It specifies one entry of the list of excluded nodes. This element may occur up to n times. Its maximum number of characters is 256.

Occurrence

0 to multiple times.

Relationship

Optional element. It describes the relationships between resources in a cluster.

Examples

```
<Relationship>
  <Source>
    <MoveGroup name="movegroupname" class="IBM.Application"/>
  </Source>
  <Target>
    <Resource name="resource1" class="IBM.Application" node="node1"/>
  </Target>
  <Type>StartAfter</Type>
</Relationship>
```

```
<Relationship>
  <Source>
    <ResourceGroup name="resourcegroup2" class="IBM.ResourceGroup"/>
  </Source>
  <TargetClass>IBM.Application</TargetClass>
  <TargetSelectString>ResourceType==1</TargetSelectString>
  <Type>Collocated</Type>
</Relationship>
```

Attributes

name Optional. Not required as the Relationship element may not be referenced by any other XML element. It has a maximum of 64 characters. However, if there are several managed relationships with the same source resource, then it is recommended to specify a name for the managed relationship. Otherwise the relationships will be consolidated into one managed relationship after a policy save and restore action.

Sub-elements

Type	Mandatory. This describes the relationships used for defining the start/stop behaviors and the location relationships. You can find a detailed description of the relationships in the <i>IBM Tivoli System Automation for Multiplatforms Base Component User's Guide</i> .
Condition	Optional. This can be specified together with all location relationships except IsStartable. You can find a detailed description of the conditions in the <i>IBM Tivoli System Automation for Multiplatforms Base Component User's Guide</i> .
Source	Optional. A Relationship element must contain a Source which can either be specified by naming one source resource or by specifying a selection. The source resource can be specified by this Source element. Source may be a fixed resource, a resource group, or a move group. It must also be member of a resource group. The selection can be specified by using the sub-elements SourceClass and SourceSelectString described further down in this list.
SourceClass	Optional. It is mutually exclusive with Source and it is required with SourceSelectString. It has a maximum number of 64 characters.
SourceSelectString	Optional. It is mutually exclusive with Source and it is required with SourceClass. It has a maximum number of 1024 characters.
Target	Optional. A Relationship element must contain a Target which can either be specified by naming one target resource or by specifying a selection. The target resource can be specified by this Target sub-element. Target may be a fixed resource, a resource group, a resource reference, a move group, or an equivalency.

The selection can be specified by using the sub-elements TargetClass and TargetSelectString described further down in this list.

TargetClass Optional. It is mutually exclusive with Target and it is required with TargetSelectString. It has a maximum number of 64 characters.

TargetSelectString Optional. It is mutually exclusive with Target and it is required with TargetClass. It has a maximum number of 1024 characters.

Occurrence

0 to multiple times.

Equivalency

Optional element. It describes a collection of resources providing the same functionality. An equivalency consists of a set of fixed resources from the same resource class.

Example

```
<Equivalency name="NetworkInterfaces" class="IBM.Equivalency">
  <Members>
    <ResourceReference name="Ref-eth0-lnxxdr01" />
    <ResourceReference name="Ref-eth0-lnxxdr02" />
    <ResourceReference name="Ref-eth0-lnxxdr03" />
  </Members>
  <MinimumNecessary>2</MinimumNecessary>
</Equivalency>

<Equivalency name="DynamicNI" class="IBM.Equivalency">
  <DynamicSelectString>Name like "eth%"</DynamicSelectString>
  <MemberClass>IBM.NetworkInterface</MemberClass>
  <MinimumNecessary>3</MinimumNecessary>
</Equivalency>
```

Attributes

- name** Mandatory, user defined. The string in this attribute identifies the Equivalency element. It has maximum number of 64 characters.
- class** Mandatory. It has the fixed value IBM.Equivalency.

These attributes make up the unique key of an equivalency. A Relationship element must use this key to refer to this equivalency.

Sub-elements

MemberClass Optional. The MemberClass element determines the class of all members of the equivalency. It is mutually exclusive with the Members element. It is required with the elements DynamicSelectString and StaticSelectString. MemberClass has a maximum number of 64 characters.

DynamicSelectString

Optional. It is mutually exclusive with the element Members and StaticSelectString, and it is required with the element MemberClass if no StaticSelectString is specified. It dynamically determines which resources are contained within the Equivalency. If matching resources are created after the Equivalency has been created, they are dynamically added to the Equivalency. Maximum number of characters supported is 1024.

StaticSelectString

Optional. It is mutually exclusive with the elements Members and DynamicSelectString and is required with the element MemberClass if no DynamicSelectString is specified. It determines which resources are contained within the Equivalency. Maximum number of characters supported is 1024. For more information on how to specify select strings, see the manual *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide*.

Members Optional. Specifies a fixed resource or a resource reference multiple times. It is mutually exclusive with the elements MemberClass, StaticSelectString, and DynamicSelectString. See "Members" on page 115.

MinimumNecessary

Optional. It specifies the minimum necessary number of members to make an equivalency valid. The default is 1. Valid numbers are from 0 to 100.

SelectFromPolicy

Optional. It specifies the policy to be used when making a selection from the Equivalency element. It may not be used together with DynamicSelectString. Allowed values are Ordered and Any. The default is Any. Ordered means the selection starts at the beginning. Any means no specific order.

Occurrence

0 to multiple times.

ResourceReference

Optional element. It is used for resources that are outside the management scope of IBM Tivoli System Automation for Multiplatforms, for example RSCT resources like IBM.NetworkInterface.

Example

```
<ResourceReference name="eth0">
  <ReferencedResource>
    <Name>eth0</Name>
    <Class>IBM.NetworkInterface</Class>
    <Node>lnxxdr01</Node>
  </ReferencedResource>
</ResourceReference>
```

Attributes

name Mandatory. The string in this attribute identifies the ResourceReference element. It must be unique and has a maximum of 64 characters. A Relationship or Equivalency element must use this name to refer to the resource.

Sub-elements

ReferencedResource

Mandatory. Describes a resource outside this XML. It consists of these elements:

Name Mandatory. It specifies the actual name of the resource. It has a maximum number of 64 characters.

Node Mandatory. It specifies the location of the resource. It has a maximum number of 256 characters.

Class Mandatory. It describes the type of the resource. It has a maximum number of 64 characters

Occurrence

0 to multiple times.

IBM.ApplicationAttributes

Optional element. It is used to specify the attributes of a resource of the class IBM.Application.

Example

```
<IBM.ApplicationAttributes name="Application1">
  <StartCommand>/usr/sbin/rsct/bin/xdrstarterpd</StartCommand>
  <StopCommand>/usr/sbin/rsct/bin/xdrstoperpd</StopCommand>
  <MonitorCommand>/usr/sbin/rsct/bin/xdrmonitorerpd</MonitorCommand>
  <StartCommandTimeout>10</StartCommandTimeout>
  <StopCommandTimeout>10</StopCommandTimeout>
  <RunCommandsSync>0</RunCommandsSync>
  <UserName>root</UserName>
</IBM.ApplicationAttributes>
```

Attributes

name Mandatory. Must be unique and has a maximum of 64 characters. A Resource element or MoveGroup element can refer to this name.

Sub-elements

See the manual *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide* for a detailed description of the following elements.

StartCommand

Mandatory. String value. It has a maximum of 1024 characters.

StopCommand

Mandatory. String value. It has a maximum of 1024 characters.

MonitorCommand

Mandatory. String value. It has a maximum of 1024 characters.

UserName

Mandatory. String value. It has a maximum of 1024 characters.

StartCommandTimeout

Optional. Positive Integer value with a default of 5.

StopCommandTimeout

Optional. Positive Integer value with a default of 5.

MonitorCommandTimeout

Optional. Positive Integer value with a default of 5.

MonitorCommandPeriod

Optional. Positive Integer value with a default of 5.

RunCommandsSync

Optional. RunCommandsSync is an integer between 0 and 3. Default is 1.

ProtectionMode

Optional. Allowed values are 0 and 1. Default is 0.

Occurrence

0 to multiple times.

IBM.ServiceIPAttributes

Optional. This element is used to specify the attributes of a resource of the class IBM.ServiceIP.

Example

```
<IBM.ServiceIPAttributes name="ServiceIPOne">
  <IPAddress>9.164.178.1</IPAddress>
  <NetMask>255.255.255.0</NetMask>
  <ProtectionMode>0</ProtectionMode>
</IBM.ServiceIPAttributes>
```

Attributes

name Mandatory. Must be unique and has a maximum of 64 characters. A Resource or MoveGroup element can refer to this name.

Sub-elements

See the manual *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide* for a detailed description of the following elements.

IPAddress Mandatory. String value. Must be an IP address specified in dotted decimal notation.

NetMask Optional. String value. Must be a Netmask specified in dotted decimal notation.

ProtectionMode Optional. Allowed values are 0 and 1. Default is 1.

Occurrence

0 to multiple times.

IBM.TestAttributes

Optional. It is used to specify the attributes of a resource of the class IBM.Test.

Example

```
<IBM.TestAttributes name="TestOne">
  <ForceOpState>2</ForceOpState>
  <TimeToStart>15</TimeToStart>
  <WriteToSyslog>0</WriteToSyslog>
</IBM.TestAttributes>
```

Attributes

name	Mandatory. Must be unique and has a maximum of 64 characters. A Resource or MoveGroup element can refer to this name.
-------------	---

Sub-elements

See the manual *IBM Tivoli System Automation for Multiplatforms Base Component User's Guide* for a detailed description of the following elements.

ForceOpState	Optional. ForceOpState is an integer between 0 and 6
TimeToStart	Optional. Positive integer value. The default is 0.
TimeToStop	Optional. Positive integer value. The default is 0.
WriteToSyslog	Optional. The default is 0, and the allowed values are either 0 or 1.

Occurrence

0 to multiple times.

IBM.TieBreaker

Optional. It is used to specify the attributes of a resource of the class IBM.TieBreaker.

Example

```
<IBM.TieBreaker name="BreakIt" class="IBM.TieBreaker">
  <Type>SCSI</Type>
  <DeviceInfo>ID=4 LUN=0</DeviceInfo>
  <HeartbeatPeriod>7</HeartbeatPeriod>
  <NodeInfoList>
    <NodeInfo node="lnxxdr10" info="HOST=0 CHAN=0"/>
    <NodeInfo node="lnxxdr10" info="HOST=2 CHAN=2"/>
  </NodeInfoList>
</IBM.TieBreaker>
```

Attributes

name	Mandatory. The string in this attribute identifies the IBM.TieBreaker element. It has maximum number of 64 characters.
class	Mandatory. It has the fixed value IBM.TieBreaker.

These attributes make up the unique key of an IBM.TieBreaker. This element cannot be referenced.

Sub-elements

Type	Mandatory. Allowed values are Operator, Fail, SCSI, ECKD, EXEC, and DISK.
PreReserveWaitTime	Optional. Non-negative integer value, the default is 0.
PostReserveWaitTime	Optional. Non-negative integer value, the default is 0.
ReleaseRetryPeriod	Optional. Non-negative integer value, the default is 0.
HeartbeatPeriod	Optional. Non-negative integer value, the default is 0.
DeviceInfo	Optional. String value. It has a maximum of 1024 characters.
ReprobeData	Optional. String value. It has a maximum of 1024 characters.
NodeInfoList	Optional. Occurs 0 or once, and consists of 0 to n NodeInfo elements.
	NodeInfo
	Contains the node attribute and an info attribute. The maximum number of characters supported is 1024 for both attributes.
Active	Optional, type Boolean, valid values are true and false, default is false. Only one instance of an IBM.TieBreaker element may have the value true for this element. This one is the IBM.TieBreaker that is activated in the cluster via the command chrsrc -c IBM.PeerNode OpQuorumTieBreaker="name"

Occurrence

0 to multiple times.

Members

The Members element must be used within a resource group and within a move group. It may also be used within an equivalency.

Note that if used within a resource group, this element can have the attributes shown under 'Attributes'.

Example

```
<ResourceGroup class="IBM.ResourceGroup" name="db2-group">
  <DesiredState>Online</DesiredState>
  <InfoLink>www.ibm.com/TSA/xDR</InfoLink>
  <Members>
    <MoveGroup name="db2floating" class="IBM.Application" selectFromPolicy="Any">
  </Members>
  <AllowedNode>ALL</AllowedNode>
</ResourceGroup>
```

Attributes

mandatory Optional. Allowed values for this attribute are true and false, true is the default. Every resource that is mandatory must be online in order to get the whole group online.

selectFromPolicy Optional. The selectFromPolicy attribute specifies the policy to be used when making a selection from the move groups member list. Allowed values are Any and Ordered, the value Ordered is the default. It is only allowed when the member is a move group. The value Ordered means the selection starts at the beginning. The value Any means no specific order.

Sub-elements

None.

Description

Optional element. It may contain comments like ASCII text describing the purpose of the element where it is embedded. It has a maximum number of 1024 characters.

This element can be used only as sub element within the ResourceGroup element. It can occur 0 times or once under one parent element

Example

```
<Description>
  FixedResource - This is the error reporting daemon of xDR
</Description>
```

Attributes

None.

Sub-elements

None.

Owner

Optional Element. It may contain contact information about the owner of the element where it is embedded. This element can be used only as sub element within the ResourceGroup element. This element may occur 0 times or once under one parent element. It has a maximum number of 1024 characters.

Example

```
<Owner>Paul Meyer</Owner>
```

Attributes

None.

Sub-elements

None.

InfoLink

Optional element. It specifies the URL of a HTML page which shows additional information about the element where it is embedded. This element can be used only as sub element within the ResourceGroup element. This element may occur 0 times or once under one parent element. It has a maximum number of 1024 characters.

Example

```
<ResourceGroup class="IBM.ResourceGroup" name="db2-group">
  <DesiredState>Online</DesiredState>
  <InfoLink>www.ibm.com/TSA/xDR</InfoLink>
  <AllowedNode>ALL</AllowedNode>
</ResourceGroup>
```

Attributes

None.

Sub-elements

None.

Example XML policy

This section provides an example XML policy which corresponds to the following graphic, showing a resource group named WebServerGroup consisting of 3 move groups:

WebServerGroup

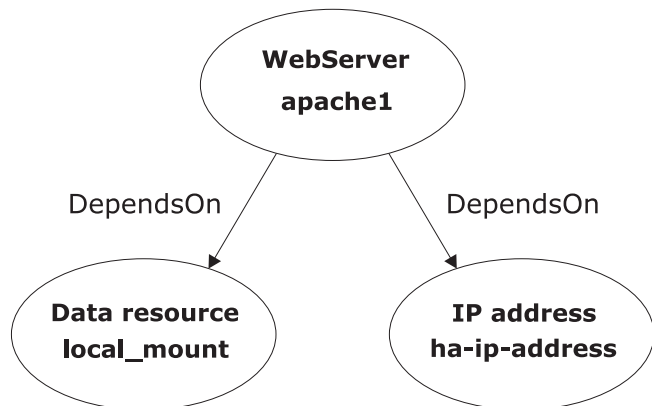


Figure 1. WebServerGroup resource group

```

<?xml version="1.0" encoding="UTF-8"?>
<AutomationPolicy productID="SAM" version=""
  xmlns="http://www.ibm.com/TSA/Policy.xsd"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.ibm.com/TSA/Policy.xsd SAMPolicy.xsd ">
  <PolicyInformation>
    <PolicyName>WebServer-Policy</PolicyName>
    <AutomationDomainName>clustername</AutomationDomainName>
    <PolicyToken>1.0.0</PolicyToken>
    <PolicyDescription>this is the policy for the WebServer
    </PolicyDescription>
    <PolicyAuthor>authorname</PolicyAuthor>
  </PolicyInformation>

  <ConstituentResource name="apache1" class="IBM.Application" node="node1" />
  <ConstituentResource name="apache1" class="IBM.Application" node="node2" />

  <ConstituentResource name="local_mount" class="IBM.Application" node="node1" />
  <ConstituentResource name="local_mount" class="IBM.Application" node="node2" />

  <ConstituentResource name="ha-ip-address" class="IBM.ServiceIP" node="node1" />
  <ConstituentResource name="ha-ip-address" class="IBM.ServiceIP" node="node2" />

  <IBM.ApplicationAttributes name="Application1">
    <StartCommand>/usr/bin/apache start</StartCommand>
    <StopCommand>/usr/bin/apache stop</StopCommand>
    <MonitorCommand>/usr/bin/apache status</MonitorCommand>
    <UserName>root</UserName>
    <MonitorCommandPeriod>5</MonitorCommandPeriod>
    <MonitorCommandTimeout>4</MonitorCommandTimeout>
    <StartCommandTimeout>10</StartCommandTimeout>
    <StopCommandTimeout>10</StopCommandTimeout>
    <RunCommandsSync>1</RunCommandsSync>
  </IBM.ApplicationAttributes>

  <IBM.ApplicationAttributes name="Application2">
    <StartCommand>/usr/bin/local_mount start /mount1</StartCommand>
    <StopCommand>/usr/bin/local_mount stop /mount1</StopCommand>
    <MonitorCommand>/usr/bin/local_mount status /mount1</MonitorCommand>
    <UserName>root</UserName>
  </IBM.ApplicationAttributes>

```

```

    <MonitorCommandPeriod>5</MonitorCommandPeriod>
    <MonitorCommandTimeout>4</MonitorCommandTimeout>
    <StartCommandTimeout>30</StartCommandTimeout>
    <StopCommandTimeout>30</StopCommandTimeout>
    <RunCommandsSync>1</RunCommandsSync>
    <ProtectionMode>1</ProtectionMode>
  </IBM.ApplicationAttributes>

  <IBM.ServiceIPAttributes name="ServiceIP1">
    <IPAddress>10.10.10.15</IPAddress>
    <NetMask>255.255.255.0</NetMask>
    <ProtectionMode>1</ProtectionMode>
  </IBM.ServiceIPAttributes>

  <MoveGroup name="apache1" class="IBM.Application">
    <ClassAttributesReference>
      <IBM.ApplicationAttributes name="Application1"/>
    </ClassAttributesReference>
    <Members>
      <ConstituentResource name="apache1" class="IBM.Application" node="node1" />
      <ConstituentResource name="apache1" class="IBM.Application" node="node2" />
    </Members>
  </MoveGroup>

  <MoveGroup name="local_mount" class="IBM.Application">
    <ClassAttributesReference>
      <IBM.ApplicationAttributes name="Application2"/>
    </ClassAttributesReference>
    <Members>
      <ConstituentResource name="local_mount" class="IBM.Application" node="node1" />
      <ConstituentResource name="local_mount" class="IBM.Application" node="node2" />
    </Members>
  </MoveGroup>

  <MoveGroup name="ha-ip-address" class="IBM.ServiceIP">
    <ClassAttributesReference>
      <IBM.ServiceIPAttributes name="ServiceIP1"/>
    </ClassAttributesReference>
    <Members>
      <ConstituentResource name="ha-ip-address" class="IBM.ServiceIP" node="node1" />
      <ConstituentResource name="ha-ip-address" class="IBM.ServiceIP" node="node2" />
    </Members>
  </MoveGroup>

  <ResourceGroup class="IBM.ResourceGroup" name="apache-group">
    <DesiredState>Online</DesiredState>
    <InfoLink>www.apache.com</InfoLink>
    <Members>
      <MoveGroup name="apache1" class="IBM.Application"/>
      <MoveGroup name="local_mount" class="IBM.Application"/>
      <MoveGroup name="ha-ip-address" class="IBM.ServiceIP"/>
    </Members>
  </ResourceGroup>

  <Relationship>
    <Source>
      <MoveGroup name="apache1" class="IBM.Application"/>
    </Source>
    <Target>
      <MoveGroup name="local_mount" class="IBM.Application"/>
    </Target>
    <Type>DependsOn</Type>
    <Condition>None</Condition>
  </Relationship>

  <Relationship>
    <Source>

```

Policy XML reference

```
        <MoveGroup name="apache1" class="IBM.Application"/>
    </Source>
    <Target>
        <MoveGroup name="ha-ip-address" class="IBM.ServiceIP"/>
    </Target>
    <Type>DependsOn</Type>
    <Condition>None</Condition>
</Relationship>

</AutomationPolicy>
```

Chapter 3. Messages used with IBM Tivoli System Automation

This chapter is for any user of IBM Tivoli System Automation who needs to know what a message means and what should be done in response to that message. This chapter lists all of the messages that are generated by the base component of IBM Tivoli System Automation and describes solutions for each of these messages. An extra section lists the messages generated by the sampolicy command.

2621-001 **Attribute "*attribute_name*" cannot be specified when defining a new resource.**

Explanation: An error occurred when an attribute that can not be used in defining a resource has been specified.

User response: Specify only the attributes which can be specified in defining the resource.

2621-002 **Attribute "*attribute_name*" appears in request more than once.**

Explanation: An error occurred as the same attribute is used multiple times.

User response: Use the attribute only once.

2621-003 **Class name "*class_name*" is not recognized by this resource manager.**

Explanation: An internal error occurred when attempting to create an RCCP for a class which does not exist.

User response: Contact your software service organization.

2621-004 **Could not initialize control point for class "*class_name*".**

Explanation: An internal error occurred when attempting to create an RCCP for the class.

User response: Contact your software service organization.

2621-005 **Attribute "*attribute_name*" must be specified when defining a new resource.**

Explanation: This error was detected when a mandatory attribute is excluded in defining a resource.

User response: Use "`lsrsrcdef <class name>`" to check the attribute properties, include all mandatory (ReqdForDefine) attributes.

2621-006 **Unrecognized resource class id: *resource_class_id*.**

Explanation: An error occurred while extracting the class info for this class id.

User response: If a resource handle is used, check if it is correct. Otherwise, contact your software service organization.

2621-007 **Time out waiting for resource enumeration responses for the IBM.PeerNode class.**

Explanation: A time out error occurred while waiting for peer nodes enumeration registration response.

User response: Check if the RMC and ConfigRM are running (use "`lssrc -a`" command). If either of the subsystem is inoperative, consult the RMC/ConfigRM user guides to check how to restart the non-operational subsystem.

2621-008 **Failed to update resource because of configuration data replication errors.**

Explanation: An error occurred while replicating data.

User response: Retry the operation. If the problem continues, report to your software service organization.

Messages

2621-009 Command not allowed - IBM.RecoveryRM not initialized.

Explanation: The resource manager is not yet initialized to perform client's request.

User response: Wait for initialization and retry the command.

2621-010 Command not allowed - IBM.RecoveryRM not in configuration quorum.

Explanation: The cluster is probably running with several IBM.RecoveryRM daemons failure. The operation needs the quorum of IBM.RecoveryRM daemons online.

User response: Try to restart the failed IBM.RecoveryRM daemons to bring back the configuration quorum.

2621-011 Command not allowed - node failed configuration data replication.

Explanation: The node had failed updating the configuration data - can not perform the client's request.

User response: Retry the operation. If the problem continues, report to your software service organization.

2621-012 Command not allowed - configuration data replacement in process.

Explanation: The system is in transition to a new configuration data - can not perform the client's request.

User response: Retry the operation. If the problem continues, report to your software service organization.

2621-013 Command not allowed - replication can not be started.

Explanation: An error occurred in initializing the replication process.

User response: Retry the operation. If the problem continues, report to your software service organization.

2621-014 Command not allowed - one or more related resource groups are online.

Explanation: An error was generated while changing a managed resource, resource group, or relationship which involves one or more online resource groups.

User response: Before changing the resource, the resource groups have to be offline.

2621-015 Failed to get resource class persistent attributes for class "*class_name*".

Explanation: An error was returned while querying the class to get its persistent attributes.

User response: Check if the resource manager to which the class belongs to is operational. If the resource manager is inoperative, consult its user guide to check how to restart.

2621-016 Failed to get definition of resource persistent attributes for class "*class_name*".

Explanation: An error was returned while querying a resource to get its persistent attributes.

User response: Check if the resource manager to which the class belongs to is operational. If the resource manager is inoperative, consult its user guide to check how to restart.

2621-017 Time out waiting for attribute query responses for the "*class_name*" class.

Explanation: A time out error occurred while waiting for attribute query response from RMC.

User response: Check if the resource manager to which the class belongs to is operational. If the resource manager is inoperative, consult its user guide to check how to restart.

2621-018 Error encountered when calling function "*function_name*". return code = *return_code*

Explanation: An error condition was returned when this function was invoked.

User response: This is an internal error, report it to your software service organization.

2621-019 Time out waiting for response of event registration with resource handle.

Explanation: A time out error occurred while waiting for a response on an event registration with resource handle.

User response: Check if the RMC and the resource manager for the resource are running (use "*lssrc -a*" command). If either of the subsystem is inoperative, consult the corresponding user guide to check how to restart the non-operational subsystem.

2621-020 Resource has an invalid resource class name "*resource_class_name*".

Explanation: The referenced resource class name is not found.

User response: Use "*lssrc*" command to display the supported resource classes. Correct the class name and retry the operation.

2621-021 Resource does not exist.

Explanation: The referenced resource is not found.

User response: Use "*lssrc class_name*" to display all resources with in a class.

2621-022 Resource encounters event registration error. The error message is: [*error_message*]

Explanation: An error message was returned by the RMC in response to an event registration for a resource.

User response: Check the error message and take the appropriate measure. Restart the RMC and the resource manager if they are not running.

2621-023 Resource RCP not found

Explanation: An internal error was detected while a control point for a resource was not found.

User response: Contact your software service organization.

2621-024 Timed out waiting for resource enumeration responses for the IBM.PeerDomain class.

Explanation: A time out error occurred while waiting for peer domains enumeration registration

User response: Check if the RMC and ConfigRM are running (use "*lssrc -a*" command). If either of the subsystem is inoperative, consult the RMC/ConfigRM user guides to check how to restart the non-operational subsystem.

2621-025 Value "*input_parameter_value*" provided for input parameter "*input_parameter_name*" in SubmitRequest action is not valid.

Explanation: Value provided for an input parameter in SubmitRequest action is not valid

User response: Check value provided for input parameter of SubmitRequest action. Correct the value and retry the action

2621-026 This functionality is not supported by current active version of the cluster.

Explanation: The cluster is in co-existence or migration mode. The current active version does not support the functionality.

User response: Retry after migration is completed.

Messages

2621-027 There is no previous request from source [*source_name*]. Cancellation failed.

Explanation: Cancellation of request is received but there is no previous request from the specified source.

User response: Check value provided for source of SubmitRequest action. Correct the value and retry the action

2621-028 Command not allowed - complete migration action in process.

Explanation: The system is in transition to a new active code version level - can not perform the client's request.

User response: Retry the operation. If the problem continues, report to your software service organization.

2621-029 Request to move can not be granted as there is already a move request on the resource.

Explanation: Request to move can not be granted as there is already a move request on the same resource group.

User response: Wait for five minutes and Retry the operation.

2621-030 Timed out waiting for query persistent class attribute request responses for the IBM.PeerNode class.

Explanation: A time out error occurred while waiting for peer node QuorumType registration

User response: Check if the RMC and ConfigRM are running (use "lssrc -a" command). If either of the subsystem is inoperative, consult the RMC/ConfigRM user guides to check how to restart the non-operational subsystem.

2621-031 Command not allowed - new configuration initialization is in progress.

Explanation: The system is in transition to a new configuration initialization - can not perform the client's request.

User response: Retry the operation. If the problem continues, report to your software service organization.

2621-050 Resource group name "*resource_group_name*" already defined.

Explanation: An error was detected while an existing resource group name is used to define a new resource group.

User response: Use an unique name and retry the command.

2621-051 Resource group has an invalid allowed node as the equivalency members do not belong to IBM.PeerNode.

Explanation: The AllowedNode of the defined resource group comes from an equivalency whose MemberClass attribute is not IBM.PeerNode.

User response: Correct the problem and retry the operation.

2621-052 Resource group member location is incompatible with its outer resource group.

Explanation: The MemberLocation attribute of the inner resource group is incompatible with its outer resource group.

User response: Correct the problem and retry the operation.

2621-053 Resource group member location is incompatible with its members relationships.

Explanation: The MemberLocation attribute of the resource group is incompatible with a defined location sensitive (Collocated, DependsOn, etc) managed relationship. The resource group may have one or more members participating in the conflicted relationship.

User response: Fix the location compatibility problem either by changing the attribute or the relationship or both.

2621-054 Resource group priority must be between 0 and 200.

Explanation: The priority value specified by the user is not valid.

User response: Specify a priority within the valid range 0 and 200.

2621-055 Resource group priority *resource_group_priority* exceeds the priorities of outer resource groups.

Explanation: An error was detected in a nested resource group where an inner resource group has a higher priority than an outer resource group.

User response: Reset the priority so that outer resource group has the same or higher priority than an inner resource group, and retry the command.

2621-056 Resource group has an invalid value for attribute MemberLocation: *invalid_value*.

Explanation: The value entered for attribute MemberLocation is invalid.

User response: Define resource group with a valid value for attribute MemberLocation.

2621-057 Resource group has an invalid value for attribute NominalState: *invalid_value*.

Explanation: The value entered for attribute NominalState is invalid.

User response: Enter a valid value for attribute NominalState.

2621-058 Resource group nesting level exceeds the maximum of 50 levels.

Explanation: The resource groups nesting level can not exceed maximum of 50 levels.

User response: Reduce the resource groups nesting level.

2621-059 Node ID can not be found.

Explanation: A node id in SubmitRequest resource action does not correspond to a node in cluster

User response: Check value of node id. Correct the value and retry the action

2621-060 ExcludedList is not supported for Resource Group in the current active version of the cluster.

Explanation: The cluster is in co-existence or migration mode. The current active version does not support the ExcludedList attribute for Resource Groups.

User response: Retry after migration is completed.

2621-061 Resource group has an invalid ExcludedList as all or some of its members do not belong to the current cluster.

Explanation: The ExcludedList of the defined resource has at least one of its members or nodes that do not belong in the current cluster.

User response: Correct the problem and retry the operation.

2621-062 A node specified in move action is not in the allowed node list of resource group.

Explanation: Resource group is being requested to move away from a node it is not allowed.

User response: Check value provided for input parameter of SubmitRequest action. Correct the value and retry the action

Messages

2621-063 The resource group is in offline state and can not be moved.

Explanation: Resource group being requested to move is in offline state.

User response: Check target of move request. Correct the target and retry the action.

2621-064 Node name list not specified when moving a non-collocated resource group.

Explanation: A list of node names to move resources away from must be specified when moving a non-collocated resource group.

User response: Retry the command with node name list specified.

2621-065 Resource group "*resource_group*" cannot be brought online - Empty Tree.

Explanation: The specified resource group cannot be brought online because it did not have any resources that could be brought online.

User response: Add a real resource to the group and then bring it online.

2621-066 Resource group can not be moved as it is not a top-level resource group.

Explanation: The specified resource group cannot be moved because it is not a top-level resource group.

User response: Issue the move request against a top-level resource group.

2621-067 Resource group can not be moved as it contains only fixed resources.

Explanation: The specified resource group cannot be moved because it contains only fixed resources.

User response: Rethink the needs to move this resource group.

2621-068 Subscription is not supported for Resource Group in the current active version of the cluster.

Explanation: The cluster is in co-existence or migration mode. The current active version does not support the Subscription attribute for Resource Groups.

User response: Retry after migration is completed.

2621-069 This attribute is not supported for Resource Group in the current active version of the cluster.

Explanation: The cluster is in co-existence or migration mode. The current active version does not support this attribute for Resource Groups.

User response: Retry after migration is completed.

2621-101 Managed resource cannot be in more than one resource group, already in "*resource_group_name*".

Explanation: An error was detected when a resource that already exists as a managed resource was attempted to be included in the same or another resource group.

User response: Retry the operation with correct parameters.

2621-102 Managed resource has an invalid resource handle.

Explanation: A resource manager has responded back with an invalid resource handle.

User response: If this internal problem continues, contact your software service organization

2621-103 Managed resource "*resource_name*" does not have control interface.

Explanation: An error was generated while it was detected that resource class does not support the control interface.

User response: Check the attributes of the resource class. Add only the resources whose OpState can be changed.

2621-104 Managed resource's resource group "*resource_group_name*" does not exist.

Explanation: A dangling managed resource is detected whose resource group does not exist any more.

User response: This may be an internal error. Contact your software service organization.

2621-105 Managed resource has an invalid resource class id *class_id*.

Explanation: The referenced managed resource class has an invalid class id.

User response: Use "`lsrsrcdef -c class-name`" to display the correct class id. Use the correct class name and retry the operation.

2621-106 Managed resource has an invalid resource type *resource_type*.

Explanation: A managed resource can either be fixed or floating type. An error occurred as an invalid typed resource was used.

User response: Correct the problem and retry the operation.

2621-107 Managed resource is a fixed resource, but is not defined on any node.

Explanation: An error was generated as a fixed managed resource was not found on any node.

User response: Either remove the resource from the resource group or modify type as floating.

2621-108 Resource group's member location is incompatible with its outer resource group.\n"

Explanation: The MemberLocation attribute of the inner resource group is incompatible with its outer resource group.

User response: Correct the problem and retry the operation.

2621-109 Managed resource is a fixed resource, but is defined on *number_of_nodes* nodes.

Explanation: An error was generated as a fixed resource was defined on multiple nodes.

User response: Either remove the resource from the resource group or modify the node list or change type to floating.

2621-110 Can not find resource class information for managed resource.

Explanation: An error was generated when enumerating the class information for a resource.

User response: Verify that the correct class name was used. If error continues, report to your software service organization.

2621-111 Resource group can not be a member of itself.

Explanation: A managed resource (resource group) can not be nested within itself.

User response: Retry the operation with correct parameters.

Messages

2621-112 **Value of attribute Mandatory: *invalid_value* for managed resource is not valid.**

Explanation: The value entered for attribute Mandatory is invalid.

User response: Define managed resource with a valid value for attribute Mandatory.

2621-113 **Managed resource "*resource_name*" is the target of a resource in another tree.**

Explanation: A managed resource can not be the target of two independent resource groups. The error was generated due to the violation of this constraint.

User response: Remove the conflict and retry the operation.

2621-114 **Managed resource "*resource_name*" can not be defined in an equivalency.**

Explanation: An error was generated when a managed resource was being included as a member of an equivalency.

User response: Define the equivalency only with resources that are not defined as managed resources.

2621-115 **Managed resource is from an invalid class.**

Explanation: A resource designated as managed has a resource handle that does not belong to the referenced class.

User response: Correct the class name and retry the operation.

2621-116 **Resource does not have dynamic attribute - OpState.**

Explanation: An error was generated while it was detected that resource class does not have the dynamic attribute - OpState.

User response: Check dynamic attributes of the resource class. Add only the resources which has OpState.

2621-117 **Can not change source managed resource while there are targets.**

Explanation: An error was generated while trying to change the source of a relationship when the relationship has one or more targets.

User response: Remove the relationship and recreate a new one with appropriate source.

2621-118 **Can not change the resource handle of a managed resource.**

Explanation: A managed resource always represents the resource for which it was created.

User response: Remove the member representing the managed resource from the resource group and add a new member that points to the correct resource.

2621-119 **Resource group does not exist.**

Explanation: An error was generated when a non-existent resource group was referenced.

User response: Check the valid resource groups using "lsrg" command. Retry the operation using correct resource group.

2621-120 **Operation temporarily disallowed, as resource registration is in progress.**

Explanation: Previous attempt to register for resource events failed. While daemon is retrying the registration, some functionalities is not available.

User response: Correct the registration problem, then retry the operation.

2621-121 **Value of attribute SelectFromPolicy: *invalid_value* for managed resource is not valid.**

Explanation: The value entered for attribute SelectFromPolicy is invalid.

User response: Define managed resource with a valid value for attribute SelectFromPolicy.

2621-122 **SelectFromPolicy is not supported for Managed resources in the current active version of the cluster.**

Explanation: The cluster is in co-existence or migration mode. The current active version does not support the SelectFromPolicy feature for managed resources.

User response: Retry after migration is completed.

2621-123 **Subscription is not supported for Managed Resource in the current active version of the cluster.**

Explanation: The cluster is in co-existence or migration mode. The current active version does not support the Subscription attribute for Managed Resource.

User response: Retry after migration is completed.

2621-150 **Managed relationship has a source resource that is not a managed resource.**

Explanation: An error was detected when a non-managed resource was used as the source of a managed relationship. The source must be a managed resource.

User response: Correct the problem, and retry the operation.

2621-151 **Managed relationship has a target resource that is not valid.**

Explanation: An error was generated as an invalid or non-existent resource was used as the target of a managed relationship.

User response: Correct the problem and retry the operation.

2621-152 **Managed relationship name "*relationship_name*" already defined.**

Explanation: A managed relationship with this name was already defined.

User response: Use an unique name and retry the operation.

2621-153 **Managed relationship target specified more than once.**

Explanation: An error was generated as a resource was used more than once as the target of a managed relationship.

User response: Correct the problem and retry the operation.

2621-154 **Managed relationship has an invalid value 0 for attribute - Relationship.**

Explanation: A new managed relationship was being defined with no (NONE) relationship value.

User response: Define managed relationship with a valid value for relationship.

2621-155 **Managed relationship source defined as target resource.**

Explanation: An error condition was detected. A managed relationship's source and target can not be the same.

User response: Remove source resource from the target, and retry the operation.

Messages

2621-156 Managed relationship conflicts with a previously defined relationship.

Explanation: A new relationship was defined which conflicts with a previously defined location sensitive or order sensitive relation.

User response: Remove the conflict and retry the operation.

2621-157 Managed relationship duplicates a previously defined relationship.

Explanation: An error was generated due to re-definition of a relationship.

User response: Define only one instance of a relationship.

2621-158 Managed relationship has a source or target that is not of an allowed class.

Explanation: The resource from this class can't be the source or target of the defined relationship.

User response: Correct the source or target resource and retry the operation.

2621-159 Managed relationship is not consistent with source's resource group member location.

Explanation: A conflict was detected in location association of the relationship.

User response: Check the source's MemberLocation attribute and correct the problem.

2621-160 Managed relationship introduces circular relationship from a resource back to itself.

Explanation: For StartAfter or DependsOn, or DependsOnAny relationship, a circular dependency was detected which may create a deadlock.

User response: Remove the circular dependency and retry the operation.

2621-161 Specified Relationship attribute for Managed relationship is not supported by current active version of the cluster.

Explanation: The cluster is in co-existence or migration mode. The current active version does not support the specified relationship attribute.

User response: Retry after migration is completed.

2621-200 Equivalency name "*equivalency_name*" already defined.

Explanation: An equivalency with this name was already defined.

User response: Use an unique name and retry the operation.

2621-201 Equivalency membership must either be explicitly enumerated or specified with a select string.

Explanation: An error was generated while both a select string and an enumerated set of resource handles are used to define equivalency membership.

User response: Use either enumeration or select string (not both) and retry the operation.

2621-202 Equivalency has an invalid select string.

Explanation: User entered an invalid select string.

User response: Correct the problem, especially check the attribute name and value. Retry the operation.

2621-203 Equivalency has an invalid member.

Explanation: An error condition was detected as an equivalency member was found which was either a managed resource or did not belong to the same class as other members.

User response: Correct the problem and retry the operation.

2621-204 Equivalency of nodes has invalid member.

Explanation: A node in an equivalency do not belong to IBM.PeerNode class.

User response: Correct the problem and retry the operation.

2621-205 Equivalency has members belonging to different resource classes.

Explanation: An error was detected in an equivalency members. Resources within the equivalency are from different classes. All resources within the an equivalency must be from the same class.

User response: Correct the problem and retry the operation.

2621-206 Equivalency membership has a duplicated resource handle `\\resource_handle\\`.

Explanation: Two members of an equivalency has the same resource handle.

User response: Remove one and then retry the operation.

2621-207 Equivalency membership has resource handles containing multiple class ids (`class_id1` and `class_id2`).

Explanation: An error was generated while defining an equivalency. Two resource members within the equivalency are from different classes. All resources within the an equivalency must be from the same class.

User response: Correct the problem and retry the operation.

2621-208 Equivalency need to specify both select string and a valid resource class name.

Explanation: An error was generated while an invalid resource class name was used with the dynamic select string.

User response: Correct the class name and retry the operation.

2621-209 Can not find resource class information for equivalency `"equivalency_name"`.

Explanation: An error was generated while enumerating the class information for the member class.

User response: This may be an internal error, report to your software service organization.

2621-210 Resource class `"resource_class_name"` is invalid for equivalency.

Explanation: A resource from this class is not valid for this equivalency. Class id may be different from other members.

User response: Use the resources from the same class to correct the problem.

2621-211 Resource class may not be changed in an equivalency without replacing the members.

Explanation: An error was generated while user was trying to change the MemberClass attribute value of an equivalency which has members (may be from a different class).

User response: Remove the members before changing the MemberClass.

Messages

2621-212 ManagedResource "*equivalency_name*" can not be a member of an Equivalency.

Explanation: An error was generated as a managed resource was placed as a member of this equivalency.

User response: Add only the resources that are not member of any resource group.

2621-213 A ManagedResource referenced as an AllowedNode may not change its class.

Explanation: Error was detected as class of a managed resource referenced as an AllowedNode was changed.

User response: Remove the error condition and retry.

2621-214 Resource class may not be changed for an equivalency if there are members.

Explanation: An error was generated while user was trying to change the MemberClass attribute value of an equivalency which has members (may be from a different class).

User response: Remove the members before changing the MemberClass.

2621-215 A selection Policy other than ANY is invalid with a selection string.

Explanation: An error was generated while parsing an equivalency definition with selection string where the selection policy was not ANY.

User response: Change the selection policy to ANY and retry the operation.

2621-216 Minimum value must between 1 and 100.

Explanation: An error was generated while an invalid MinimumNecessary attribute value was entered by the user.

User response: Use a valid value from 1 - 100 and retry the command.

2621-217 Equivalency contains no member resource

Explanation: This error message indicates that an IBM.Equivalency resource is defined with a NULL select string, and an empty membership list.

User response: Define an equivalency with either a select string or a non-empty membership list

2621-218 Floating resource with resource handle `\\"resource_handle\\"` can not be a member of Equivalency `\\"Equivalency_name\\"`.

Explanation: Floating resources are not allowed to be a member of an equivalency.

User response: Add only fixed or constituents resources as members of equivalencies.

2621-219 Subscription is not supported for Equivalency in the current active version of the cluster.

Explanation: The cluster is in co-existence or migration mode. The current active version does not support the Subscription attribute for Equivalency.

User response: Retry after migration is completed.

2621-300 Node specified by resource handles for excluded nodes could not be found.

Explanation: The excluded nodes contains one or more nodes that are not defined in IBM.PeerNode resource class.

User response: Correct the problem and retry the operation.

2621-301 **Input to the "*class_action_name*" action is not valid.**

Explanation: A class action activation request is received which contains structured data with invalid elements.

User response: Correct the problem and retry the operation.

2621-302 **attribute "*invalid_value*" has an invalid or out of range value.**

Explanation: During the process of attempting to add or change attribute values, it was discovered that the value is either invalid or out of range.

User response: Correct the problem and retry the operation.

2621-303 **The automation engine is not initialized.**

Explanation: The decision engine is not initialized.

User response: Wait for five minutes and retry the operation. If problem continues, report to IBM service organization.

2621-304 **Invalid action, RecoveryRM is not in ReplaceConfig mode.**

Explanation: An invalid restore configuration option entered.

User response: Correct the problem and retry the operation.

2621-305 **Feature not enabled, RecoveryRM is either running in down graded or migration mode.**

Explanation: A feature option that can not be activated is entered.

User response: Complete migration to an appropriate version level.

2621-306 **Input to the "CompleteMigration" action is not valid. Our IVN is incompatible to this NewActiveVersion: "*active_version*"**

Explanation: The NewActiveVersion release name is incompatible to the current installed RecoveryRM daemon version.

User response: Correct the problem and retry the operation.

2621-307 **Input to the "CompleteMigration" action is not valid. The range of NewActiveVersion is between version "*1.1.1.0*" and version "*256.256.256.256*" - "*version*"**

Explanation: The value of the NewActiveVersion release name is invalid. It needs to be within the range of "*1.1.1.0*" and "*256.256.256.256*".

User response: Correct the problem and retry the operation.

2621-308 **Input to the "CompleteMigration" action is not valid. NewActiveVersion ("*new_active_version*") cannot be higher than IVN ("*installed_version*") or lower than current AVN ("*%3\$s current_active_version*").\n**

Explanation: The value of the NewActiveVersion release name is invalid. It cannot lower than the current active version number or higher than installed version number.

User response: Correct the problem and retry the operation.

2621-309 **Command not allowed as daemon does not have a valid license.**

Explanation: The command being issued is not allowed to run on this daemon as a valid license is not installed.

User response: Install a valid license and retry the operation.

Messages

2621-310 **Cannot perform the "CompleteMigration" action. Current joined RecoveryRM daemon member count (*daemon_member_count*) is different than the total node count (*total_node_count*). Use force option ("-f") to override.\n"**

Explanation: Since not all the RecoveryRM daemons are up and running, we cannot start the migration complete action.

User response: Make sure that all the RecoveryRM daemons are up and running or use the force option ("-f") to start the migration complete action.

2621-311 **Publisher is not supported in the current active version of the cluster.**

Explanation: The cluster is in co-existence or migration mode. The current active version does not support the Publisher feature.

User response: Retry after migration is completed.

2621-312 **License file "*license_file_name*" does not exist.**

Explanation: The license file to be installed does not exist.

User response: Find the correct location of the license file to be installed, and retry the operation.

2621-313 **Configuration command not allowed - daemon is in replace configuration mode.**

Explanation: The command being issued is not allowed in replace configuration mode.

User response: Wait for the completion of replace configuration action.

2621-314 **Input to the "CompleteMigration" action is not valid. Current RSCT active version number is incompatible to this NewActiveVersion: "*version*"**

Explanation: The current RSCT active version number is incompatible to the selected new RecoveryRM daemon active version number.

User response: Correct the problem and retry the operation.

2621-315 **attribute "*attribute_name*" has an invalid value "*invalid_value*".**

Explanation: During the process of attempting to add or change attribute values, it was discovered that the specified value is invalid or out of range.

User response: Correct the problem and retry the operation.

2621-316 **IBM.RecoveryRM publisher configuration file *file_name* not found.**

Explanation: IBM.RecoveryRM publisher configuration file not found. This publisher can not be enabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the \'`samctrl -e \'` command.

2621-317 **IBM.RecoveryRM publisher configuration file *file_name* syntax error in line number *line_number*.**

Explanation: IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the \'`samctrl -e \'` command.

2621-318 **IBM.RecoveryRM publisher TEC EIF configuration file not found. The specified configuration file "*ConfigPath=config_file*" is not valid in the publisher configuration file "*file_name*" for the publisher name "*publisher_name*"**

Explanation: IBM.RecoveryRM publisher TEC EIF configuration file not found. This publisher can not be enabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `\samctrl -e \` command.

2621-319 IBM.RecoveryRM publisher configuration file syntax error. Parameter "*parameter*" not found in publisher configuration file "*file_name*" for the publisher name "*publisher_name*".

Explanation: IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `\samctrl -e \` command.

2621-320 IBM.RecoveryRM publisher configuration file syntax error. Same publisher name found multiple times in publisher configuration file "*file_name*" with the publisher name "*publisher_name*".

Explanation: IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `\samctrl -e \` command.

2621-321 IBM.RecoveryRM publisher configuration file syntax error. Too many publishers found in publisher configuration file "*file_name*". Maximum number of *max_number_publishers* publishers supported.

Explanation: IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `\samctrl -e \` command.

2621-322 The command "`samctrl -e ld`" failed. *detailed_msg*

Explanation: During the process of attempting to add or change a publisher, it was discovered that the specified publisher name can not be set.

User response: Correct the problem and retry the operation.

2621-323 IBM.RecoveryRM publisher configuration file "*file_name*" does not contain publisher name "*publisher_name*".

Explanation: IBM.RecoveryRM publisher not found. This publisher can not be enabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `\samctrl -e \` command.

2621-324 IBM.RecoveryRM publisher configuration file syntax error. Publisher name does not follow syntax rules in publisher configuration file "*file_name*" for the publisher name "*publisher_name*". Publisher name length: 1-8, Publisher name valid characters: '0'-'9', 'A'-'Z', 'a'-'z' and '_'.

Explanation: IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `\samctrl -e \` command.

2621-325 IBM.RecoveryRM publisher configuration file "*file_name*" does not contain a valid publisher name.

Explanation: IBM.RecoveryRM publisher not found. This publisher cannot be enabled.

User response: Fix the problem with the publisher configuration files and enable this publisher by using the `\samctrl -e \` command.

Messages

2621-750 **SA event with unknown reason in domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[Unknown]; severity=WARNING

User response: Analyze the event details and contact IBM support.

2621-751 **SA detected status change for domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[StatusSessionChanged,StatusQuorumChanged]; severity=WARNING

User response: The session state for this automation domain has changed, or the quorum state for this automation domain has changed.

2621-753 **SA Automation Manager started successfully in domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[StartedAutomationManager]; severity=HARMLESS

User response: The automation manager started.

2621-754 **SA Automation Manager stopped successfully in domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[StoppedAutomationManager]; severity=WARNING

User response: The automation manager stopped. Verify that the automation manager is intended to be stopped.

2621-755 **SA detected a configuration policy refresh in domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[PolicyRefreshed]; severity=HARMLESS

User response: A new policy has been activated for this automation domain. Verify that the action is intended for this automation domain.

2621-756 **SA detected a new configuration in domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[ConfigurationCreated]; severity=HARMLESS

User response: A new resource, relationship or request was created.

2621-758 **SA detected a deleted configuration in domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[ConfigurationDeleted]; severity=HARMLESS

User response: A resource, relationship or request was deleted.

2621-759 **SA detected a status change of resource "resource_name" in domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[StatusCommonObservedChanged,StatusCommonDesiredChanged,StatusCommonOperationalChanged,StatusCommonCompoundChanged]; severity=WARNING

User response: The common observed, desired, operational or compound state changed.

2621-770 **SA started automation operation for resource group "resource_name" in domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[StartedAutomation]; severity=WARNING

User response: This resource will be started or stopped under control of System Automation.

2621-771 **SA completed automation operation for resource group "resource_name" in domain "domain_name".**

Explanation: Event Attributes: sa_event_reason=[FinishedAutomation]; severity=HARMLESS

User response: This resource was successfully started or stopped under control of System Automation.

2621-772 SA detected that the system "*system_name*" switched into maintenance mode by an operator command in domain "*domain_name*".

Explanation: Reason: SA_STARTED_MAINTENANCE (excluded flag "not excluded" -> "excluded")

User response:

2621-773 SA detected that the system "*system_name*" switched back to automation mode by an operator command in domain "*domain_name*".

Explanation: Event Attributes: sa_event_reason=[FinishedMaintenance]; severity=WARNING

User response: This resource is now under control of System Automation.

2621-778 SA turned the resource "*resource_name*" online as requested in domain "*domain_name*".

Explanation: Event Attributes: sa_event_reason=[ResourceOnline]; severity=HARMLESS

User response: System Automation has set the resource online successfully.

2621-779 SA turned the resource "*resource_name*" offline as requested in domain "*domain_name*".

Explanation: Event Attributes: sa_event_reason=[ResourceOffline]; severity=HARMLESS

User response: System Automation has set the resource offline successfully.

2621-780 SA detected that the system "*system_name*" joined the domain "*domain_name*".

Explanation: Event Attributes: sa_event_reason=[SystemJoinedCluster]; severity=HARMLESS

User response: A system joined the cluster.

2621-781 SA detected that the system "*system_name*" left the domain "*domain_name*".

Explanation: Event Attributes: sa_event_reason=[SystemLeftCluster]; severity=WARNING

User response: A system left the cluster.

2621-784 SA detected a warning in domain "*domain_name*". The resource "*resource_name*" has been degraded.

Explanation: Event Attributes: sa_event_reason=[ResourceDegraded]; severity=WARNING

User response: The resource has been degraded. Inspect the individual status fields of this resource.

2621-785 SA detected a warning in domain "*domain_name*". The resource "*resource_name*" has a performance problem.

Explanation: Event Attributes: sa_event_reason=[ResourceIll]; severity=WARNING

User response: The resource has a performance problem.

2621-786 SA detected a warning in domain "*domain_name*". The resource "*resource_name*" has problems caused by a dependency to another resource.

Explanation: Event Attributes: sa_event_reason=[ResourceInhibited]; severity=WARNING

User response: An automation operation on the specified resource cannot be performed because it depends on another resource which prevents the operation. Inspect the status of the resources on which the specified resource depends.

Messages

2621-789 **SA detected a problem in domain "*domain_name*". The resource "*resource_name*" can't be turned into the requested state.**

Explanation: Event Attributes: sa_event_reason=[ResourceHung]; severity=CRITICAL

User response: An automation operation on the specified resource cannot be performed. Inspect the individual status fields of this resource.

2621-790 **SA detected a problem in domain "*domain_name*". The resource "*resource_name*" needs a manual reset by the operator.**

Explanation: Event Attributes: sa_event_reason=[ResourceBroken]; severity=CRITICAL

User response: An automation operation on the specified resource cannot be performed. Reset the automation resource manually.

2621-791 **SA detected a problem in domain "*domain_name*". The resource "*resource_name*" has problems caused by a offline system.**

Explanation: Event Attributes: sa_event_reason=[SystemGone]; severity=CRITICAL

User response: The resource has problems caused by a offline system. Inspect the system status of this resource.

2621-792 **SA detected a problem in domain "*domain_name*". The operational quorum is lost.**

Explanation: Event Attributes: sa_event_reason=[NoQuorum]; severity=CRITICAL

User response: The operational quorum is lost. Inspect the cluster status.

2621-793 **Node "*node_name*" cannot be made offline. System Automation Manager reports that there are resources online on this node.**

Explanation: Stopping system automation on this node is prevented because of running resources.

User response: There are resources online on this node, that must be stopped prior to stopping the system automation.

2621-794 **Node can be made offline.**

Explanation: Stopping system automation is not prevented on this node.

User response: There are no controllable resources online on this node.

2622-001 *program_name:* **2622-001 Not a recognized flag: *flag*.**

Explanation: The flag or combination of flags passed to <program_name> was either an unsupported flag or an invalid combination of flags.

User response: Refer to the Usage statement which lists the valid flag. Correct the command and re-enter.

2622-002 *program_name:* **2622-002 Flag "*flag*" is not allowed with the unsupported operand "*operand*".**

Explanation: The operand passed with the flag was an unsupported or invalid operand or combination of operands.

User response: Refer to the Usage statement which lists the valid operand. Correct the command and re-enter.

2622-003 *program_name:* **2622-003 The combination of flags "*flag*" and "*flag or operand*" is not allowed.**

Explanation: The combination of the specified flags or flag and operand is not allowed.

User response: Either choose a different flag or do not enter the operand. Refer to the Usage statement which lists the valid valid flag, operands, and flag operand combinations.

2622-004 *program_name:* **2622-004 The "flag" flag is required.**

Explanation: The indicated flag must be specified when using this command.

User response: Check the command syntax and issue the command again.

2622-005 *program_name:* **2622-005 The "flag" flag requires an operand.**

Explanation: The indicated flag must be specified with an operand when using this command.

User response: Check the command syntax and issue the command again.

2622-006 *program_name:* **2622-006 There are no resource groups defined.**

Explanation: There were no Resources Groups.

User response: Add Resources Groups.

2622-007 *program_name:* **2622-007 There are no member resources defined.**

Explanation: There were no member Resources.

User response: Add member resources to groups.

2622-008 *program_name:* **2622-008 Not a valid number of operands.**

Explanation: <program_name> was called with an invalid number of operands.

User response: Refer to the Usage statement which lists the valid operand. Correct the command and re-enter.

2622-009 *program_name:* **2622-009 An unexpected RMC error occurred. The RMC return code was**
rmc_return_code.

Explanation: A call to an RMC CLI script returned an unexpected error.

User response: Check to see if RMC is operational and retry the command.

2622-010 *program_name:* **2622-010 error_exit received an unexpected return code** *return_code.*

Explanation: All SAM return codes should be converted to an appropriate SAM CLI (command line interface) return code. The actual API return code or other internal subroutine return code is printed. It is treated as a severe error and processing of the command stops.

User response: This is an internal script error and should not occur. Report the command name, and this message to the IBM Support Center at your convenience.

2622-011 *program_name:* **2622-011 The specified selection string "selection_string" did not match any resource groups.**

Explanation: The specified selection string did not match any resource groups.

User response: Check the selection string and issue the command again.

2622-012 *program_name:* **2622-012 The resource group "resource_group" already exists.**

Explanation: The resource group specified already exists.

User response: Check the resource group name and issue the command again.

Messages

2622-013 *program_name:* **2622-013 The resource group "resource_group" does not exist.**

Explanation: The specified resource group name does not exist.

User response: Check the resource group name and issue the command again.

2622-014 *program_name:* **2622-014 The resource "resource_name" not found in the class "resource_class".**

Explanation: The resource specified does not belong in the specified class.

User response: Check the resource and class name combination and issue the command again.

2622-015 *program_name:* **2622-015 None of the resources with the specified types exists in their respective classes.**

Explanation: All the resources specified were not found in their respective classes

User response: Make sure the resources with the specified types are part of their classes and then re-enter command.

2622-016 *program_name:* **2622-016 No resources were found with the selection string "selection_string" from the class "resource_class".**

Explanation: No resources were found using the specified selection string.

User response: Check the class name and selection string combination and then issue the command again.

2622-017 *program_name:* **2622-017 Resource "resource" already exists as a Member of Group "resource_group".**

Explanation: Resource already exist as a member resource.

User response: No action required.

2622-018 *program_name:* **2622-018 Resource "resource" is not a member resource of Resource Group "resource_group".**

Explanation: Resource is not a member resource of the specified resource group.

User response: May be required to add this resource to the specified resource group.

2622-019 *program_name:* **2622-019 All of the specified resources are already managed resources.**

Explanation: All member resources already exist as a managed Resource.

User response: No action required.

2622-020 *program_name:* **2622-020 None of the resources specified are member resources of resource group "resource_group".**

Explanation: All member resources don't exist for the specified resource group.

User response: Add these resources as member resources.

2622-021 *program_name:* **2622-021 Multiple entries of the flag flag not allowed.**

Explanation: User had entered the same flag with operands more than once.

User response: Re-enter the command with only one occurrence of the concerned flag.

2622-022 *program_name:* **2622-022 None of the resources specified are managed resources.**

Explanation: None of the resources specified exist as managed resources.

User response: Check resources and re-enter with valid resources.

2622-023 *program_name:* **2622-023 Resource "resource" is not a managed resource.**

Explanation: Specified resource is not a managed resource.

User response: Check Resources and re-enter with valid resources.

2622-024 *program_name:* **2622-024 Either flag "flag1" or "flag2" or "flag3" is required with the -N flag.**

Explanation: One of the three flags is required with the -N flag.

User response: Add the required flags to the command and try again.

2622-025 *program_name:* **2622-025 The specified source resource "source_resource" does not exist.**

Explanation: The specified source resource name does not exist in the specified class.

User response: Check the resource name and class name combination and then issue the command again.

2622-026 *program_name:* **2622-026 The specified source selection string "source_string" did not match any resource.**

Explanation: The specified source selection string did not match any resource in the specified class.

User response: Check the selection string or class name combination and then issue the command again.

2622-027 *program_name:* **2622-027 More than one relations were found with the same name "source_resource".**

Explanation: More than one relations was returned for the source when the operation only requires one relationship.

User response: Make the query more specific and issue the command again.

2622-028 *program_name:* **2622-028 Name change not allowed for more than one relations that matched from "query".**

Explanation: The selection string or query returned more than one source resource. Relation name has to be unique.

User response: Check the selection string or query and issue the command again.

2622-029 *program_name:* **2622-029 The specified equivalency "equivalency" already exists.**

Explanation: Specified equivalency already exists.

User response: Re-enter the command with an equivalency name that does not already exist.

2622-030 *program_name:* **2622-030 The specified equivalency "equivalency" does not exist.**

Explanation: Specified equivalency does not exist.

User response: Make sure the equivalency name already exist, re-issue the command.

2622-031 *program_name:* **2622-031 The node "node_name" does not exist in the cluster.**

Explanation: The node specified does not belong in the cluster.

User response: Check the node name and issue the command again.

Messages

2622-032 *program_name:* **2622-032 Resource "resource_name" of resource class "class_name" is not from the allowed nodes for resource group "Resource_group_name".\n**

Explanation: Member resource is not from the allowed nodes for the new resource group.

User response: Member resources must be part of the allowed node list of resource group.

2622-033 *program_name:* **2622-033 Resource Group "resource_group" has no member resources.**

Explanation: The specified resource group name does not contain any member resources.

User response: Check the resource group name and issue the command again.

2622-034 *program_name:* **2622-034 No resource groups were found that matched the specified query.**

Explanation: No existing resource groups matched the specified Query.

User response: Check the resource group name and issue the command again.

2622-035 *program_name:* **2622-035 No member resources were found that matched the specified query.**

Explanation: No existing member resources matched the specified query.

User response: Check the selection string or resource group name and issue the command again.

2622-036 *program_name:* **2622-036 actual_error_message**

Explanation: Display the error message from lsrsr-api.

User response: Check the error Message for appropriate action.

2622-037 *program_name:* **2622-037 Invalid user error. The return code was return code**

Explanation: SAM command line interface user Error.

User response: Check the error messenger for appropriate action.

2622-038 *program_name:* **2622-038 No resources were found. The return code was return code**

Explanation: No resources were found.

User response: Check the error message for appropriate action.

2622-039 *program_name:* **2622-039 No resources were specified for class class_name**

Explanation: No resources were specified for the class in the command line.

User response: Repeat the command with resources associated with the specified class.

2622-040 *program_name:* **2622-040 Multiple resources of the same type were matched for resource "resource_name" from class "resource_class**

Explanation: Multiple resources of the same resource type were found for the specified resource.

User response: Make sure only one resource is matched with same Type and then re-enter the command.

2622-901 *program_name:* **2622-901 Attributes and Arguments are mismatched.**

Explanation: Arguments are missing for some of the attributes in the input file.

User response: Repeat the command by updating the input file.

2622-902 *program_name:* **2622-902 Do not specify attribute *attribute* when defining resource *resource_class***
row: *row*.

Explanation: Arguments are missing for some of the attributes in the input file.

User response: Repeat the command by updating the input file.

2622-903 *program_name:* **2622-903 Error processing attribute *attribute_name* value "*attribute_value*".**

Explanation: The value for this particular attribute is not valid. See the preceding error message for additional details.

User response: Verify the data type for this particular attribute using the `lsrsrdef` command. Verify and correctly specify the value so that it is appropriate for this data type. For example, if the data type is an array, the values must be enclosed within curly braces { }. See the appropriate command man page and the man page for the Resource Data Input File for valid syntax values.

2622-904 *program_name:* **2622-904 Required argument *argument_name* argument name (SD element name) for resource *resource_class* name of the resource class must be specified.**

Explanation: The specified command arguments for this resource class and this command must be specified.

User response: Run `lscmdargdef` command to see the list of argument names and data types expected as input for this command.

2622-905 *program_name:* **2622-905 No resources were entered for resource class "*resource_class*".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-906 *program_name:* **2622-906 Failed to create some or all resources from Input file "*input_file_name*".**

Explanation: Failed to create some or all resources from input file for specified class.

User response: Check the file data, correct if possible and re-run command.

2622-907 *program_name:* **2622-907 Fixed resource *resource* on node *node_name* is not a managed resource.**

Explanation: Specified fixed resource is not a managed resource.

User response: Check Resources and re-enter with valid resources.

2622-908 *program_name:* **2622-908 Resource "*resource_name*" of resource class "*class_name*" is not from the allowed nodes for the Top resource group "*Top_Resource_group_name*".\n"**

Explanation: Member resource is not from the allowed nodes for the new resource group's top most group.

User response: Member resources must be part of the allowed node list of resource group and its top most group.

2622-909 *program_name:* **2622-909 A Consumer is required for the Specified subscription "*Subscription*".**

Explanation: Specified Subscription is missing the consumer.

User response: Re-enter subscription with a valid Consumer.

2622-910 *program_name:* **2622-910 The event family "*event_family*" specified with the subscription "*subscription*" is not supported.**

Explanation: Specified Subscription contains an invalid event family value.

User response: Re-enter subscription with a valid event family.

Messages

2622-911 *program_name:* **2622-911 The event filter "event_filter" specified with the subscription "subscription" is not supported.**

Explanation: Specified Subscription contains an invalid event filter value.

User response: Re-enter subscription with a valid event filter.

2622-912 *program_name:* **2622-912 Consumer "consumer" can be specified more than once for the same resource.**

Explanation: Only one subscription per consumer is allowed to a resource.

User response: Re-enter subscription without any duplicate consumer.

2622-913 *program_name:* **2622-913 Subscription "subscription" already exist as a subscription.**

Explanation: Specified subscription already exist for the specified resource.

User response: None.

2622-914 *program_name:* **2622-914 Subscription "subscription" can be found.**

Explanation: Specified subscription does not exist for this resource, therefore cannot be removed.

User response: None.

2622-915 *program_name:* **2622-915 None of the subscription specified exists in the list.**

Explanation: The specified subscriptions do not exist in the subscription list.

User response: Check the subscriptions and issue the command again.

2622-916 *program_name:* **2622-916 All the Subscriptions specified already exists in the list.**

Explanation: All the specified subscriptions already exist in the subscription list.

User response: Check the subscription names and issue the command again.

2622-041 *program_name:* **2622-041 No resources were entered for resource class "resource_class".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-042 *program_name:* **2622-042 No selection string was entered for resource class "resource_class".**

Explanation: Selection string was not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-061 *program_name:* **2622-061 The specified resource group input file "input_file_name" does not exist.**

Explanation: Specified resource file name was not found.

User response: Make sure the resource group file name exist, re-enter the command.

2622-062 *program_name:* **2622-062 Failed to create resource groups from the specified resource group input file "input_file_name".**

Explanation: Failed to create resource groups from the specified resource file.

User response: Correct the associated error with this and, re-enter the command.

2622-063 *program_name:* **2622-063 None of the nodes specified exists in the cluster.**

Explanation: The specified node names do not exist in the cluster.

User response: Check the node names and issue the command again.

2622-081 *program_name:* **2622-081 None of the specified resource groups were found or could not be removed.**

Explanation: None of the specified resource group or selection string matched any existing resource groups or some of them just couldn't be removed.

User response: Check the message that preceded this message for the actual cause, if resource groups already exists.

2622-082 *program_name:* **2622-082 Resource group "resource_group" does not exist or could not be removed.**

Explanation: The specified resource group was not found or even if it was found it just couldn't be removed.

User response: Check the message that preceded this message for the actual cause, if resource group already exists.

2622-083 *program_name:* **2622-083 Resource Groups matched by the specified selection string "selection_string" could not be removed or did not exist.**

Explanation: The specified select string did not match any existing group or even if it was found it just couldn't be removed.

User response: Check the message that preceded this message for the actual cause, if resource group already exists.

2622-101 *program_name:* **2622-101 Must change attributes of resource group "resource_group".**

Explanation: At least one of the resource group attributes must be changed when using chrg command.

User response: Enable the appropriate options to change required attributes of resource group.

2622-102 *program_name:* **2622-102 Cannot change name of more than one resource group.**

Explanation: Can only change name of one resource group at a time.

User response: Repeat the command with only one resource group.

2622-103 *program_name:* **2622-103 None of the specified resource groups were found or could not be changed.**

Explanation: None of the specified resource group or selection string matched any existing resource groups or some of them just couldn't be changed.

User response: Check the message that preceded this message for the actual cause, if resource groups already exists.

2622-104 *program_name:* **2622-104 Resource Group "resource_group" does not exist or could not be changed.**

Explanation: The specified resource group was not found or even if it was found it just couldn't be changed.

User response: Check the message that preceded this message for the actual cause, if resource group already exists.

Messages

2622-105 *program_name:* **2622-105 Allowed node of Resource Group "resource_group" could not be changed to node "node_name".**

Explanation: The specified resource group's allowed node could not be changed to the specified node because its members are not from this node.

User response: Specify a node or equivalency that contains all the nodes of the resource groups members.

2622-106 *program_name:* **2622-106 Allowed node of Resource Group "resource_group" could not be changed to the equivalency "equiv_name".**

Explanation: The specified resource group's allowed node could not be changed to the specified equivalency because its members are not from the nodes in the equivalency.

User response: Specify a node or equivalency that contains all the nodes of the resource groups members.

2622-107 *program_name:* **2622-107 Allowed node of all the specified resource groups could not be changed.**

Explanation: The specified resource group's allowed node could not be changed to the specified equivalency or node because its members are not from the node or nodes in the equivalency.

User response: Specify a node or equivalency that contains all the nodes of the resource groups members.

2622-108 *program_name:* **2622-108 The specified node "excluded_node" does not exist in the list.**

Explanation: The specified node name does not exist in the excluded node list.

User response: Check the node name and issue the command again.

2622-109 *program_name:* **2622-109 The specified node "excluded_node" already exists in the list.**

Explanation: The specified node name already exists in the excluded node list.

User response: Check the node name and issue the command again.

2622-110 *program_name:* **2622-110 None of the nodes specified exists in the list.**

Explanation: The specified node names do not exist in the excluded node list.

User response: Check the node names and issue the command again.

2622-111 *program_name:* **2622-111 None of the nodes specified exists in the cluster.**

Explanation: The specified node names do not exist in the cluster.

User response: Check the node names and issue the command again.

2622-112 *program_name:* **2622-112 All the nodes specified already exists in the list.**

Explanation: All the nodes specified nodes already exist in the excluded node list.

User response: Check the node names and issue the command again.

2622-113 *program_name:* **2622-113 Too many groups were specified to change to the new ExcludedList.**

Explanation: Only one group name can be specified to change the excluded node list attribute.

User response: Check the group name and issue the command again.

2622-121 *program_name:* **2622-121 No resources were entered for resource class "resource_class".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-122 *program_name:* **2622-122 No Selection string entered for Resource class "resource_class".**

Explanation: Selection string was not entered with the command for the specified class.

User response: Enter the selection string and retry the command.

2622-123 *program_name:* **2622-123 None of the specified member resources are from the allowed nodes for resource group "resource_group".**

Explanation: All of the specified resources are not in the allowed node list of the new resource group.

User response: Member resources must be part of the allowed node list of resource group.

2622-124 *program_name:* **2622-124 The specified managed resource input file "input_file_name" does not exist.**

Explanation: Specified resource file name was not found.

User response: Make sure the managed resource file name exist, re-enter the command.

2622-125 *program_name:* **2622-125 Failed to create resources from the specified managed resource input file "input_file_name".**

Explanation: Failed to create resources from the specified resource file.

User response: Correct the associated error with this and, re-enter the command.

2622-126 *program_name:* **2622-126 None of the nodes specified exists in the cluster.**

Explanation: The specified node names do not exist in the cluster.

User response: Check the node names and issue the command again.

2622-127 *program_name:* **2622-127 Fixed resource "resource_name" is not allowed to have an ExcludedList.**

Explanation: The specified fixed resource can not be moved, therefore point less to carry an ExcludedList.

User response: Add all the fixed resources without an ExcludedList.

2622-128 *program_name:* **2622-128 None of the specified managed resources were created.**

Explanation: None of the specified managed resources were created because they were fixed resources.

User response: Add all the fixed resources without an ExcludedList or Policy.

2622-141 *program_name:* **2622-141 No resources were entered for resource class "resource_class".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-142 *program_name:* **2622-142 No selection string was entered for resource class "resource_class".**

Explanation: Selection string was not entered with the command for the specified class.

User response: Enter the resources and retry the command.

Messages

2622-161 *program_name:* **2622-161 Must change attributes of member resources.**

Explanation: At least one of the member resource attributes must be changed when using chrgmbr command.

User response: Enable the appropriate options to change required attributes of resource group.

2622-162 *program_name:* **2622-162 No resources were entered for resource class "resource_class".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-163 *program_name:* **2622-163 No selection string was entered for Resource class "resource_class".**

Explanation: Selection string was not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-164 *program_name:* **2622-164 None of the specified member resources are from the allowed nodes for resource group "resource_group".**

Explanation: All of the specified resources are not in the allowed node list of the new resource group.

User response: Member resources must be part of the allowed node list of resource group.

2622-165 *program_name:* **2622-165 The specified node "excluded_node" does not exist in the list.**

Explanation: The specified node name does not exist in the excluded node list.

User response: Check the node name and issue the command again.

2622-166 *program_name:* **2622-166 The specified node "excluded_node" already exists in the list.**

Explanation: The specified node name already exists in the excluded node list.

User response: Check the node name and issue the command again.

2622-167 *program_name:* **2622-167 None of the nodes specified exists in the list.**

Explanation: The specified node names do not exist in the excluded node list.

User response: Check the node names and issue the command again.

2622-168 *program_name:* **2622-168 None of the nodes specified exists in the cluster.**

Explanation: The specified node names do not exist in the cluster.

User response: Check the node names and issue the command again.

2622-169 *program_name:* **2622-169 All the nodes specified already exists in the list.**

Explanation: All the nodes specified nodes already exist in the excluded node list.

User response: Check the node names and issue the command again.

2622-170 *program_name:* **2622-170 Too many resources were specified to change to the new ExcludedList.**

Explanation: Only one resource can be specified to change the excluded node list attribute.

User response: Check the resource count and issue the command again.

2622-171 *program_name:* **2622-171 Fixed resource "resource_name" is not allowed to have an ExcludedList or Policy.**

Explanation: The specified fixed resource can not be moved, therefore point less to carry an ExcludedList or SelectFromPolicy.

User response: Change all the fixed resources without an ExcludedList or Policy.

2622-172 *program_name:* **2622-172 None of the specified managed resources were created.**

Explanation: None of the specified managed resources were created because they were fixed resources.

User response: Change all the fixed resources without an ExcludedList or Policy.

2622-181 *program_name:* **2622-181 The specified Source resource source_resource is not a member resource.**

Explanation: specified Source Resource is not a member resource.

User response: Make sure the source is a member resource, then re-issue the command.

2622-182 *program_name:* **2622-182 The specified source resource matched from selection string "source_string" is not a member resource.**

Explanation: specified source resource matched from selection string is not a member resource.

User response: Make sure the source is a member resource, then re-issue the command.

2622-183 *program_name:* **2622-183 Source resource "source_resource" already exists.**

Explanation: Source resource cannot already exist when creating it.

User response: use chrel to make changes to the relationships related to this source resource.

2622-184 *program_name:* **2622-184 Source resource matched from selection string "source_resource" already exists.**

Explanation: Source resource cannot already exist when creating it.

User response: use chrel to make changes to the relations related to this source resource.

2622-185 *program_name:* **2622-185 None of the specified source resources Exists.**

Explanation: There were no source resources.

User response: None.

2622-186 *program_name:* **2622-186 None of the specified target resources Exists.**

Explanation: There were no target resources.

User response: No action is required.

2622-187 *program_name:* **2622-187 More than one source resources were matched for "source".\n**

Explanation: More than one source was matched for specified source name.

User response: No action is required.

Messages

2622-188 *program_name:* **2622-188 More than one source resource were matched using selection string "selection_string" on class_name class .\n**

Explanation: More than one source was matched with source selection string.

User response: No action is required.

2622-189 *program_name:* **2622-189 Specified condition is not allowed with the relationship "relationship".\n**

Explanation: Only locate-with relationships are allowed to have conditions.

User response: No action is required.

2622-190 *program_name:* **2622-190 The specified managed relationship input file "input_file_name" does not exist.**

Explanation: Specified managed resource file name was not found.

User response: Make sure the managed relationship file name exist, re-enter the command.

2622-191 *program_name:* **2622-191 Failed to create resources from the specified relationship input file "input_file_name".**

Explanation: Failed to create resources from the specified relationship input file.

User response: Correct the associated error with this and, re-enter the command.

2622-201 *program_name:* **2622-201 No relationships matched the query "source_query".**

Explanation: Source query did not match any existing relationships.

User response: Check the query and re-run the command.

2622-202 *program_name:* **2622-202 There are no relationships defined for source "source" matched from selection string "selection_string".**

Explanation: Source resource must already have a relationship defined.

User response: use mkrel to make relationships related to this source resource.

2622-203 *program_name:* **2622-203 None of the specified target resources exists.**

Explanation: There were no target resources.

User response: No action is required.

2622-204 *program_name:* **2622-204 None of the specified target resources have relationships with the source.**

Explanation: The specified target resources were not related to the source.

User response: Re-enter the command with existing target resources for the source.

2622-205 *program_name:* **2622-205 All of the specified target resources already have relationships with the source.**

Explanation: All specified target resources already have relationship with the source.

User response: Re-enter the command with target resources that don't already exist for the source.

2622-206 *program_name:* **2622-206 Target resource *target_resource* already has relationship with the source.**

Explanation: Target resource already maintains relationship with the Source.

User response: Use the delete target resource option to remove targets or do nothing.

2622-207 *program_name:* **2622-207 Target resource "*target_resource*" does not have any relationship with the source.**

Explanation: Target resource does not maintain any relationship with the Source.

User response: Use mkrel to make relationships related to this source resource.

2622-208 *program_name:* **2622-208 At least one change must be made to the relationship.**

Explanation: No changes were requested by the command.

User response: Use chrel to change one or more attributes of the relations related to this source resource.

2622-209 *program_name:* **2622-209 There are no relations defined for sources matched from selection string "*selection_string*".**

Explanation: Selection string did not match a relationship.

User response: Use mkrel to make relationships related to this source resource.

2622-210 *program_name:* **2622-210 The selection string "*selection_string*" did not match any relationships.**

Explanation: Selection string did not match a relationship.

User response: Re-enter command with string that will match at least a relationship.

2622-211 *program_name:* **2622-211 The managed relation "*managed_relation*" does not exist as a relationship.**

Explanation: The managed relation specified does not exist.

User response: Re-enter command with an existing managed relationship.

2622-212 *program_name:* **2622-212 None of the queried target resources Exists.**

Explanation: The target resources used to query the relationships do not exist.

User response: No action required.

2622-213 *program_name:* **2622-213 None of the specified source resources exists.**

Explanation: There were no source resources.

User response: No action is required.

2622-214 *program_name:* **2622-214 Specified condition is not allowed with the relationship "*relationship*".\n**

Explanation: Only locate-with relationships are allowed to have conditions.

User response: No action is required.

2622-221 *program_name:* **2622-221 No relationships matched the query "*source_query*".**

Explanation: Source query did not match any existing relationships.

User response: Check the query and re-run the command.

Messages

2622-222 *program_name:* **2622-222 There are no relationships defined for source resource "source" matched from selection string "selection_string".**

Explanation: Source resource must already have a relationship defined.

User response: Use mkrel to make relationships related to this source resource.

2622-223 *program_name:* **2622-223 There are no relationships defined for any of the specified source resources.**

Explanation: Source resource must already have a relationship defined.

User response: Use mkrel to make relationships related to this source resource.

2622-224 *program_name:* **2622-224 The selection string "selection_string" did not match any managed relations.**

Explanation: Selection string did not match any managed relations.

User response: Re-enter the command with string that will match at least one managed relations.

2622-225 *program_name:* **2622-225 None of the specified relation "relation_names" exists.**

Explanation: All the managed relations specified does not exist.

User response: Re-enter the command with at least one existing managed relations.

2622-226 *program_name:* **2622-226 None of the specified queried target resources exists.**

Explanation: The target resources used to query the relationships do not exist.

User response: No action is required.

2622-227 *program_name:* **2622-227 None of the specified source resources exists.**

Explanation: There were no source resources.

User response: No action is required.

2622-228 *program_name:* **2622-228 Relationship "relation_name" does not exist or could not be removed.**

Explanation: Specified relationship was not found or even if it was found it just couldn't be removed.

User response: Check the message that preceded this message for the actual cause if already exists.

2622-229 *program_name:* **2622-229 None of the specified Relationships were found or could not be removed.**

Explanation: None of the specified relationships or selection string matched any existing relationships or some of them just couldn't be removed.

User response: Check the message that preceded this message for the actual cause.

2622-261 *program_name:* **2622-261 The specified logicdeck file "logicdeck_filename" with the "option_flag" flag does not exist.**

Explanation: The specified logic deck file name does not exist in the specified location.

User response: Check the logic deck file name and issue the command again.

2622-262 *program_name:* **2622-262 At least one change must be made to the SAM Controls.**

Explanation: No changes were requested by the command.

User response: Use appropriate samctrl flags to change one or more sam controls attributes.

2622-263 *program_name:* **2622-263 The specified node "excluded_node" does not exist in the list.**

Explanation: The specified node name does not exist in the excluded node list.

User response: Check the node name and issue the command again.

2622-264 *program_name:* **2622-264 The specified node "excluded_node" already exists in the list.**

Explanation: The specified node name already exists in the excluded node list.

User response: Check the node name and issue the command again.

2622-265 *program_name:* **2622-265 None of the nodes specified exists in the list.**

Explanation: The specified node names do not exist in the excluded node list.

User response: Check the node names and issue the command again.

2622-266 *program_name:* **2622-266 None of the nodes specified exists in the cluster.**

Explanation: The specified node names do not exist in the cluster.

User response: Check the node names and issue the command again.

2622-267 *program_name:* **2622-267 All the nodes specified already exists in the list.**

Explanation: All the nodes specified nodes already exist in the excluded node list.

User response: Check the node names and issue the command again.

2622-268 *program_name:* **2622-268 Specified engine action failed.**

Explanation: Specified engine action failed to process successfully.

User response: No action required.

2622-269 *Program_name:* **2622-269 Migration action failed with return code "return_code".**

Explanation: Specified Migration action failed to process successfully.

User response: No action required.

2622-270 *Program_name:* **2622-270 Install License Action failed with return code "return_code".**

Explanation: Install License action failed to process successfully.

User response: No action required.

2622-271 *program_name:* **2622-271 Specified license file "FileName" does not exist.**

Explanation: License file could not be found at specified location.

User response: Re-enter the command with a valid file name.

Messages

2622-281 *program_name:* **2622-281 The specified equivalency input file "*input_file_name*" does not exist.**

Explanation: Specified equivalency file name was not found.

User response: Make sure the equivalency file name exist, re-enter the command.

2622-282 *program_name:* **2622-282 No resources were entered for resource class "*resource_class*".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-283 *program_name:* **2622-283 No Selection string was entered for Resource class "*resource_class*".**

Explanation: Selection string was not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-284 *program_name:* **2622-284 Policy other than Any is not allowed with option "*option_flag*".**

Explanation: Selection string was not entered with SelectFromPolicy Any.

User response: Retry making equivalency with Policy Any.

2622-285 *program_name:* **2622-285 Failed to create resources from the specified equivalency input file "*input_file_name*".**

Explanation: Failed to create resources from the specified equivalency input file.

User response: Correct the associated error with this and, re-enter the command.

2622-286 *program_name:* **2622-286 All of the specifed members for equivalency "*equivalency_name*" are floating resources.**

Explanation: All of the specified members are floating resources, but as a rule for equivalency they can not be included as a members of an equivalency

User response: Add at least a fixed resources as a member of an equivalency.

2622-301 *program_name:* **2622-301 The equivalency "*equivalency*" already has a SelectString defined.**

Explanation: There is already a SelectString defined therefore won't allow an add or delete function.

User response: Try using the overwrite function for command.

2622-302 *program_name:* **2622-302 No changes were made to the equivalency "*equivalency*".**

Explanation: Specified equivalency did not change.

User response: Re-enter the command based on the information that preceded this error.

2622-303 *program_name:* **2622-303 At least one change must be made to the equivalency "*equivalency*".**

Explanation: Must make a change when using this command.

User response: Specify a change to the equivalency when issuing the command.

2622-304 *program_name:* **2622-304 No resources were entered for resource class "*resource_class*".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-305 *program_name:* **2622-305 No selection string was entered for resource class "resource_class".**

Explanation: Selection string was not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-306 *program_name:* **2622-306 Policy other than Any is not allowed with option "option_flag".**

Explanation: Selection string was not entered with SelectFromPolicy Any.

User response: Retry changing equivalency with Policy Any.

2622-307 *program_name:* **2622-307 Equivalency "equivalency" does not exist or could not be changed.**

Explanation: Specified equivalency was not found or even if it was found it just could not be changed.

User response: Check the message that preceded this message for the actual cause if it already exists.

2622-308 *program_name:* **2622-308 All of the specified members for equivalency "equivalency_name" are floating resources.**

Explanation: All of the specified members are floating resources, but as a rule for equivalency they can not be included as a members of an equivalency. The members will not be updated and will be left alone.

User response: Add at least a fixed resources as a member of an equivalency.

2622-321 *program_name:* **2622-321 None of the specified equivalencies were found or could not be removed.**

Explanation: None of the specified equivalencies were found or just could not be removed.

User response: Check the message that preceded this message for the actual cause.

2622-322 *program_name:* **2622-322 Equivalency "equivalency" does not exist or could not be removed.**

Explanation: Specified equivalency was not found or even if it was found it just could not be removed.

User response: Check the message that preceded this message for the actual cause if it already exists.

2622-323 *program_name:* **2622-323 The selection string "selection_string" did not match any equivalencies.**

Explanation: The specified selection string did not match any equivalencies.

User response: Check the equivalency select string and issue the command again.

2622-341 *program_name:* **2622-341 No relationships matched the query "source_Query".**

Explanation: Source query did not match any existing relationships.

User response: Check the query and re-run the command.

2622-342 *program_name:* **2622-342 There are no relationships defined that matched from selection string "selection_string".**

Explanation: Selection string did not match to an existing relationship.

User response: use mkrel to make this relationships.

2622-343 *program_name:* **2622-343 The managed relation "selection_string" does not exist.**

Explanation: The managed relation specified does not exist.

User response: Re-enter command with an existing managed relationship.

Messages

2622-344 *program_name:* **2622-344 There are no relationships defined.**

Explanation: There are no managed relations currently defined.

User response: Re-enter command with an existing managed relationship.

2622-345 *program_name:* **2622-345 The specified target selection string "*target_string*" did not match any resource.**

Explanation: The specified target selection string did not match any resource in the specified class.

User response: Check the selection string or class name combination and issue the command.

2622-346 *program_name:* **2622-346 The specified target resources "*target_resource*" does not exist.**

Explanation: The specified resource was not found in the specified class.

User response: Check the resource and issue the command again.

2622-347 *program_name:* **2622-347 None of the specified queried target resources exists.**

Explanation: The Target resources used to query the relationships does not exist in the relationship.

User response: No action is required.

2622-348 *program_name:* **2622-348 None of the specified relationships exists.**

Explanation: None of the relationships specified exists.

User response: No action is required.

2622-349 *program_name:* **2622-349 None of the specified source resources Exists.**

Explanation: There were no source resources.

User response: No action is required.

2622-361 *program_name:* **2622-361 There are no equivalencies defined that matched from selection string "*selection_string*".**

Explanation: No equivalencies matched the select string.

User response: No action is required.

2622-362 *program_name:* **2622-362 The equivalency "*equivalency*" does not exist.**

Explanation: The equivalency specified does not exist.

User response: Re-enter command with an existing equivalency.

2622-363 *program_name:* **2622-363 There are No Equivalencies defined.**

Explanation: There are no equivalencies currently defined.

User response: Re-enter command after creating an existing equivalency.

2622-381 *Program_name:* **2622-381 List License Action failed with return code "*return_code*".**

Explanation: List License action failed to process successfully.

User response: No action required.

2622-401 *program_name:* **2622-401 No resources were entered for resource class "resource_class".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-402 *program_name:* **2622-402 Samdiag action failed with return code "error_code".**

Explanation: Samdiag action failed to acquire information on specified resource.

User response: Refer to related error messages or return code and then rerun command \n based on those messages.

2622-403 *program_name:* **2622-403 Resource handle "resource_handle" could not be resolved.**

Explanation: Resource handle used to acquire information could not be resolved to an actual resource.

User response: Enter resource handles that exist.

2622-421 *program_name:* **2622-421 Samcfg action failed with return code "error_code".**

Explanation: Samcfg action failed for the specified reason.

User response: Refer to related error messages or return code and then rerun command \n based on those messages.

2622-422 *program_name:* **2622-422 Specified file "resource_handle" is not in the SAM Configuration file format.**

Explanation: File associated with the command does not seem to be the format designed for SAM Configuration.

User response: Correct the format of file if possible and re-run command with file again.

2622-423 *program_name:* **2622-423 Invalid Command "Command" in file "FileName".**

Explanation: Command found in configuration file is not valid.

User response: Correct the entry in file and then re-run the command again.

2622-424 *program_name:* **2622-424 Specified file "FileName" not found.**

Explanation: Configuration file could not be found at the specified location.

User response: Enter the correct path for the file and re-run the command.

2622-425 *program_name:* **2622-425 None of the clusters are online on this node.**

Explanation: None of the clusters defined on this node are online.

User response: Bring this node online in a cluster, and re-run the command.

2622-426 *program_name:* **2622-426 Specified file "FileName" does not exist.**

Explanation: Restore file could not be found at specified location.

User response: Re-enter the command with a valid file name.

2622-427 *program_name:* **2622-427 Specified file "FileName" did not contain any SAM commands.**

Explanation: Restore file were missing SAM commands.

User response: Re-enter the command with a valid file name containing SAM commands.

Messages

2622-428 *program_name: 2622-428 Timed out waiting for user prompt while restoring from file "FileName".*

Explanation: User did not respond in 90 secs when prompted to continue restoration.

User response: Re-enter the command but respond as when prompted promptly.

2622-429 *program_name: 2622-429 Error opening specified file "FileName": Error.*

Explanation: Specified file could not be opened.

User response: Re-enter the command after the problem indicated by the error is resolved.

2622-441 *program_name: 2622-441 Samdvs action failed with return code "error_code".*

Explanation: Samdvs action failed to acquire information on specified resource.

User response: Refer to related error messages or return code and then rerun command \n based on those messages.

2622-442 *program_name: 2622-442 The specified input file "input_filename" does not exist.*

Explanation: Specified DVS input file was not found at the specified location.

User response: Make sure the DVS file exists, then re-enter the command.

2622-443 *program_name: 2622-443 The specified output file "DVS_Outputfile" already exist and was not overwritten.*

Explanation: Specified DVS Output file already exist at the specified location and was not overwritten.

User response: Make sure the DVS file don't exist or is overwritten when prompted, then re-enter the command.

2622-444 *program_name: 2622-444 The specified file "filename" failed to open with return code "return code".*

Explanation: Specified DVS file failed to open.

User response: Retry the command with the trace option to find the error messages indicating the reason for this failure. Fix it if possible then re -enter the command.

2622-445 *program_name: 2622-445 The specified file "filename" failed to close with return code "return code".*

Explanation: Specified DVS file failed to close.

User response: Retry the command with the trace option to find the error messages indicating the reason for this failure. Fix it if possible then re-enter the command.

2622-446 *program_name: 2622-446 Writing to the specified file "filename" failed with return code "return code".*

Explanation: Specified DVS file failed when attempted to be written .

User response: Retry the command with the trace option to find the error messages indicating the reason for this failure. Fix it if possible then re-enter the command.

2622-461 *program_name: 2622-461 Must be a move action.*

Explanation: This must a Move action.

User response: Re-enter the request as a move action.

2622-462 *program_name:* **2622-462 "node_name" name is not a valid node name.**

Explanation: The specified node name is not valid node.

User response: Repeat the command with a valid node name.

2622-463 *program_name:* **2622-463 request action on resource group failed with return code "error_code".**

Explanation: Request action on the specified resource group failed.

User response: Refer to related error messages or return code and then rerun command \n based on those messages.

2622-481 *program_name:* **2622-481 Must be a move action.**

Explanation: This must a Move action.

User response: Re-enter the request as a move action.

2622-482 *program_name:* **2622-482 "node_name" name is not a valid node name.**

Explanation: The specified node name is not valid node.

User response: Repeat the command with a valid node name.

2622-483 *program_name:* **2622-483 request action on managed resources failed with return code "error_code".**

Explanation: Request action on the specified managed resources failed.

User response: Refer to related error messages or return code and then rerun command based on those messages.

2622-484 *program_name:* **2622-484 No resources were entered for resource class "resource_class".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-485 *program_name:* **2622-485 No Selection string entered for Resource class "resource_class".**

Explanation: Selection string was not entered with the command for the specified class.

User response: Enter the selection string and retry the command.

2622-486 *program_name:* **2622-486 Move action is not allowed for managed resources.**

Explanation: Move Action is not allowed when requested on a managed resource.

User response: Move can only be applied to a resource group.

2622-501 *program_name:* **2622-501 No resources were entered for resource class "resource_class".**

Explanation: Resources were not entered with the command for the specified class.

User response: Enter the resources and retry the command.

2622-502 *program_name:* **2622-502 No selection string was entered for resource class "resource_class".**

Explanation: Selection string was not entered with the command for the specified class.

User response: Enter the resources and retry the command.

Messages

2622-503 *program_name: 2622-503 List request action failed with return code "error_code".*

Explanation: List request action on the specified managed resources failed.

User response: Refer to related error messages or return code and then rerun command based on those messages.

| **2622-541** *program_name: 2622-541 No resource groups defined or cluster is offline!*

| **Explanation:** Currently no resource groups defined or the cluster is offline.

| **User response:** Define resource groups or turn the cluster online.

2661-001 **Attribute "attribute_name" cannot be specified when defining a new resource.**

Explanation: While attempting to create an Application resource, an attribute was encountered that is not allowed to be defined.

User response: Do not specify this attribute when attempting to create an Application resource.

2661-002 **The value of the MonitorCommandPeriod attribute must be greater or equal to the value of the MonitorCommandTimeout attribute.**

Explanation: While attempting to create or change an Application resource, a combination of MonitorCommandPeriod and MonitorCommandTimeout attributes was encountered that is not valid.

User response: Correct the value for either the MonitorCommandPeriod or the MonitorCommandTimeout attribute, such that the MonitorCommandPeriod is greater or equal to the MonitorCommandTimeout.

2661-003 **Class name "class_name" is not recognized by this resource manager.**

Explanation: The Resource Manager does not recognize the named resource class as belonging to it. This is either an internal error or indicates a corrupted RMC configuration.

User response: Record the above information and contact your software service organization.

2661-004 **Could not initialize control point for class "class_name".**

Explanation: The Resource Manager was unable to create and initialize RCCP for the named resource class.

User response: Make sure the system has plenty of resources (paging space, available /var file system space, and so on). If this does not resolve the problem, record the above information and contact your software service organization.

2661-005 **The value of the MonitorCommandPeriod attribute must be greater than 0.**

Explanation: While attempting to create or change an Application resource, a MonitorCommandPeriod attribute was encountered that is lower than zero.

User response: Correct the value for the MonitorCommandPeriod attribute to be greater than 0.

2661-006 **The start command did not complete successfully, exit code is *the exit value from the start command*.
Stdout = *stdout generated by the start command* Stderr = *stderr generated by the start command***

Explanation: In response to a request to bring a resource online, the associated start command was executed but it did not complete successfully. The exit code, stderr and stdout are listed in the error message.

User response: Attempt to correct the problems identified by the output from the command and retry the operation.

2661-007 **The stop command did not complete successfully, exit code is** *the exit value from the stop command*.
Stdout = *stdout generated by the stop command* **Stderr =** *stderr generated by the stop command*

Explanation: In response to a request to take a resource offline, the associated stop command was executed but it did not complete successfully. The exit code, stderr and stdout are listed in the error message.

User response: Attempt to correct the problems identified by the output from the command and retry the operation.

2661-008 **The value of the ResourceType attribute must be 0 or 1.**

Explanation: While attempting to create or change an Application resource, a ResourceType attribute was encountered that is not valid.

User response: Correct the value for the ResourceType attribute to be either 0 (for fixed resources) or 1 (for floating resources).

2661-009 **The value of the RunCommandsSync attribute must be 0 or 1.**

Explanation: While attempting to create or change an Application resource, a RunCommandsSync attribute was encountered that is not valid.

User response: Correct the value for the RunCommandsSync attribute to be either 0 (for "fire and forget" of start/stop commands) or 1 (starting/stopping resources will wait for the completion of start/stop commands).

2661-010 **The user name specified is not valid or does not exist.**

Explanation: While attempting to create or change an Application resource, a user name was encountered that is not valid or does not exist.

User response: Correct the user name or ensure that the user name is defined on each target node where the resource is to exist.

2661-011 **The command specified for attribute** *the attribute name that the command in error is specified for* **is NULL, not a absolute path, does not exist or has insufficient permissions to be run.**

Explanation: While attempting to create or change an Application resource, a command string for the specified attribute was encountered that is not valid. The command is either a NULL string, is not an absolute path, does not exist or has insufficient permissions to be run.

User response: Correct the value to be one a valid command on all the target nodes or ensure that the specified command exists on all target node and has the proper permissions.

2661-012 **The specified netmask** *"the specified netmask in error"* **is not valid.**

Explanation: While attempting to create or change a ServiceIP resource, an invalid value for the NetMask attribute was encountered.

User response: Correct the value to be one of the valid representations for specifying a netmask such as xxx.xxx.xxx.xxx or an empty string in which case the netmask will be inherited from the network interface that it is activated on.

2661-013 **The specified IP address** *"the specified IP address in error"* **is not valid.**

Explanation: While attempting to create or change a ServiceIP resource, an invalid value for the IPAddress attribute was encountered.

User response: Correct the value to be one of the valid representations for specifying an IP address such as xxx.xxx.xxx.xxx.

Messages

2661-014 **The network interface specified for use in bringing an IP address online does not exist or is not valid.**

Explanation: The resource manager was requested to bring an IP address online and the specified supporting resource (a network interface) does not exist or is not usable.

User response: Chose a different supporting resource to use in the online request.

2661-015 **The maximum number of aliases are already active on network interface *interface_name*.**

Explanation: The resource manager was requested to bring an IP address online but the specified interface to be used already has the maximum number of aliases active.

User response: Either deactivate some aliases or chose another interface to be used for this service IP address.

2661-016 **The reset command did not complete successfully, exit code is *the exit value from the reset command*. \n Stdout = *stdout generated by the reset command* \n Stderr = *stderr generated by the reset command* \n**

Explanation: In response to a request to reset a resource, the associated reset command was executed but it did not complete successfully. The exit code, stderr and stdout are listed in the error message.

User response: Attempt to correct the problems identified by the output from the command and retry the operation.

2661-017 **The start command timed out, exit code is *the exit value from the start command*. \n Stdout = *stdout generated by the start command* \n Stderr = *stderr generated by the start command* \n**

Explanation: In response to a request to bring a resource online, the associated start command was run but it exceeded the time limit and was ended. The exit code, stderr and stdout are listed in the error message.

User response: Attempt to correct the problems identified by the output from the command and retry the operation.

2661-018 **The stop command timed out, exit code is *the exit value from the stop command*. \n Stdout = *stdout generated by the stop command* \n Stderr = *stderr generated by the stop command* \n**

Explanation: In response to a request to take a resource offline, the associated stop command was run but it exceeded the time limit and was ended. The exit code, stderr and stdout are listed in the error message.

User response: Attempt to correct the problems identified by the output from the command and retry the operation.

2661-019 **The reset command timed out, exit code is *the exit value from the reset command*. \n Stdout = *stdout generated by the reset command* \n Stderr = *stderr generated by the reset command* \n**

Explanation: In response to a request to reset a resource, the associated reset command was run but it exceeded the time limit and was ended. The exit code, stderr and stdout are listed in the error message.

User response: Attempt to correct the problems identified by the output from the command and retry the operation.

2661-020 **The value specified for the attribute named ProtectionMode must be either 0 or 1.**

Explanation: An invalid value was specified for the attribute named ProtectionMode.

User response: Correct the value specified and retry the operation.

2661-021 **The command used to monitor the resource did not complete successfully, exit code is *the exit value from the monitor command*. \n Stdout = *stdout generated by the monitor command* \n Stderr = *stderr generated by the monitor command* \n**

Explanation: While monitoring the operational state of a resource, the associated monitor command was executed but it did not complete successfully. The exit code, stderr and stdout are listed in the error message.

User response: Attempt to correct the problems identified by the output from the command and retry the operation.

2661-022 **The command used to monitor the resource timed out, exit code is** *the exit value from the monitor command*. \n Stdout = *stdout generated by the monitor command* \n Stderr = *stderr generated by the monitor command* \n

Explanation: While monitoring the operational state of a resource, the associated monitor command was run but it exceeded the time limit and was stopped. The exit code, stderr and stdout are listed in the error message.

User response: Attempt to correct the problems identified by the output from the command and retry the operation.

2661-023 **The IP address specified is the base address for a network interface and therefore cannot be used.**

Explanation: The address specified is already the base IP address for a network interface which makes it invalid for use as a service IP address.

User response: Choose a different IP address and retry the operation.

2661-024 **The resource "*resource_name*" cannot be deleted because it is online.**

Explanation: The resource cannot be deleted because it is online.

User response: Make sure the resource is offline and retry the operation.

2661-025 **The operation cannot be completed because one or more resources from the *resource class name* class is online.**

Explanation: The operation (stop node, stop domain or remove domain) cannot be completed because one or more resources are online on the target node(s).

User response: Make sure the resource is offline and retry the operation.

2661-026 **Invalid parameter format passed to the configCoordinationAll action for resource class *resource class name*.**

Explanation: The configCoordinationAll action was received by the RM for the indicated class but the input format is not valid or not supported.

User response: This is an internal error so contact your software service organization.

2661-027 **An online or offline operation is not valid when the resource is in the failed offline state.**

Explanation: An online or offline operation was targeted to a resource that is in the failed offline state. This is not a valid request. The only control operation that is permitted in the failed offline state is reset.

User response: Perform the reset operation against the resource and then retry the online or offline operation. The command 'resetrsrc' can be used to reset a resource.

2661-028 **Receiver of the SendEIFevent is not online, or not a constituent resource.**

Explanation: An internal error of the GblResRM.

User response: Record the above information and contact your software service organization.

2661-029 **Resource received a start command but is already in pending online state.**

Explanation: An online operation was targeted to a resource that is in the pending online state. This is not a valid request. The only control operation that is permitted in the pending online state is reset.

User response: Perform the reset operation against the resource and then retry the online operation. The command 'resetrsrc' can be used to reset a resource.

Messages

2661-030 Resource received a stop command, but is already in pending offline state.

Explanation: An offline operation was targeted to a resource that is in the pending offline state. This is not a valid request. The only control operation that is permitted in the pending offline state is reset.

User response: Perform the reset operation against the resource. The command 'resetrsrc' can be used to reset a resource.

2662-001 Attribute "*attribute_name*" cannot be specified when defining a new resource.

Explanation: While attempting to create an Application resource, an attribute was encountered that is not allowed to be defined.

User response: Do not specify this attribute when attempting to create an Application resource.

2662-002 Attribute "*attribute_name*" appears in request more than once.

Explanation: An attribute appears more than once in a request.

User response: Specify an attribute only once in a request.

2662-003 Class name "*class_name*" is not recognized by this resource manager.

Explanation: The Resource Manager does not recognize the named resource class as belonging to it. This is either an internal error or indicates a corrupted RMC configuration.

User response: Record the above information and contact your software service organization.

2662-004 Could not initialize control point for class "*class_name*".

Explanation: The Resource Manager was unable to create and initialize RCCP for the named resource class.

User response: Make sure the system has plenty of resources (paging space, available /var file system space, and so on). If this does not resolve the problem, record the above information and contact your software service organization.

2662-005 Attribute "*attribute_name*" must be specified when defining a new resource.

Explanation: The ResourceManager was unable to create the resource because a mandatory attribute was not defined.

User response: Make sure to specify this attribute during creation of the resource.

2662-006 The value of the attribute must be 0 or 1.

Explanation: The value of this attribute must be 0 or 1.

User response: Change the attribute to 0 or 1. M: The value of this attribute must be 0 or 1. Change the attribute to 0 or 1.

2662-007 The value of the ResourceType attribute must be 0 or 1.

Explanation: While attempting to create or change an Application resource, a ResourceType attribute was encountered that is not valid.

User response: Correct the value for the ResourceType attribute to be either 0 (for fixed resources) or 1 (for floating resources).

2662-008 The time in the Start/Stop/Move attribute must be ≥ 0 and < 600 (10 min)

Explanation: The specified value for this attribute is not within the allowed range.

User response: Specify a value between 0 and 600.

2662-009 The value of ForceOpState must be a valid rmc opstate (0,1,2,3,4,5,6,8)

Explanation: The specified value does not match a valid rmc opstate.

User response: Specify one of the following opstates 0,1,2,3,4,5,6,8.

2662-010 Resource does not support move protocol

Explanation: The resource received a move action but does not support the move protocol.

User response: Record the above information and contact your software service organization.

2662-011 Resource is not an aggregate resource

Explanation: The resource received a move action but is not an aggregate resource.

User response: Record the above information and contact your software service organization.

2662-012 Resource not in move state NONE when prepare action received

Explanation: The resource received a move prepare action but is not in move state none.

User response: Record the above information and contact your software service organization.

2662-013 Resource not in move state READY when complete action received

Explanation: The resource received a move complete action but is not in move state ready.

User response: Record the above information and contact your software service organization.

2662-014 Complete/Cancel action or cleanup already in progress

Explanation: The complete/cancel process is already in progress.

User response: Record the above information and contact your software service organization.

2662-015 Prepare action already in progress

Explanation: The prepare process is already in progress.

User response: Record the above information and contact your software service organization.

2662-016 Resource not in READY or FAILED state when cancel action received

Explanation: The resource received a move cancel action but is not in move state ready or failed.

User response: Record the above information and contact your software service organization.

2662-017 Attribute "*attribute_name*" cannot be specified when defining a new resource.\n"

Explanation: While attempting to create a Test resource, an attribute was encountered that is not allowed to be defined.

User response: Do not specify this attribute when attempting to create a Test resource.

2662-018 Wrong input specified for the action.

Explanation: An internal error of the TestRM.

User response: Record the above information and contact your software service organization.

Messages generated by the sampolicy command

This section lists the messages which are generated by the sampolicy command. In addition to these messages which start with a prefix of SAMP, the sampolicy command may also generate messages starting with the prefix EEZ. These messages are listed in the manual *IBM Tivoli System Automation for Multiplatforms End-to-End Automation Management User's Guide and Reference*, SC33-8211.

SAMP0001E An 'IOException' was caught in method *methodName* of class *className*. The received message was *message*.

Explanation: The processing was interrupted by this exception and cannot complete.

System action: The task is ended.

Operator response: Try to resolve the problem described in the exception message and resubmit the command.

SAMP0002E The specified policy *policyLocation* is not valid.

Explanation: The policy is not valid. You cannot perform any task with this policy.

System action: The current task ends.

Operator response: Try to make the policy valid by analyzing the error messages following this message. Then resubmit the command.

SAMP0003E Not able to create an object of type *Object-type*. The name of the tree-node is *node-name*.

Explanation: There is a problem when building an internal object of the input XML.

System action: The current task ends.

Operator response: Check for related messages. If you cannot resolve the problem contact IBM support.

SAMP0004E Not able to retrieve the policy information.

Explanation: The policy information cannot be retrieved because the policy is not valid.

System action: The current task ends.

Operator response: Try to make the policy valid by analyzing all the error messages.

SAMP0005E Received errors when trying to activate the policy.

Explanation: Policy activation task resulted in errors.

System action: The activation task ends.

Operator response: Analyze the error messages and try to resolve the problem.

SAMP0006E The specified policy file "*policyFile*" cannot be found.

Explanation: The policy cannot be loaded from this location.

System action: The current task ends.

Operator response: Verify the policy XML file name and its path.

SAMP0007E Original Parser Exception: *exceptionMessage*

Explanation: An internal problem occurred while parsing this policy.

System action: The task cannot be performed.

Operator response: Verify if the product is installed correctly.

SAMP0008E Received errors when trying to deactivate the current policy.

Explanation: Policy deactivation resulted in errors.

System action: The deactivation task ends.

Operator response: Analyze the error messages and try to resolve the problem.

SAMP0009E Received errors when trying to check the policy.

Explanation: Policy check task resulted in errors.

System action: The check task ends.

Operator response: Analyze the error messages and try to resolve the problem.

SAMP0010E Received errors when trying to save the current policy.

Explanation: Policy save task resulted in errors.

System action: The save task ends.

Operator response: Analyze the error messages and try to resolve the problem.

SAMP0011E The resource with name *resourceName* and class *className* was found as member of multiple groups.

Explanation: A resource can only be member of one group.

System action: This policy is not valid and cannot be activated.

Operator response: Check that each resource is only member of at most one group element in this policy.

SAMP0012E The resource with name *resourceName* and class *className* was found as member of an equivalency and of a group.

Explanation: A resource cannot be member of a group and of an equivalency.

System action: This policy is not valid and cannot be activated.

Operator response: Check that each resource is only member of either a group or an equivalency.

SAMP0013E The specified member " *memberName* " was found multiple times in the same *<groupForm>* " *groupName* ".

Explanation: All *<Members>* child elements must be unique in one group.

System action: This policy is not valid.

Operator response: Check that the group has no duplicate *<Members>* child elements in this policy.

SAMP0014E The specified *<groupForm>* " *groupName* " was found as member of itself.

Explanation: A group cannot be member of itself.

System action: This policy is not valid.

Operator response: Check that no group is member of itself in this policy.

SAMP0015E The resource group with name *resourceGroupName* has a nesting level of more than 50.

Explanation: The nesting level of a resource group is limited to 50.

System action: This policy is not valid and cannot be activated.

Operator response: Reduce the nesting level of this group and resubmit the command.

Messages

SAMP0016E An 'Exception' was caught in method *methodName* of class *className*. The received message was *message*.

Explanation: The processing was interrupted by this exception and cannot complete.

System action: The task is ended.

Operator response: Try to resolve the problem described in the exception message and resubmit the command.

SAMP0017E The relationship with the source with name *sourceName* and type *type* has a target with the same key.

Explanation: A relationship cannot have the same source and target.

System action: This policy is not valid and cannot be activated.

Operator response: Correct the relationship and resubmit the command.

SAMP0018E The relationship source with name *sourceName* and class *sourceClass* is not a resource group nor member of a resource group.

Explanation: A relationship source must either be a resource group or member of a resource group.

System action: This policy is not valid and cannot be activated.

Operator response: Correct the relationship and resubmit the command.

SAMP0019E An error occurred in method *methodName* of class *className*. Error details *details*.

Explanation: The processing was interrupted by this error and cannot complete.

System action: The task is ended.

Operator response: Try to resolve the problem described in the error details and resubmit the command.

SAMP0020E The specified <Relationship> with the <Type> "*relationType*", the <Source> with the name "*source*" and the <Target> with the name "*target*" was found multiple times in the policy document.

Explanation: All <Relationship> elements must be unique.

System action: This policy cannot be activated.

Operator response: Check that at most one <Relationship> of this type is specified in this policy.

SAMP0021E An 'UTFDataFormatException' was caught in method *methodName* of class *className*. The received message was *message*.

Explanation: The processing was interrupted by this exception and cannot complete.

System action: The task cannot be performed.

Operator response: Ensure the correct data format of the policy document by only using editors which create UTF-8 conform documents.

SAMP0022E A <Element> can only contain either a <subElement1> or a <subElement2>.

Explanation: It is not allowed to specify both kinds of sub-elements for this element.

System action: This policy cannot be activated.

Operator response: Check that at only one of the conflicting sub-elements is specified in this policy.

SAMP0023E A *<Element>* that contains a *<subElement1>* must also contain a *<subElement2>*.

Explanation: It is not allowed to specify only one of these sub-elements for this element.

System action: This policy cannot be activated.

Operator response: Check that both sub-elements are specified in this policy.

SAMP0024E A *<Element>* that contains a *<subElement1>* must also contain a *<subElement2>* or a *<subElement3>*.

Explanation: It is not allowed to specify only one of these sub-elements for this element.

System action: This policy cannot be activated.

Operator response: Check that both sub-elements are specified in this policy.

SAMP0025E The *<Element>* with the name " *referenceName* " refers to a resource that does not exist on the cluster.

Explanation: Every resource that is referenced within the policy must exist in the cluster.

System action: This policy cannot be activated.

Operator response: Create the resource on the cluster then resubmit the command.

SAMP0026E The node with the name " *nodeName* " does not exist on the cluster.

Explanation: Every node that is referred to within the policy must exist in the cluster.

System action: This policy cannot be activated.

Operator response: Correct the value of the node in the policy then resubmit the command.

SAMP0027E The node with the name " *nodeName* " is not online in the cluster.

Explanation: Every node that is referred to within a resource attribute must be online in the cluster.

System action: This policy cannot be activated.

Operator response: Correct the value of the node in the policy or make the node online then resubmit the command.

SAMP0028E The value " *domainName* " of the element *<elementName>* does not conform to the real name of the cluster " *actualDomainName* ".

Explanation: The name of the cluster specified in the policy must be equal to the real name.

System action: This policy cannot be activated.

Operator response: Correct the value in the policy then resubmit the command.

SAMP0029E The specified element *<element>* with the name " *groupName* " contains a member with a different name " *memberName* " .

Explanation: For this kind of group all *<Members>* child elements must have the same name as the group itself.

System action: This policy is not valid.

Operator response: Check that the groups name is equal to all *<Members>* child elements names in this policy.

SAMP0030E The specified element *<element>* was found more than once.

Explanation: Only zero or one element of this type is allowed in the policy.

System action: This policy cannot be activated.

Operator response: Check that at most one element of this type is specified in the policy.

Messages

SAMP0031E The specified element *<childElement>* was found more than once as child element of *<parentElement>*.

Explanation: Only zero or one element of this type is allowed.

System action: This policy cannot be activated.

Operator response: Check that at most one element of this type is specified in this policy.

SAMP0032E The specified element *<childElement>* was found more than once as child element of *<parentElement>* with the name " *parentName* ".

Explanation: Only zero or one element of this type is allowed in this group.

System action: This policy cannot be activated.

Operator response: Check that at most one element of this type is specified in this group in this policy.

SAMP0033E The value " *value* " of the element *<allowedNode>* does not exist as a node, nor is an equivalency with this name defined.

Explanation: This value must either be a node or the name of an equivalency.

System action: This policy is not valid and cannot be activated.

Operator response: Correct the policy and resubmit the command.

SAMP0034E The element *<element>* with the name " *equivalencyName* " cannot be target of a location relationship.

Explanation: A location relationship cannot have a target element of that kind.

System action: This policy is not valid and cannot be activated.

Operator response: Correct the relationship and resubmit the command.

SAMP0035E The element *<element>* with the value " *elementValue* " can only be used with a location relationship except the relationship of the type " *isStartableType* ".

Explanation: A condition is not allowed for this kind of relationship.

System action: This policy is not valid and cannot be activated.

Operator response: Correct the relationship and resubmit the command.

SAMP0036E The element *<element>* with the name " *elementValue* " has got members that are not from the same resource class.

Explanation: All members of an equivalency must be from the same resource class.

System action: This policy is not valid and cannot be activated.

Operator response: Correct the equivalency and resubmit the command.

SAMP0037E The connection to the backend failed because the following exception occurred *exception*.

Explanation: An exception occurred when trying to perform an operation on the backend.

System action: The policy cannot be activated.

Operator response: Try to analyze the exception description and try to correct the problem. If the problem persists, contact IBM support.

SAMP0038E The element *<tie-breaker>* with the name " *name* " is set to active although at least one other element of this kind is set to active, too.

Explanation: Only one such element is allowed to be active.

System action: The policy cannot be activated.

Operator response: Ensure there is at most one active element of this kind in the policy and resubmit the command.

SAMP0039E The specified element *<element>* with the value " *value* " of the subelement *<subelement1>* cannot contain a subelement *<subelement2>* as well.

Explanation: For this kind of element some subelements are not allowed for certain subelement values.

System action: This policy is not valid.

Operator response: Remove the invalid subelement or change the value of the other subelement and resubmit the command.

SAMP0040E An IOException was caught when trying to write the policy to the file " *filename* ". The exception message was: *exception-message*.

Explanation: The file could not be written.

System action: The active task ends.

Operator response: Ensure the directory does exist and there is enough disk space available then resubmit the command.

SAMP0041E Exception occurred when trying to validate the selection string " *selectString* ". Either the selection string is not valid or the connection to the backend failed. Exception message was: *exception*.

Explanation: An exception occurred when trying to validate the selection string.

System action: The policy cannot be activated.

Operator response: Ensure the selection string is valid. Try to analyze the exception description and try to correct the problem. If the problem persists, contact IBM support.

SAMP0042E The *<Element>* with the name " *referenceName* " has an invalid value for the subelement *<Sub-Element>*.

Explanation: *<ResourceReference>* elements may not have one of the following values for their *<Class>* subelement: IBM.Application, IBM.ServiceIP, IBM.Test .

System action: This policy cannot be activated.

Operator response: Correct the subelement value then resubmit the command.

SAMP0043E The *<Element>* with the type " *value* " is not allowed on a " *value* " system.

Explanation: The processing was interrupted by this error and cannot complete.

System action: This policy cannot be activated.

Operator response: Correct the value then resubmit the command.

SAMP0044E A *<Element>* must either contain a *<Subelement>* or a *<Subelement>*.

Explanation: The processing was interrupted by this error and cannot complete.

System action: This policy cannot be activated.

Operator response: Correct the element then resubmit the command.

Messages

SAMP0049E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be defined. There was no exception, but the define call did not return any object either.

Explanation: The current process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will return with this error message.

Operator response: Try to find out, if this resource was described properly in the XML policy document and restart the activation. Please contact IBM support, if the problem persists and provide logs and traces.

SAMP0050E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be defined. The received exception was *exception*

Explanation: The process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will not complete.

Operator response: Try to find out, if this resource was described properly in the XML policy document and restart the activation. Please contact IBM support, if the problem persists and provide logs and traces.

SAMP0051E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be added to the resource group *groupName*. The received exception was *exception*

Explanation: The process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will not complete.

Operator response: Try to solve the problem described in the exception message and resubmit the command.

SAMP0052E An error occurred in class: *className* method: *methodName*. The resource group *groupName* could not be set to the desired state *state*. The received exception was *exception*

Explanation: The process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will not complete.

Operator response: Try to solve the problem described in the exception message and resubmit the command.

SAMP0053E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be undefined. The received exception was *exception*

Explanation: The resource might have been deleted before by internal commands.

System action: The policy activation or deactivation will continue.

Operator response: Try to verify, if the resource still exists. Analyze the exception and try to resubmit the command.

SAMP0054E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be identified and located. This can be caused by an exception or the resource could not be found. Therefore the resource *resourceName* cannot be added to the resource group *groupName*. The received exception was *exception*

Explanation: The process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will not complete.

Operator response: Try to solve the problem described in the exception message and resubmit the command.

SAMP0055E An error occurred in class: *className* method: *methodName*. The resource group *groupName* could not be identified and located. This can be caused by an exception or the resource could not be found. Therefore the resource group *groupName* cannot be set to the state *state*. The received exception was *exception*

Explanation: The process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will not complete.

Operator response: Try to solve the problem described in the exception message and resubmit the command.

SAMP0056E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be identified and located. This can be caused by an exception or the resource could not be found. Therefore the resource *resourceName* cannot be created, because it requires resource *resourceName*. The received exception was *exception*

Explanation: The process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will not complete.

Operator response: Try to solve the problem described in the exception message and resubmit the command.

SAMP0057E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be identified and located. This can be caused by an exception or the resource could not be found. Therefore the resource *resourceName* cannot be deleted. The received exception was *exception*

Explanation: The resource might have been deleted before by internal commands.

System action: The current process will continue.

Operator response: Try to verify, if the resource still exists. Analyze the exception and try to resubmit the command.

SAMP0058E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be identified and located. This can be caused by an exception or the resource could not be found. Therefore the resource *resourceName* cannot be modified. The received exception was *exception*

Explanation: The process was interrupted by this exception and cannot complete.

System action: The current process will continue.

Operator response: Try to verify, if the resource still exists. Analyze the exception and try to resubmit the command.

SAMP0059E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be modified. There was no exception, but the define call did not return any object either.

Explanation: The current process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will return with this error message.

Operator response: Try to find out, if this resource was described properly in the XML policy.

SAMP0060E An error occurred in class: *className* method: *methodName*. The resource *resourceName* could not be modified. The received exception was *exception*

Explanation: The current process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will return with this error message.

Operator response: Try to find out, if this resource was described properly in the XML policy and restart the activation. Please contact IBM support, if the problem persists and provide logs and traces.

SAMP0061E An error occurred in class: *className* method: *methodName*. The IBM.TieBreaker resource *resourceName* could not be identified and located. The received exception was *exception*

Explanation: The current process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will return with this error message.

Operator response: Try to find out, if this resource was described properly in the XML policy and restart the activation. Please contact IBM support, if the problem persists and provide logs and traces.

Messages

SAMP0062E An error occurred in class: *className* method: *methodName*. The active IBM.TieBreaker resource could not be identified and located. Therefore the IBM.TieBreaker resource *resourceName* could not be modified or created. The received exception was *exception*

Explanation: The current process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will return with this error message.

Operator response: Try to find out, if this resource was described properly in the XML policy and restart the activation. Please contact IBM support, if the problem persists and provide logs and traces.

SAMP0063E An error occurred in class: *className* method: *methodName*. The IBM.TieBreaker resource *resourceName* could not be set to active. The received exception was *exception*

Explanation: The current process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will return with this error message.

Operator response: Try to find out, if this resource was described properly in the XML policy and restart the activation. Please contact IBM support, if the problem persists and provide logs and traces.

SAMP0064E An error occurred in class: *className* method: *methodName*. The subscription from consumer *consumer* to resource *resourceName* has failed. The received exception was *exception*

Explanation: The current process was interrupted by this exception and cannot complete.

System action: The policy activation process stops and will return with this error message.

Operator response: Try to find out, if this resource was described properly in the XML policy and restart the activation. Please contact IBM support, if the problem persists and provide logs and traces.

SAMP0070E An error occurred in class: *className* method: *methodName*.

Explanation: The current process was interrupted by this exception and cannot complete.

System action: The policy deactivation process stops and will return with this error message.

Operator response: Try to submit the command, again. Please contact IBM support, if the problem persists and provide logs and traces.

SAMP0071E An error occurred in class: *className* method: *methodName*.

Explanation: The current process was interrupted by this exception and cannot complete.

System action: The policy save process stops and will return with this error message.

Operator response: Try to submit the command, again. Please contact IBM support, if the problem persists and provide logs and traces.

SAMP0500W The specified policy *policyLocation* contains no resource group.

Explanation: The policy is valid, but without a resource group there is no automation active.

System action: Processing continues.

Operator response: Ensure this is what you want to do. Otherwise change the policy to contain at least one resource group and resubmit the command.

SAMP0501W An 'Exception' was caught in method *methodName* of class *className*. The received message was *message*.

Explanation: The processing was interrupted by this exception but it can continue.

System action: Processing continues.

Operator response: Try to resolve the problem described in the exception message.

SAMP0502W The two <Relationship> elements with <Type> "StartAfter" and <Type> "StopAfter" were found with the same <Source> with the name " *source* " and <Target> with the name " *target* ".

Explanation: The two <Relationship> elements with <Type> "StartAfter" and <Type> "StopAfter" should not have the same <Source> and <Target>. With this configuration the <Target> is started before the <Source> and the <Target> is stopped before the <Source>.

System action: Application continues.

Operator response: Verify this behavior. The common usage of "StartAfter" together with "StopAfter" is the following: 1. The <Source> of the "StartAfter" is the <Target> of the "StopAfter". 2. The <Target> of the "StartAfter" is the <Source> of the "StopAfter".

SAMP0503W All members of the group with the name " *groupName* " should be colocated, because the group is part of a location relationship or of a relationship of the type " *dependsOnType* ". Set the value of the groups tag <memberLocation> to " *collocatedValue* ".

Explanation: For these kinds of relationships all members of a source or target group should be colocated.

System action: Application continues.

Operator response: Check that all members of this group are colocated in this policy.

SAMP0504W The specified <Relationship> with <Type> " *relationType* " and <Source> with the name " *Sourcename* " and <Target> with the name " *Target* " was found in a loop.

Explanation: <Relationship> elements of the same <Type> where one <Relationship> element <Target> is the next <Relationship> element <Source> should not form a loop.

System action: Application continues.

Operator response: Check that the <Relationship> elements are not defined as loop in this policy.

SAMP0505W A <Relationship> with the <Type> " *relationType* " was found that has linked more than 100 resources.

Explanation: The numbers of resources linked by a relationship is limited to 100.

System action: Application continues.

Operator response: Reduce the number of resources linked by the relationship.

SAMP0506W The specified element <element> with the value " *value* " of the subelement <subelement1> should not contain a subelement <subelement2> as well. This subelement is ignored.

Explanation: For this kind of element some subelements are not supported for certain subelement values.

System action: Application continues. Subelement is ignored.

Operator response: Remove the invalid subelement or change the value of the other subelement.

SAMP0507W The resource group with name *resourceGroupName* has linked more than 100 resources.

Explanation: The numbers of resources linked by a resource group is limited to 100.

System action: Application continues.

Operator response: Reduce the number of resources linked by this group.

SAMP0508W An error occurred in method *methodName* of class *className*. Error details *details*.

Explanation: The processing was interrupted by this error but it can continue.

System action: Processing continues.

Operator response: Try to resolve the problem described in the error details.

Messages

SAMP0509W A non-critical error occurred in method *methodName* of class *className* during activation of a new policy. Error details *details*.

Explanation: The processing was interrupted by this error but it can continue.

System action: Activation continues.

Operator response: Try to resolve the problem described in the error details. Please try to activate the policy again and check, if the error still occurs. If the error persists, please contact IBM support and provide logs and traces.

SAMP0510W A non-critical error occurred in method *methodName* of class *className* during deactivation of the current policy. Error details *details*.

Explanation: The processing was interrupted by this error but it can continue.

System action: Deactivation continues.

Operator response: Try to resolve the problem described in the error details. Please try to deactivate the policy again and check, if the error still occurs. If the error persists, please contact IBM support and provide logs and traces.

SAMP0511W A non-critical error occurred in method *methodName* of class *className* during saving of the current policy. Error details *details*.

Explanation: The processing was interrupted by this error but it can continue.

System action: Saving process continues.

Operator response: Try to resolve the problem described in the error details. Please try to resubmit the save command and check, if the error still occurs. If the error persists, please contact IBM support and provide logs and traces.

SAMP1000I Usage:
 sampolicy -h
 sampolicy [-T] [-V] -a filename
 sampolicy [-T] [-V] -d
 sampolicy [-T] [-V] -s [filename]
 sampolicy [-T] [-V] -c filename
 sampolicy [-T] [-V] -i filename

Explanation: No additional information is available for this message.

SAMP1001I The specified policy *policyLocation* is valid.

Explanation: The policy is valid and can be activated.

System action: Processing continues.

Operator response: None.

SAMP1002I The policy has the following policy information: *policyInfo*.

Explanation: This is the information for the policy.

System action: Processing continues.

Operator response: None.

SAMP1003I The policy has been activated successfully.

Explanation: The policy is now active in the domain.

System action: Processing continues.

Operator response: None.

SAMP1004I The activation task ends.

Explanation: The policy is not going to be activated because the user did not confirm this action.

System action: Processing ends.

Operator response: None.

SAMP1005I The activation task ends.

Explanation: The policy is not going to be activated.

System action: Processing ends.

Operator response: None.

SAMP1006I The current policy has been saved to file *filename*.

Explanation: No additional information is available for this message.

SAMP1007I The policy has been deactivated successfully.

Explanation: There is now no policy active in the domain.

System action: Processing continues.

Operator response: None.

SAMP1100I Starting to check policy *policyLocation*.

Explanation: No additional information is available for this message.

SAMP1101I Starting to load policy.

Explanation: No additional information is available for this message.

SAMP1102I Retrieving policy info of *policyLocation*.

Explanation: No additional information is available for this message.

**SAMP1103I Are you sure you want to activate a new policy?
Yes (y) or No (n) ?**

Explanation: No additional information is available for this message.

**SAMP1104I Deactivation will remove all resources which can be created via policy activation.
Deactivation will not change any resources of the class IBM.TieBreaker
Are you sure you want to deactivate the current policy?
Yes (y) or No (n) ?**

Explanation: No additional information is available for this message.

SAMP1105I Please enter the root password:

Explanation: No additional information is available for this message.

SAMP1106I Now calling the backend in order to retrieve all data needed.

Explanation: No additional information is available for this message.

Messages

SAMP1107I Now calling the backend in order to activate the policy.

Explanation: No additional information is available for this message.

SAMP1108I Now calling the backend in order to deactivate the policy.

Explanation: No additional information is available for this message.

Messages generated by the plug-in of the System Automation for Multiplatforms end-to-end automation adapter

This section lists the messages which are generated by the plug-in of the end-to-end automation adapter. In addition to these messages which start with a prefix of SAMA, the end-to-end automation adapter command may also generate messages starting with the prefix EEZ. These messages are listed in the manual *IBM Tivoli System Automation for Multiplatforms End-to-End Automation Management User's Guide and Reference*, SC33-8211.

SAMA0001E Failed to load library: *lib*, message is: *msg*.

Explanation: Loading a library failed. Either the library or a prerequisite library is not available.

System action: The automation adapter will not start.

Operator response: Try to identify which library cannot be loaded using the following steps. Use 'find -name' to find the library. Use 'ldd library' to determine which library is not available.

SAMA0002E Domain *domain* went offline and the automation adapter is stopped.

Explanation: An event indicated that the domain went offline. The automation adapter can only operate with a domain that is online. Therefore, the automation adapter is stopped.

System action: The automation adapter does not accept any further requests. The automation adapter is stopped.

Operator response: If the automation adapter is automated no action is required and it will be restarted when the domain comes back online. If the automation adapter is not automated, restart it using command 'samadapter start' after the domain has become online. Use command 'samadapter status' to find out if the automation adapter is automated.

SAMA0003E Request *req* must not be applied on automated adapter resource *res*.

Explanation: Automated resources that control the adapter cannot accept such request because it prevents correct automation of the adapter. For example, setting the adapter 'Offline' will cause the domain to become unreachable from the administration console.

System action: The request was not performed.

Operator response: Use only supplied scripts 'samadapter start' and 'samadapter stop' to control the adapter from one of the nodes in the SAMP domain.

SAMA0004E Request *req* failed on resource *res* with message: *msg*.

Explanation: The request could not be performed on the resource. The reason may be found in the message.

System action: The request was not performed.

Operator response: Examine the message for the reason why the request failed.

SAMA0005E Unable to build command from request *req* for resource *res*.

Explanation: The request could not be built for the resource. The reason may be that the command is not allowed on this type of resource.

System action: The request was not performed.

Operator response: A program has issued a request that is not supported for the resource. Have IBM support analyse the problem.

SAMA0006E Failed to reset resource *res*, message is: *msg*.

Explanation: An error occurred, when trying to reset the resource that was marked non recoverable. The reason may be found in the message.

System action: The request to reset the resource was not performed.

Operator response: Examine the message for the reason why the reset failed.

SAMA0007E Failed to obtain members of group *res*, message is: *msg*.

Explanation: An error occurred, when trying to obtain the members for resource. The reason may be found in the message.

System action: Due to the error no members contained in the resource were returned.

Operator response: Examine the message for the reason why obtaining contained resource failed.

SAMA0008E Failed to get top level resources, message is: *msg*.

Explanation: An error occurred, when trying to obtain resources that are not contained in other resources. The reason may be found in the message.

System action: Due to the error no resources were returned.

Operator response: Examine the message for the reason why obtaining top level resource failed.

SAMA0009E Cannot establish remote access for operating console in direct mode, message is *msg*.

Explanation: Access from a remote operating console over RMI was specified in sam.adapter.plugin.properties. Attempting to provide the direct access failed.

System action: The adapter is not reachable from a remote operating console.

Operator response: Examine the message. Check the configuration of the adapter for direct access from a remote operating console.

SAMA0010E Failed to exclude node *node* from automation, message is *msg*.

Explanation: An error occurred, when trying to exclude the node from automation. The reason may be found in the message.

System action: Excluding the node was not performed.

Operator response: Examine the message for the reason why excluding the node failed.

SAMA0011E Failed to unsubscribe resource *res*, message is *msg*.

Explanation: An error occurred, when trying to remove the subscription for the resource. The reason may be found in the message.

System action: The subscription may not have been removed.

Operator response: Examine the message for the reason why removing the subscription failed.

SAMA0013E Failed establish a session, message is *msg*.

Explanation: Trying to establish an RMC session with the backend failed. Therefore, the request cannot be satisfied.

System action: No session with RMC is established.

Operator response: Examine the message to find out why the RMC session failed.

Messages

SAMA0016E Failed to include node *node* into automation, message is *msg*.

Explanation: An error occurred, when trying to include the node into automation. The reason may be found in the message.

System action: Including the node was not performed.

Operator response: Examine the message for the reason why including the node failed.

SAMA0018E Failed to subscribe resource *res*, message is *msg*.

Explanation: An error occurred, when requesting a subscription for the resource. The reason may be found in the message.

System action: The subscription has not been made.

Operator response: Examine the message for the reason why requesting the subscription failed.

SAMA0019E Failed to obtain details for domain *domain*, message is *msg*.

Explanation: The domain was retrieved successfully, but trying to obtain associated class information failed. The reason may be found in the message.

System action: The information for the domain is missing.

Operator response: Examine the message for the reason why obtaining the additional information failed.

SAMA0020E Failed to validate resource: *grp*.

Explanation: The resource for which a request was made does not exist.

System action: The request is not performed

Operator response: Use list commands to verify that the resource exists. If it does not exist, the resource had been removed. If it exists the request should be repeated.

SAMA0022E Failed to get resource relationships, message is *msg*.

Explanation: An error occurred when trying to get relationships between resources. The reason may be found in the message.

System action: No relationships were returned.

Operator response: Examine the message for the reason why the request failed.

SAMA0023E Failed to lookup resources, message is *msg*.

Explanation: An error occurred when trying to identify resources. The reason may be found in the message.

System action: No resource were returned.

Operator response: Examine the message for the reason why the request failed.

SAMA0024E Failed to get resources based on filter: *filter*, message is: *msg*.

Explanation: An error occurred when trying to get resources based on a filter. The reason may be found in the message.

System action: No filtered resource were returned.

Operator response: Examine the message for the reason why the request failed.

SAMA0025E Failed to get the parent resource for *res*, message is *msg*.

Explanation: An error occurred when trying to get parent of the resource. The reason may be found in the message.

System action: The parent resource was not returned.

Operator response: Examine the message for the reason why the request failed.

SAMA0026E Failed to get the resources on node *node*, message is *msg*.

Explanation: An error occurred when trying to get the resources that can run on the node. The reason may be found in the message.

System action: No resources on that node were returned.

Operator response: Examine the message for the reason why the request failed.

SAMA0027E Failed to refresh resources, message is *msg*.

Explanation: An error occurred when trying to refresh resources. The reason may be found in the message.

System action: No resource were refreshed.

Operator response: Examine the message for the reason why the request failed.

SAMA0028E Failed to get nodes of the domain, message is *msg*.

Explanation: An error occurred when trying to get the nodes in the domain. The reason may be found in the message.

System action: No nodes were returned.

Operator response: Examine the message for the reason why the request failed.

SAMA0029E Failed to get nodes from an equivalency, message is *msg*.

Explanation: An error occurred when trying to get the nodes from an equivalency. The reason may be found in the message.

System action: No nodes were returned.

Operator response: Examine the message for the reason why the request failed.

SAMA0033E Failed to get nodes excluded from automation, message is *msg*.

Explanation: An error occurred when trying to get the nodes that are excluded from automation. The reason may be found in the message.

System action: No nodes were returned.

Operator response: Examine the message for the reason why the request failed.

SAMA0034E Failed to enable event publishing in first-level automation manager, message is *msg*.

Explanation: The reason for failing to enable publishing may be an inoperative IBM.RecoveryRM. Details may be found in the message.

System action: Event publishing was not enabled.

Operator response: Examine the message for the reason why enabling event publishing failed.

SAMA0035E Adapter stops because domain *domain* is going offline.

Explanation: The adapter was notified by an event, that the domain is going offline. The adapter cannot continue to exist if the domain is offline. Therefore, the adapter is stopped.

System action: The adapter is stopped.

Messages

Operator response: If the domain went offline unexpectedly determine the reason. The domain can be restarted using command 'startprmdomain <domain-name>'. If the domain is online and the adapter is automated it will restart automatically. Otherwise, issue command 'samadapter start' to restart the adapter.

SAMA0036E Request *request* is not implemented.

Explanation: The request is currently not supported

System action: The request is not performed

Operator response: Check if a more recent version of the automation adapter is available that supports the request.

SAMA0037E No domain that is online was detected. Automation adapter is stopped.

Explanation: No online domain was found or an error occurred when trying to query the domain. The automation adapter can only operate with a domain that is online. Therefore, the automation adapter is stopped.

System action: The automation adapter does not accept any further requests. The automation adapter is stopped.

Operator response: If the automation adapter is automated no action is required and it will be restarted when the domain comes back online. If the automation adapter is not automated, restart it using command 'samadapter start' after the domain has become online. Use command 'samadapter status' to find out if the automation adapter is automated.

SAMA0038E Request *req* on resource *res* returned with code: *rc*, and error message: *error*.

Explanation: The request returned with a non zero return code which indicates that it has not been successfully performed. The reason may be found in the message.

System action: The request was not performed.

Operator response: Examine the message for the reason why the request failed.

SAMA0039E Request *req* on resource *res* returned without result.

Explanation: The request did not respond with return code and message.

System action: Most likely the request was not performed.

Operator response: None. If the error persists. Examine the trace for other messages around that time.

SAMA0040E Login for user-ID *user* failed for an unknown reason, message is: *msg*

Explanation: The user-ID and password validation could not be performed because PAM returned with an error.

System action: NO requests will be accepted for this user-ID.

Operator response: Examine the message. Try to login again. Make sure you type the user-ID and password using correct upper and lower case characters.

SAMA0041E Login for user-ID *user* failed, message is: *msg*

Explanation: The user-ID and password failed validation on the node where the login was performed.

System action: NO requests will be accepted for this user-ID.

Operator response: Examine the message. Try to login again. Make sure you type the user-ID and password using correct upper and lower case characters.

SAMA0042E Login for user-ID *user* failed, because the user account expired, message is: *msg*

Explanation: The user account is expired.

System action: The request was not performed.

Operator response: Have the system administrator change the expiration date of the user account.

SAMA0043E Login for user-ID *user* failed, because the password expired, message is: *msg*

Explanation: The password is expired. Have the system administrator change the expiration date.

System action: The request was not performed.

Operator response: Have the password changed.

SAMA0044E Programming error detected, message is *error-msg*.

Explanation: The automation adapter detected an error that cannot be handled.

System action: A request may not have been processed.

Operator response: Contact IBM support with diagnostic information of the automation adapter.

SAMA0500W Event of type *type* are not processed in this version.

Explanation: The event of this type is not supported.

System action: The event is not processed.

Operator response: Check if a more recent version of the automation adapter is available that supports this type of event.

SAMA0501W Closing session failed.

Explanation: An error was encountered, when the session with RMC was closed.

System action: The session may not have been closed.

Operator response: None.

SAMA0502W Unable to locate resource with name: *name*, class: *class*, node: *node*.

Explanation: The resource described in an event by name, class, and node could not be found.

System action: The resource is not updated with event information.

Operator response: None.

SAMA0600I domain: *domain* resource name: *resource-name*

Explanation:

System action:

Operator response:

SAMA0601I domain: *domain* resource name: *resource-name* node: *resource-node*

Explanation:

System action:

Operator response:

SAMA0602I domain: *domain* resource name: *resource-name* type: *resource-type*

Explanation:

System action:

Operator response:

Messages

SAMA0603I domain: *domain* resource name: *resource-name* type: *resource-type* node: *resource-node*

Explanation:

System action:

Operator response:

SAMA0604I *userid*(*auth-userid*)

Explanation:

System action:

Operator response:

SAMA0610I Command *reset* from non-recoverable error has been performed on resource *res* on behalf of user *userid*.

Explanation: A user found a resource flagged with non-recoverable error by automation, which means the resource is not automated until a user issued the reset.

System action: The reset has been issued to the resource.

Operator response: No action is required. You can verify in the operations console or through 'lsrg -m' command whether the resource is no more in error.

SAMA0611I Command *request* has been performed on resource *res* with return code: *rc* on behalf of user *userid*.

Explanation: A user has issued a command that requests a change of the resource state. This command is being performed by automation on the indicated resource.

System action: The command has been issued to the resource.

Operator response: No action is required. You can verify in the operations console or through 'lsrg -m' command that the request was successful on the resource.

SAMA0612I Node *node* has been excluded from automation on behalf of user *userid*.

Explanation: A user has requested to exclude the node from automation. See 'System action below'.

System action: Resources on that node are stopped by automation. Then automation tries to restart the resources on other nodes in the domain.

Operator response: No action is required. You can verify in the operations console or through 'lsrg -m' that the resources were restarted on other nodes in the peer domain, or that their new state is acceptable.

SAMA0613I Node *node* has been included into automation on behalf of user *userid*.

Explanation: A user has requested to include the node into automation. See 'System action below'.

System action: Once the node has been included into automation, automation may try start resources on the node.

Operator response: No action is required. You can verify in the operations console or through command 'lsrg -m' that resources are automated on the included node.

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Index

A

about this book vii
addrgmbr command 4
audience of this book vii
AutomationDomainName XML element 99
AutomationPolicy XML element 98

B

base data types, supported 88
blanks, use of in expressions 90

C

chequ command 8
chrel command 11
chrg command 16
chrgmbr command 19
commands
 addrgmbr 4
 chequ 8
 chrel 11
 chrg 16
 chrgmbr 19
 IBM Tivoli System Automation 3
 installSAM 22
 lsequ 24
 lsrel 27
 lsrg 32
 lsrgreq 37
 lssam 40
 lssamctrl 43
 mkequ 45
 mkrel 49
 mkrq 53
 pidmon 56
 prereqSAM 58
 rgmbrreq 59
 rgreq 62
 rmequ 65
 rmrel 67
 rmrg 71
 rmrgmbr 73
 RSCT 3
 samcfg 76
 samctrl 78
 samdiag 81
 samlicm 84
 sampolicy 85
 uninstallSAM 87
ConstituentResource XML element 103
ControllInformation XML element 100

D

data types
 base 88

data types (*continued*)
 structured 89
 used for literal values 89
Description XML element 116

E

e-mail address viii
Equivalency XML element 108
expressions
 operators for 90
 pattern matching supported in 94
 using 88

H

highlighting viii
how to use this book vii

I

IBM Tivoli System Automation
 commands 3
IBM.ApplicationAttributes XML element 111
IBM.ServiceIPAttributes XML element 112
IBM.TestAttributes XML element 113
IBM.TieBreaker XML element 114
InfoLink XML element 117
installSAM command 22
ISO 9000 viii

L

lsequ command 24
lsrel command 27
lsrg command 32
lsrgreq command 37
lssam command 40
lssamctrl command 43

M

Member XML element 115
mkequ command 45
mkrel command 49
mkrq command 53
modifying predefined expressions 88
MoveGroup XML element 102

O

operator precedence 92
operators available for use in expressions 90
Owner XML element 116

P

- pattern matching supported in expressions 94
- pidmon command 56
- Policy XML reference 97
- PolicyAuthor XML element 99
- PolicyDescription XML element 99
- PolicyInformation XML element 99
- PolicyName XML element 99
- PolicyToken XML element 99
- precedence of operators 92
- predefined expressions
 - modifying 88
- prereqSAM command 58
- prerequisite knowledge for this book vii

R

- Relationship XML element 106
- Resource XML element 101
- ResourceGroup XML element 104
- ResourceReference XML element 110
- rgmbrreq command 59
- rgreq command 62
- rmequ command 65
- rmrel command 67
- rmrg command 71
- rmrgmbrg command 73
- RSCT command 3

S

- samcfg command 76
- samctrl command 78
- samdiag command 81
- samlcm command 84
- sampolicy command 85
- select string 88
- SQL syntax 88
- structured data types 89

T

- trademarks 186

U

- uninstallSAM command 87
- using select strings in expressions 88

V

- variable names 90

X

- XML elements
 - AutomationDomainName 99
 - AutomationPolicy 98
 - ConstituentResource 103

XML elements (*continued*)

- ControllInformation 100
- Description 116
- Equivalency 108
- IBM.ApplicationAttributes 111
- IBM.ServiceIPAttributes 112
- IBM.TestAttributes 113
- IBM.TieBreaker 114
- InfoLink 117
- Membesr 115
- MoveGroup 102
- Owner 116
- PolicyAuthor 99
- PolicyDescription 99
- PolicyInformation 99
- PolicyName 99
- PolicyToken 99
- Relationship 106
- Resource 101
- ResourceGroup 104
- ResourceReference 110

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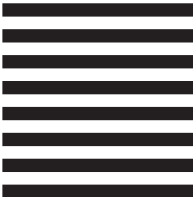
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