Base Component Reference

Version 2.1
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Contents
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


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:

Conventions

The following highlighting conventions are used in this book:

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<th>Bold</th>
<th>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.</th>
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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, 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:

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:

How to obtain publications

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

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
# Chapter 1. IBM Tivoli System Automation commands

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## RSCT RMC commands and files

You can find the RSCT RMC commands and files in the *IBM Reliable Scalable Cluster Technology for Linux, Technical Reference* manual, SA22–7893.

## 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]

[Resource_class:"selection_string" [...]]

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 A|O
  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.
addrgmbr

–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 80.

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.
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:
      ```
      lsrcrsrcdef -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 `adrgmbr` command with the file as follows:
      ```
      adrgmbr -f /tmp/MgdR.rdef
      ```

Sample Data Input file for adrgmbr:
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:
   ```
   adrgmbr -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:
   ```
   adrgmbr -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:
   ```
   adrgmbr -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:
   ```
   adrgmbr -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/adrgmbr` Location of the `adrgmbr` command.

data_input_file
addrgmbr

See Also
The `samctrl`, `chrel`, `chrg`, `chrgmbr`, `lsrg`, `mkrg`, `mkrel`, `rmrel`, `rmrg`, `rmrgmbr` commands.

The `rmccii` General Information file.

The `Resource_Data_Input` file
Name
chequ – Changes an already-defined resource equivalency.

Synopsis
   Equivalency Resource_class
   Equivalency Resource_class
chequ [-h] [-i] [-u a l d l r ] [-p A | O ] [-m Minimum_Necessary]
   [.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 lsrrsrcdef 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 80.

-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.
Resource specified was not found.

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


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 l d l 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.
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
ccondition. 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.
chrel

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 rmclcli General Information file
**Synopsis**


**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.
chrg

-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 80.

-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.
Incorrect parameter on command line.

Error occurred with RMC that was based on faulty command line input.

Resource specified was not found.

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:
   \[\text{chrg -l collocated -o 0 -p 34 foo}\]
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:
   \[\text{chrg -c clusterfoo -l 0 -n cluster foo}\]
3. To change the location relationship to None, and allowed node name cluster for all resource groups containing the name foo, enter:
   \[\text{chrg -l none -n cluster -s 'Name like "%foo%"'}\]

Files
/\texttt/usr/sbin/rsct/bin/chrg} Location of the \texttt{chrg} command.

See Also
The addrgmbr, samctrl, chrgmbr, lsrg, mkrg, rmrg, rmrgmbr commands.

The \texttt{Resource\_Data\_Input} file.

The \texttt{rmccli} General Information file.
chrgmbr

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

Synopsis
         -g Resource_group [-p A | O]

         [-g Resource_group] [-p A | O] "selection_string"

         [-s] [-g Resource_group] [-p A | O] [Resource_class:"selection_string" [Resource_class:"selection_string" [...]]

         [-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 d 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.
-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 A|O 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 it’s 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 80.

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 (:).
**chrgmbr**

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**

1. 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
   ```

2. 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
   ```

3. 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 `addrmbr`, `samctrl`, `chrel`, `chrg`, `lsrg`, `mkrel`, `mkrg`, `mkrg`, `rmrel`, `rmrgmbr` commands.

The `rmccli` General Information file.
Isequ

Name
Isequ – Lists already-defined resource equivalencies and their attributes.

Synopsis

Description
The Isequ 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 AttrOperands 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.
**Isequ**

For information on how to specify selection strings, see “Using expressions” on page 80.

- **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
   ```
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
**lsrel**

**Name**

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

**Synopsis**

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

```
```

```
lsrel [-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 *lsrel* 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.
Isrel

- 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 80.

- 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
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:
   ```
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
Relationship = Collocated
Conditional = NoCondition
ResourceGroup[Source] = charm
```

4. To list the dynamic attributes of the managed relationship name *foo*, enter:

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

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

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

**Files**

```
/usr/sbin/rsct/bin/lsrel
```

Location of the `lsrel` command.

**See Also**

The `addrgmbr`, `samctrl`, `chrg`, `chrgmbr`, `mkrg`, `rmrg`, `rmrgmbr` commands.

The `rmccli` General Information file.
Isrg

Name
Isrg – Lists already-defined resource groups and their members.

Synopsis

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

Description
The Isrg 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.
lsrg

-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 80.

-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.
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
lsrg

[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:
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:
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:
Mandatory = False
MemberOf = foo

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

Output is as follows:
Displaying Member Resource information:
IBM.Application:WebServer True DemoRG Online
IBM.ServiceIP:WebIP True DemoRG Online

Files
/usr/sbin/rsct/bin/lsrg Location of the lsrg command.
See Also
The `addrgmbr`, `samctrl`, `chrel`, `chrg`, `chrgmbr`, `mkrel`, `mkrg`, `rmrel`, `rmrg`, `rmrgmbr` commands.

The `rmccl` General Information file.
Isrgreq

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

Isrgreq belongs to a group of commands (rgreq, rmbreq, 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

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

Resource_class:“Selection_String”[-T] [-V]
[Resource_class:“Selection_String”[,...]]

Description
The Isrgreq command lists the outstanding requests applied against the resource groups or managed resources. By means of the Isrgreq 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 80.

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

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

1srgreq -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:
   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".

<table>
<thead>
<tr>
<th>ResourceGroup</th>
<th>Priority</th>
<th>Action</th>
<th>Source</th>
<th>NodeList</th>
<th>ActiveStatus</th>
<th>MoveStatus</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG1</td>
<td>low</td>
<td>stop</td>
<td>ExtSched</td>
<td>{}</td>
<td>InActive</td>
<td>None</td>
</tr>
<tr>
<td>RG1</td>
<td>High</td>
<td>start</td>
<td>Automation</td>
<td>{}</td>
<td>Active</td>
<td>None</td>
</tr>
<tr>
<td>RG1</td>
<td>Force</td>
<td>stop</td>
<td>Operator</td>
<td>{}</td>
<td>Active</td>
<td>None</td>
</tr>
</tbody>
</table>

Files

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

See Also

The addrgmbr, chrg, chrgmbr, lsrg., mkrg, rgreq, rmrg, and rmrgmbr commands.
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 AttrOperands 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]

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 lsrcrscdef 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 80.
-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 80.

-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.

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_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:
      
      lsrsrdef -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**

```bash
mkrel [-h] -f data_input_file [-T] [-V]
```

```bash
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 `lsrsrcdef` 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. 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 (\textit{Source\_class}) of the resource, the resource name (\textit{Resource\_name}), and, optionally, the node (\textit{Node}) at which the resource resides. \textit{Source\_class}, \textit{Resource\_name}, and \textit{Node} must be separated by colons.

If the \texttt{-s} option is used to specify a source selection string, \textit{Resource\_name} and \textit{Node} must not be specified for the \texttt{-S} option.

\textbf{Parameters}

\textit{Managed\_Relation}

Optional name of the managed relationship.

\textbf{Exit Status}

\begin{center}
\begin{tabular}{ll}
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. \\
\end{tabular}
\end{center}

\textbf{Security}

This command requires root authority.

\textbf{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:
      \texttt{lsrcrsrcdef -i IBM.ManagedRelationship > /tmp/Rel.rdef}
   b. Edit the file \texttt{/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 \texttt{mkrel} command with the file as follows:
      \texttt{mkrel -f /tmp/Rel.rdef}

\textbf{Sample Data Input file for \texttt{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.

\textbf{PersistentResourceAttributes:}

\begin{center}
\begin{tabular}{ll}
\textbf{resource 1:} & \\
Name & = “Rel1” \\
Source & = “0x606b 0xffff 0x0fe8018b 0x3343381b 0x0e8341f8 0x7da8a450” \\
Target & = (“0x606b 0xffff 0x0fe8018b 0x3343381b 0x0e8341fa 0x42a72de8”, “0x....”) \\
Relationship & = anticollocated \\
Conditional & = i of offline \\
\end{tabular}
\end{center}
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 `adddrgmbr`, `chequ`, `chrel`, `chrg`, `chrgmbr`, `lsrg`, `mkequ`, `mkrg`, `rmequ`, `rmrel`, `rmrg`, `rmrgmbr` commands.

The `rmccli` General Information file

The `Resource_Data_Input` file.
mkrg

Name

mkrg – Makes one or more new resource groups.

Synopsis

mkrg [-h] -f data_input_file [-T] [-V]


Description

The mkrg 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.

-I 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.

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:
      
      mkrg -f /tmp/RG.rdef
**Sample Data Input file for mkrg:**
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"

2. To define a new resource group called **foo** with all default values, enter:
```
mkrg foo
```

3. To define new resource groups called **foo** and **foo1** with location relationship “none”, and allowed node name “cluster1”, enter:
```
mkrg -l none -n cluster1 foo foo1
```

4. To define a new resource group called **foo** with location relationship “Collocated”, , priority value of 22, and allowed equivalency name “cluster1”, enter:
```
mkrg -l collocated -e cluster1 -p 22 foo
```

**Files**

`/usr/sbin/rsct/bin/mkrg` Location of the `mkrg` command.

`data_input_file`

**See Also**
The `addrmbr`, `samctrl`, `chrg`, `chrgmbr`, `lsrg`, `rmrg`, `rmrgmbr` commands.

The `Resource_Data_Input` file.

The `rmccli` General Information file.
**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**

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

```
Resource_class:"Selection_String" [Resource_class:"Selection_String" [...]]
```

**Description**

The **rgmbrreq** command allows requests into IBM Tivoli System Automation against managed resources. 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.

-\texttt{u}\ \texttt{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.

-\texttt{-c}\ \texttt{comments}

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

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

-\texttt{-V}\ Verbose. Writes the command's verbose messages to standard output.

\textbf{Parameters}

\texttt{Resource\_class:selection\_string}

The \texttt{-s} option flag determines this operand. Each selection string must be preceded by a resource class. \texttt{Resource\_class} indicates the name of the Resource class the \texttt{selection\_string} will be applied to. The \texttt{selection\_string} and its \texttt{Resource\_class} must be separated by colon or \texttt{"\:\"} delimiter. The specified selection string will be applied to its corresponding \texttt{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:

\begin{itemize}
  \item \texttt{\textbackslash -s IBM.Application:'Name=="testing"}
  \item \texttt{\textbackslash -s IBM.Application:'Name ?="test"}
  \item \texttt{\textbackslash -s IBM.Application:'Name like "%" (For all resources)}
\end{itemize}

For information on how to specify selection strings, see \href{Using\_expressions\_on\_page\_80}{"Using expressions" on page 80}.

\texttt{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 (\texttt{Resource\_class}), the resource's name (\texttt{Resource\_name}), and optionally the node (\texttt{Node}) the resource is on. The \texttt{Resource\_class}, \texttt{Resource} and \texttt{Node} must be separated by a colon. \texttt{Resource\_class} is the name of the resource class the member resource belongs to. \texttt{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 \texttt{"\:\"} delimiter. Multiple resources belonging to the same resource class can also be specified and are separated by a comma:

\texttt{Resource\_class:Resource[:Node],Resource[:Node],...]

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

\textbf{Exit Status}

0 \hspace{1em} Command has run successfully.

1 \hspace{1em} Error occurred with RMC.
rgmbrreq

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, mkrg, 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, rgmbreq, 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]

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.
rgreq

-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,...noden
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.
Examples

1. To move all the resources from node1 in resource group RG1, enter:
   \texttt{rgreq -n node1 -o move RG1}

2. To stop all the resources in resource group RG2, enter:
   \texttt{rgreq -o stop RG2}

Files

\texttt{/usr/sbin/rsct/bin/rgreq} \hspace{1cm} Location of the \texttt{rgreq} command.

See Also

The \texttt{lsrgreq}, \texttt{mkrg}, \texttt{chrg}, \texttt{rmrg}, \texttt{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 80](#).

- **–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.
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
**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]
```

```
```

**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 Target_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.
If the \texttt{-g} option is used to specify a target selection string, \textit{Resource\_name} and \textit{Node} must not be specified for the \texttt{-G} option.

\texttt{--h} \quad Writes the command's usage statement to standard output.

\texttt{--i} \quad Interactive. Prompt before removing relationships.

\texttt{--P \textit{Current\_relationship}}
\quad 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):

- \texttt{0x0001 or Collocated}
  \quad Specifies that the source and the target resources are to be located on the same node.

- \texttt{0x0002 or AntiCollocated}
  \quad Specifies that the source and the target resources are to be located on different nodes.

- \texttt{0x0003 or Affinity}
  \quad Specifies that the source resource and its specified affinity resource are to be located on the same node, if possible.

- \texttt{0x0004 or AntiAffinity}
  \quad Specifies that the source resource and its specified affinity resource are to be located on different nodes, if possible.

- \texttt{0x0005 or IsStartable}
  \quad Specifies that the source and its target resources are startable.

- \texttt{0x0006 or StartAfter}
  \quad Specifies that the source is to be started after the target resources.

- \texttt{0x0007 or DependsOn}
  \quad 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.

- \texttt{0x0008 or DependsOnAny}
  \quad 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.

- \texttt{0x0009 or StopAfter}
  \quad Specifies that the source resource may not be stopped until after the target resource has been brought offline.

- \texttt{0x000A or ForcedDownBy}
  \quad 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.

\texttt{--s \textit{"selection\_string"}}
\quad Specifies the selection string. If the \texttt{-s} option is specified without the \texttt{-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:

\begin{verbatim}
-s 'Name == "testing"'
s 'Name ?= "test"
\end{verbatim}

For information on how to specify selection strings, see "Using expressions" on page 80.

\texttt{--s \textit{Source\_string}}
\quad Specifies the source selection string. The \textit{Source\_string} is applied to all resources of the resource class specified by the \texttt{-S} option to determine the source of the relationship. The result of the selection may contain one or more resources.
rmrel

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
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, rmgmbr commands.

The rmccli General Information file.
Name
rmrg – Removes one or more already-defined resource groups.

Synopsis
rmrg [-h] [-i] -s "selection_string" [-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.

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.

Exit Status
0 Command has run successfully.
1 Error occurred with RMC.
2 Error occurred with CLI script.
Incorrect flag on command line.
Incorrect parameter on command line.
Error occurred with RMC that was based on faulty command line input.
Resource specified was not found.
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
**Name**
rmgrmb – Removes one or more resources from their resource group.

**Synopsis**
rmgrmb [-h] [-i] [-T] [-V] -g Resource_group

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

Description

The `rmrgmb` 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 it’s 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 80.

**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 80.

**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, mkrg, 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 76.

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.
samcfg

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 issamctrl command.

The rmccli General Information file
Name
samctrl – Sets the IBM Tivoli System Automation control parameters.

Synopsis
samctrl [-h] [-m [-f] [-T] [-V] [new_activeversion]
[-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 l 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.
samctrl

-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. 3. Migrate to the latest version possible, enter the following:
        samctrl -m
4. 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 lssamctrl command.
The **rmccll** 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.
-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.
samdiag

Security
This command requires root authority.

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

See Also
The Issamctrl 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 89 describes how to create an XML file.

See “Messages generated by the sampolicy command” on page 158 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
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:
   ```bash
   sampolicy -a /usr/xml/myPolicy.xml
   ```
2. To deactivate a policy, enter:
   ```bash
   sampolicy -d
   ```
3. To save the policy to a file, enter:
   ```bash
   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.
**Additional useful commands**

**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:
   ```
lsrsr -s "Name='syslogd'" IBM.Application
resource 1:
   Name = "syslogd"
   ResourceType = 0
   AggregateResource = "0x3fff 0xffff 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
Using Expressions

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:

<table>
<thead>
<tr>
<th>RMC</th>
<th>SQL</th>
</tr>
</thead>
<tbody>
<tr>
<td>attribute name</td>
<td>column name</td>
</tr>
<tr>
<td>select string</td>
<td>WHERE clause</td>
</tr>
<tr>
<td>operators</td>
<td>predicates, logical connectives</td>
</tr>
<tr>
<td>resource class</td>
<td>table</td>
</tr>
</tbody>
</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:

<table>
<thead>
<tr>
<th>Symbolic Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT_INT32</td>
<td>Signed 32–bit integer</td>
</tr>
<tr>
<td>CT_UINT32</td>
<td>Unsigned 32–bit integer</td>
</tr>
<tr>
<td>CT_INT64</td>
<td>Signed 64–bit integer</td>
</tr>
<tr>
<td>CT_UINT64</td>
<td>Unsigned 64–bit integer</td>
</tr>
<tr>
<td>CT_FLOAT32</td>
<td>32–bit floating point</td>
</tr>
<tr>
<td>CT_FLOAT64</td>
<td>64–bit floating point</td>
</tr>
<tr>
<td>CT_CHAR_PTR</td>
<td>Null-terminated string</td>
</tr>
<tr>
<td>CT_BINARY_PTR</td>
<td>Binary data – arbitrary-length block of data</td>
</tr>
</tbody>
</table>
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 81, 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:

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
<th>Left Data Types</th>
<th>Right Data Types</th>
<th>Example</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>+</td>
<td>Addition</td>
<td>Integer, float</td>
<td>Integer, float</td>
<td>&quot;1+2&quot; results in 3</td>
<td>None</td>
</tr>
<tr>
<td>-</td>
<td>Subtraction</td>
<td>Integer, float</td>
<td>Integer, float</td>
<td>&quot;1.0-2.0&quot; results in -1.0</td>
<td>None</td>
</tr>
<tr>
<td>*</td>
<td>Multiplication</td>
<td>Integer, float</td>
<td>Integer, float</td>
<td>&quot;2*3&quot; results in 6</td>
<td>None</td>
</tr>
<tr>
<td>/</td>
<td>Division</td>
<td>Integer, float</td>
<td>Integer, float</td>
<td>&quot;2/3&quot; results in 1</td>
<td>None</td>
</tr>
<tr>
<td>-</td>
<td>Unary minus</td>
<td>None</td>
<td>Integer, float</td>
<td>&quot;-abc&quot;</td>
<td>None</td>
</tr>
<tr>
<td>+</td>
<td>Unary plus</td>
<td>None</td>
<td>Integer, float</td>
<td>&quot;+abc&quot;</td>
<td>None</td>
</tr>
<tr>
<td>..</td>
<td>Range</td>
<td>Integers</td>
<td>Integers</td>
<td>&quot;1..3&quot; results in 1,2,3</td>
<td>Shorthand for all integers between and including the two values</td>
</tr>
<tr>
<td>%</td>
<td>Modulo</td>
<td>Integers</td>
<td>Integers</td>
<td>&quot;10%2&quot; results in 0</td>
<td>None</td>
</tr>
<tr>
<td>l</td>
<td>Bitwise OR</td>
<td>Integers</td>
<td>Integers</td>
<td>&quot;214&quot; results in 6</td>
<td>None</td>
</tr>
<tr>
<td>&amp;</td>
<td>Bitwise AND</td>
<td>Integers</td>
<td>Integers</td>
<td>&quot;3&amp;2&quot; results in 2</td>
<td>None</td>
</tr>
<tr>
<td>~</td>
<td>Bitwise complement</td>
<td>None</td>
<td>Integers</td>
<td>_0x00000fff results in 0xffff0000</td>
<td>None</td>
</tr>
<tr>
<td>^</td>
<td>Exclusive OR</td>
<td>Integers</td>
<td>Integers</td>
<td>0x0000aaaaa*0x00000fff results in 0x00005555</td>
<td>None</td>
</tr>
<tr>
<td>&gt;&gt;</td>
<td>Right shift</td>
<td>Integers</td>
<td>Integers</td>
<td>0x0fff&gt;&gt;4 results in 0x00ff</td>
<td>None</td>
</tr>
<tr>
<td>&lt;&lt;</td>
<td>Left shift</td>
<td>Integers</td>
<td>Integers</td>
<td>&quot;0x0fff&lt;&lt;4&quot; results in 0xffff0</td>
<td>None</td>
</tr>
<tr>
<td>==</td>
<td>Equality</td>
<td>All but SDs</td>
<td>All but SDs</td>
<td>&quot;2==2&quot; results in 1</td>
<td>Result is true (1) or false (0)</td>
</tr>
<tr>
<td>=</td>
<td></td>
<td></td>
<td></td>
<td>&quot;2==2&quot; results in 1</td>
<td></td>
</tr>
<tr>
<td>!=</td>
<td>Inequality</td>
<td>All but SDs</td>
<td>All but SDs</td>
<td>&quot;2!=2&quot; results in 0</td>
<td>Result is true (1) or false (0)</td>
</tr>
<tr>
<td>&lt;&gt;</td>
<td></td>
<td></td>
<td></td>
<td>&quot;2&lt;&gt;2&quot; results in 0</td>
<td></td>
</tr>
<tr>
<td>&gt;</td>
<td>Greater than</td>
<td>Integer, float</td>
<td>Integer, float</td>
<td>&quot;2&gt;3&quot; results in 0</td>
<td>Result is true (1) or false (0)</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Greater than or equal</td>
<td>Integer, float</td>
<td>Integer, float</td>
<td>&quot;4&gt;=3&quot; results in 1</td>
<td>Result is true (1) or false (0)</td>
</tr>
<tr>
<td>&lt;</td>
<td>Less than</td>
<td>Integer, float</td>
<td>Integer, float</td>
<td>&quot;4&lt;3&quot; results in 0</td>
<td>Result is true (1) or false (0)</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Less than or equal</td>
<td>Integer, float</td>
<td>Integer, float</td>
<td>&quot;2&lt;=3&quot; results in 1</td>
<td>Result is true (1) or false (0)</td>
</tr>
<tr>
<td>=~</td>
<td>Pattern match</td>
<td>Strings</td>
<td>Strings</td>
<td>&quot;abc&quot;=&quot;a.&quot; results in 1</td>
<td>Right operand is interpreted as an extended regular expression</td>
</tr>
</tbody>
</table>
### Using Expressions

<table>
<thead>
<tr>
<th>Operator</th>
<th>Description</th>
<th>Left Data Types</th>
<th>Right Data Types</th>
<th>Example</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>!=</td>
<td>Not pattern match</td>
<td>Strings</td>
<td>Strings</td>
<td>&quot;abc&quot;!=&quot;a.**&quot; results in 0</td>
<td>Right operand is interpreted as an extended regular expression</td>
</tr>
<tr>
<td>=?</td>
<td>SQL pattern match</td>
<td>Strings</td>
<td>Strings</td>
<td>&quot;abc&quot;=? &quot;a%&quot; results in 1</td>
<td>Right operand is interpreted as a SQL pattern</td>
</tr>
<tr>
<td>!?</td>
<td>Not SQL pattern match</td>
<td>Strings</td>
<td>Strings</td>
<td>&quot;abc&quot;!? &quot;a%&quot; results in 0</td>
<td>Right operand is interpreted as a SQL pattern</td>
</tr>
<tr>
<td>!&lt;</td>
<td>Contains any</td>
<td>All but SDs</td>
<td>All but SDs</td>
<td>&quot;{1..5}!&lt;{2,10}&quot; results in 0</td>
<td>Result is true (1) if left operand contains any value from right operand</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Contains none</td>
<td>All but SDs</td>
<td>All but SDs</td>
<td>&quot;{1..5}!&lt;{2,10}&quot; results in 1</td>
<td>Result is true (1) if left operand contains no value from right operand</td>
</tr>
<tr>
<td>&amp;&lt;</td>
<td>Contains all</td>
<td>All but SDs</td>
<td>All but SDs</td>
<td>&quot;{1..5}!&lt;{2,10}&quot; results in 0</td>
<td>Result is true (1) if left operand contains all values from right operand</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Logical OR</td>
<td>Integers</td>
<td>Integers</td>
</tr>
<tr>
<td>&amp;&amp;</td>
<td>Logical AND</td>
<td>Integers</td>
<td>Integers</td>
<td>&quot;(1&lt;2)&amp;&amp;(2&gt;4)&quot; results in 0</td>
<td>Result is true (1) or false (0)</td>
</tr>
<tr>
<td>!</td>
<td>Logical NOT</td>
<td>None</td>
<td>Integers</td>
<td>&quot;!(2==4)&quot; results in 1</td>
<td>Result is true (1) or false (0)</td>
</tr>
</tbody>
</table>

### 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.

<table>
<thead>
<tr>
<th>Operators</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>.</td>
<td>Structured data element separator</td>
</tr>
<tr>
<td>-</td>
<td>Bitwise complement</td>
</tr>
<tr>
<td>!</td>
<td>Logical not</td>
</tr>
<tr>
<td>NOT</td>
<td></td>
</tr>
<tr>
<td>not</td>
<td></td>
</tr>
<tr>
<td>-</td>
<td>Unary minus</td>
</tr>
<tr>
<td>+</td>
<td>Unary plus</td>
</tr>
<tr>
<td>*</td>
<td>Multiplication</td>
</tr>
<tr>
<td>/</td>
<td>Division</td>
</tr>
<tr>
<td>%</td>
<td>Modulo</td>
</tr>
<tr>
<td>+</td>
<td>Addition</td>
</tr>
<tr>
<td>-</td>
<td>Subtraction</td>
</tr>
<tr>
<td>&lt;&lt;</td>
<td>Left shift</td>
</tr>
<tr>
<td>&gt;&gt;</td>
<td>Right shift</td>
</tr>
<tr>
<td>&lt;</td>
<td>Less than</td>
</tr>
<tr>
<td>&lt;=</td>
<td>Less than or equal</td>
</tr>
<tr>
<td>&gt;</td>
<td>Greater than</td>
</tr>
<tr>
<td>&gt;=</td>
<td>Greater than or equal</td>
</tr>
</tbody>
</table>
Using Expressions

<table>
<thead>
<tr>
<th>Operators</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>==</td>
<td>Equality</td>
</tr>
<tr>
<td>!=</td>
<td>Inequality</td>
</tr>
<tr>
<td>=?</td>
<td>SQL match</td>
</tr>
<tr>
<td>LIKE</td>
<td>SQL not match</td>
</tr>
<tr>
<td>like</td>
<td>Reg expr match</td>
</tr>
<tr>
<td>!=?</td>
<td>Reg expr not match</td>
</tr>
<tr>
<td>=~</td>
<td>Reg expr match (compat)</td>
</tr>
<tr>
<td>!&lt;</td>
<td>Contains any</td>
</tr>
<tr>
<td>IN</td>
<td>Contains none</td>
</tr>
<tr>
<td>in</td>
<td>Contains all</td>
</tr>
<tr>
<td>&amp;&lt;</td>
<td>Bitwise AND</td>
</tr>
<tr>
<td>^</td>
<td>Bitwise exclusive OR</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>&amp;&amp;</td>
<td>Logical AND</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>,</td>
<td>List separator</td>
</tr>
</tbody>
</table>

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 '0', where “Name” indicates the column or attribute that is to be used in the evaluation:
Name = 'tr.*0'
Name LIKE 'tr%0'

2. 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)

3. 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>
<thead>
<tr>
<th>Character</th>
<th>specified in XML like</th>
</tr>
</thead>
<tbody>
<tr>
<td>&amp;</td>
<td>&amp;</td>
</tr>
<tr>
<td>&lt;</td>
<td>&lt;</td>
</tr>
<tr>
<td>&gt;</td>
<td>&gt;</td>
</tr>
</tbody>
</table>

Table 1. Specifying expressions in an XML file
Using Expressions
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 87.

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.


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
ControlInformation
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

```xml
<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 69).

Example

```xml
<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**

```xml
<Resource name="xdrerpdlnxxdr31" 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 95 element).

Occurrence
0 to multiple times.
**ConstituentResource**

Optional element. It must be used to describe members of a MoveGroup (floating resources).

**Example**

```xml
<ConstituentResource name="DB2" class="IBM.Application" node="lnxdr10"/>
```

**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

```xml
<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:
  - 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 108 for details about the Description element.

- **Owner**: Optional. Provides the name of the resource owner. See "Owner" on page 108 for details about the Owner element.

- **InfoLink**: Optional. Provides a link where more information can be found. See "InfoLink" on page 109 for details about the InfoLink element.

- **Members**: Optional. Can be resources, resource groups, or move groups. See "Members" on page 107 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.
Policy XML reference

**Relationship**

Optional element. It describes the relationships between resources in a cluster.

**Examples**

```xml
<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.

**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 *IBM Tivoli System Automation for Multiplatforms Base Component User’s Guide*.

- **Condition** Optional. This can be specified together with all location relationships except IsStartable. You can find a detailed description of the conditions in the *IBM Tivoli System Automation for Multiplatforms Base Component User’s Guide*.

- **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 107.

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>lnxdr01</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

```xml
<IBM.ApplicationAttributes name="Application1">
  <StartCommand>/usr/sbin/rsct/bin/xdrstarterpd</StartCommand>
  <StopCommand>/usr/sbin/rsct/bin/xdrstoperd</StopCommand>
  <MonitorCommand>/usr/sbin/rsct/bin/xdrmonitorerd</MonitorCommand>
  <StartCommandTimeout>10</StartCommandTimeout>
  <StopCommandTimeout>10</StopCommandTimeout>
  <RunCommandsSync>0</RunCommandsSync>
  <UserName>root</UserName>
</IBM.ApplicationAttributes>
```

Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>Mandatory. Must be unique and has a maximum of 64 characters. A Resource element or MoveGroup element can refer to this name.</td>
</tr>
</tbody>
</table>

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

```xml
<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

```xml
<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

```xml
<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">
    </MoveGroup>
  </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.
Policy XML reference

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

```xml
<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:

```
<?xml version="1.0" encoding="UTF-8"?>
<AutomationPolicy
    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>

</AutomationPolicy>
```

Figure 1. WebServerGroup resource group
<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>
    <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>
    <MoveGroup name="apache1" class="IBM.Application"/>
  </Source>
  <Target>
    <MoveGroup name="local_mount" class="IBM.Application"/>
  </Target>
  <Type>DependsOn</Type>
  <Condition>None</Condition>
</Relationship>

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Policy XML reference

```xml
<MoveGroup name="apachel" 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 exists.
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 "lsrsrcref <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.
<table>
<thead>
<tr>
<th>Message ID</th>
<th>Message Description</th>
<th>Explanation</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2621-009</td>
<td>Command not allowed - IBM.RecoveryRM not initialized.</td>
<td>The resource manager is not yet initialized to perform client's request.</td>
<td>Wait for initialization and retry the command.</td>
</tr>
<tr>
<td>2621-010</td>
<td>Command not allowed - IBM.RecoveryRM not in configuration quorum.</td>
<td>The cluster is probably running with several IBM.RecoveryRM daemons failure. The operation needs the quorum of IBM.RecoveryRM daemons online.</td>
<td>Try to restart the failed IBM.RecoveryRM daemons to bring back the configuration quorum.</td>
</tr>
<tr>
<td>2621-011</td>
<td>Command not allowed - node failed configuration data replication.</td>
<td>The node had failed updating the configuration data - can not perform the client's request.</td>
<td>Retry the operation. If the problem continues, report to your software service organization.</td>
</tr>
<tr>
<td>2621-012</td>
<td>Command not allowed - configuration data replacement in process.</td>
<td>The system is in transition to a new configuration data - can not perform the client's request.</td>
<td>Retry the operation. If the problem continues, report to your software service organization.</td>
</tr>
<tr>
<td>2621-013</td>
<td>Command not allowed - replication can not be started.</td>
<td>An error occurred in initializing the replication process.</td>
<td>Retry the operation. If the problem continues, report to your software service organization.</td>
</tr>
<tr>
<td>2621-014</td>
<td>Command not allowed - one or more related resource groups are online.</td>
<td>An error was generated while changing a managed resource, resource group, or relationship which involves one or more online resource groups.</td>
<td>Before changing the resource, the resource groups have to be offline.</td>
</tr>
<tr>
<td>2621-015</td>
<td>Failed to get resource class persistent attributes for class &quot;class_name&quot;.</td>
<td>An error was returned while querying the class to get its persistent attributes.</td>
<td>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.</td>
</tr>
<tr>
<td>2621-016</td>
<td>Failed to get definition of resource persistent attributes for class &quot;class_name&quot;.</td>
<td>An error was returned while querying a resource to get its persistent attributes.</td>
<td>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.</td>
</tr>
<tr>
<td>2621-017</td>
<td>Time out waiting for attribute query responses for the &quot;class_name&quot; class.</td>
<td>A time out error occurred while waiting for attribute query response from RMC.</td>
<td>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.</td>
</tr>
</tbody>
</table>

IBM Tivoli System Automation Reference
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2621-018</td>
<td>Error encountered when calling function &quot;function_name&quot;. return code = return_code</td>
<td>An error condition was returned when this function was invoked.</td>
<td>This is an internal error, report it to your software service organization.</td>
</tr>
<tr>
<td>2621-019</td>
<td>Time out waiting for response of event registration with resource handle.</td>
<td>A time out error occurred while waiting for a response on an event registration with resource handle.</td>
<td>Check if the RMC and the resource manager for the resource are running (use &quot;lssrc -a&quot; command). If either of the subsystem is inoperative, consult the corresponding user guide to check how to restart the non-operational subsystem.</td>
</tr>
<tr>
<td>2621-020</td>
<td>Resource has an invalid resource class name &quot;resource_class_name&quot;.</td>
<td>The referenced resource class name is not found.</td>
<td>Use &quot;lsrsrc&quot; command to display the supported resource classes. Correct the class name and retry the operation.</td>
</tr>
<tr>
<td>2621-021</td>
<td>Resource does not exist.</td>
<td>The referenced resource is not found.</td>
<td>Use &quot;lsrsrc class_name&quot; to display all resources with in a class.</td>
</tr>
<tr>
<td>2621-022</td>
<td>Resource encounters event registration error. The error message is: [error_message]</td>
<td>An error message was returned by the RMC in response to an event registration for a resource.</td>
<td>Check the error message and take the appropriate measure. Restart the RMC and the resource manager if they are not running.</td>
</tr>
<tr>
<td>2621-023</td>
<td>Resource RCP not found</td>
<td>An internal error was detected while a control point for a resource was not found.</td>
<td>Contact your software service organization.</td>
</tr>
<tr>
<td>2621-024</td>
<td>Timed out waiting for resource enumeration responses for the IBM.PeerDomain class.</td>
<td>A time out error occurred while waiting for peer domains enumeration registration</td>
<td>Check if the RMC and ConfigRM are running (use &quot;lssrc -a&quot; command). If either of the subsystem is inoperative, consult the RMC/ConfigRM user guides to check how to restart the non-operational subsystem.</td>
</tr>
<tr>
<td>2621-025</td>
<td>Value &quot;input_parameter_value&quot; provided for input parameter &quot;input_parameter_name&quot; in SubmitRequest action is not valid.</td>
<td>Value provided for an input parameter in SubmitRequest action is not valid.</td>
<td>Check value provided for input parameter of SubmitRequest action. Correct the value and retry the action</td>
</tr>
<tr>
<td>2621-026</td>
<td>This functionality is not supported by current active version of the cluster.</td>
<td>The cluster is in co-existence or migration mode. The current active version does not support the functionality.</td>
<td>Retry after migration is completed.</td>
</tr>
<tr>
<td>Code</td>
<td>Message</td>
<td>Explanation</td>
<td>User response</td>
</tr>
<tr>
<td>----------</td>
<td>--------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
<td>---------------------------------------------------</td>
</tr>
<tr>
<td>2621-027</td>
<td>There is no previous request from source [source_name]. Cancellation failed.</td>
<td>Cancellation of request is received but there is no previous request from the specified source.</td>
<td>Check value provided for source of SubmitRequest action. Correct the value and retry the action</td>
</tr>
<tr>
<td>2621-028</td>
<td>Command not allowed - complete migration action in process.</td>
<td>The system is in transition to a new active code version level - can not perform the client's request.</td>
<td>Retry the operation. If the problem continues, report to your software service organization.</td>
</tr>
<tr>
<td>2621-029</td>
<td>Request to move can not be granted as there is already a move request on the resource.</td>
<td>Request to move can not be granted as there is already a move request on the same resource group.</td>
<td>Wait for five minutes and Retry the operation.</td>
</tr>
<tr>
<td>2621-030</td>
<td>Timed out waiting for query persistent class attribute request responses for the IBM.PeerNode class.</td>
<td>A time out error occurred while waiting for peer node QuorumType registration</td>
<td>Check if the RMC and ConfigRM are running (use &quot;lssrc -a&quot; command). If either of the subsystem is inoperative, consult the RMC/ConfigRM user guides to check how to restart the non-operational subsystem.</td>
</tr>
<tr>
<td>2621-031</td>
<td>Command not allowed - new configuration initialization is in progress.</td>
<td>The system is in transition to a new configuration initialization - can not perform the client's request.</td>
<td>Retry the operation. If the problem continues, report to your software service organization.</td>
</tr>
<tr>
<td>2621-050</td>
<td>Resource group name &quot;resource_group_name&quot; already defined.</td>
<td>An error was detected while an existing resource group name is used to define a new resource group.</td>
<td>Use an unique name and retry the command.</td>
</tr>
<tr>
<td>2621-051</td>
<td>Resource group has an invalid allowed node as the equivalency members do not belong to IBM.PeerNode.</td>
<td>The AllowedNode of the defined resource group comes from an equivalency whose MemberClass attribute is not IBM.PeerNode.</td>
<td>Correct the problem and retry the operation.</td>
</tr>
<tr>
<td>2621-052</td>
<td>Resource group member location is incompatible with its outer resource group.</td>
<td>The MemberLocation attribute of the inner resource group is incompatible with its outer resource group.</td>
<td>Correct the problem and retry the operation.</td>
</tr>
<tr>
<td>2621-053</td>
<td>Resource group member location is incompatible with its members relationships.</td>
<td>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.</td>
<td>Fix the location compatibility problem either by changing the attribute or the relationship or both.</td>
</tr>
</tbody>
</table>
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 cannot 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

<table>
<thead>
<tr>
<th>Message ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2621-063</td>
<td>The resource group is in offline state and can not be moved.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>Resource group being requested to move is in offline state.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Check target of move request. Correct the target and retry the action.</td>
</tr>
<tr>
<td>2621-064</td>
<td>Node name list not specified when moving a non-collocated resource group.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>A list of node names to move resources away from must be specified when moving a non-collocated resource group.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Retry the command with node name list specified.</td>
</tr>
<tr>
<td>2621-065</td>
<td>Resource group &quot;resource_group&quot; cannot be brought online - Empty Tree.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified resource group cannot be brought online because it did not have any resources that could be brought online.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Add a real resource to the group and then bring it online.</td>
</tr>
<tr>
<td>2621-066</td>
<td>Resource group can not be moved as it is not a top-level resource group.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified resource group cannot be moved because it is not a top-level resource group.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Issue the move request against a top-level resource group.</td>
</tr>
<tr>
<td>2621-067</td>
<td>Resource group can not be moved as it contains only fixed resources.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The specified resource group cannot be moved because it contains only fixed resources.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Rethink the needs to move this resource group.</td>
</tr>
<tr>
<td>2621-068</td>
<td>Subscription is not supported for Resource Group in the current active version of the cluster.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The cluster is in co-existence or migration mode. The current active version does not support the Subscription attribute for Resource Groups.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Retry after migration is completed.</td>
</tr>
<tr>
<td>2621-069</td>
<td>This attribute is not supported for Resource Group in the current active version of the cluster.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The cluster is in co-existence or migration mode. The current active version does not support this attribute for Resource Groups.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Retry after migration is completed.</td>
</tr>
<tr>
<td>2621-101</td>
<td>Managed resource cannot be in more than one resource group, already in &quot;resource_group_name&quot;.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>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.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Retry the operation with correct parameters.</td>
</tr>
<tr>
<td>2621-102</td>
<td>Managed resource has an invalid resource handle.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>A resource manager has responded back with an invalid resource handle.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>If this internal problem continues, contact your software service organization.</td>
</tr>
</tbody>
</table>
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 "lsrsrdef -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.
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.
<table>
<thead>
<tr>
<th>Message ID</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2621-112</td>
<td>Value of attribute Mandatory: invalid_value for managed resource is not valid.</td>
<td>The value entered for attribute Mandatory is invalid.</td>
<td>Define managed resource with a valid value for attribute Mandatory.</td>
</tr>
<tr>
<td>2621-113</td>
<td>Managed resource &quot;resource_name&quot; is the target of a resource in another tree.</td>
<td>A managed resource can not be the target of two independent resource groups. The error was generated due to the violation of this constraint.</td>
<td>Remove the conflict and retry the operation.</td>
</tr>
<tr>
<td>2621-114</td>
<td>Managed resource &quot;resource_name&quot; can not be defined in an equivalency.</td>
<td>An error was generated when a managed resource was being included as a member of an equivalency.</td>
<td>Define the equivalency only with resources that are not defined as managed resources.</td>
</tr>
<tr>
<td>2621-115</td>
<td>Managed resource is from an invalid class.</td>
<td>A resource designated as managed has a resource handle that does not belong to the referenced class.</td>
<td>Correct the class name and retry the operation.</td>
</tr>
<tr>
<td>2621-116</td>
<td>Resource does not have dynamic attribute - OpState.</td>
<td>An error was generated while it was detected that resource class does not have the dynamic attribute - OpState.</td>
<td>Check dynamic attributes of the resource class. Add only the resources which has OpState.</td>
</tr>
<tr>
<td>2621-117</td>
<td>Can not change source managed resource while there are targets.</td>
<td>An error was generated while trying to change the source of a relationship when the relationship has one or more targets.</td>
<td>Remove the relationship and recreate a new one with appropriate source.</td>
</tr>
<tr>
<td>2621-118</td>
<td>Can not change the resource handle of a managed resource.</td>
<td>A managed resource always represents the resource for which it was created.</td>
<td>Remove the member representing the managed resource from the resource group and add a new member that points to the correct resource.</td>
</tr>
<tr>
<td>2621-119</td>
<td>Resource group does not exist.</td>
<td>An error was generated when a non-existent resource group was referenced.</td>
<td>Check the valid resource groups using &quot;lsrg&quot; command. Retry the operation using correct resource group.</td>
</tr>
<tr>
<td>2621-120</td>
<td>Operation temporarily disallowed, as resource registration is in progress.</td>
<td>Previous attempt to register for resource events failed. While daemon is retrying the registration, some functionalities is not available.</td>
<td>Correct the registration problem, then retry the operation.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Code</th>
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</tr>
</thead>
<tbody>
<tr>
<td>2621-156</td>
<td>Managed relationship conflicts with a previously defined relationship.</td>
<td>A new relationship was defined which conflicts with a previously defined location sensitive or order sensitive relation.</td>
<td>Remove the conflict and retry the operation.</td>
</tr>
<tr>
<td>2621-157</td>
<td>Managed relationship duplicates a previously defined relationship.</td>
<td>An error was generated due to re-definition of a relationship.</td>
<td>Define only one instance of a relationship.</td>
</tr>
<tr>
<td>2621-158</td>
<td>Managed relationship has a source or target that is not of an allowed class.</td>
<td>The resource from this class can’t be the source or target of the defined relationship.</td>
<td>Correct the source or target resource and retry the operation.</td>
</tr>
<tr>
<td>2621-159</td>
<td>Managed relationship is not consistent with source’s resource group member location.</td>
<td>A conflict was detected in location association of the relationship.</td>
<td>Check the source’s MemberLocation attribute and correct the problem.</td>
</tr>
<tr>
<td>2621-160</td>
<td>Managed relationship introduces circular relationship from a resource back to itself.</td>
<td>For StartAfter or DependsOn, or DependsOnAny relationship, a circular dependency was detected which may create a deadlock.</td>
<td>Remove the circular dependency and retry the operation.</td>
</tr>
<tr>
<td>2621-161</td>
<td>Specified Relationship attribute for Managed relationship is not supported by current active version of the cluster.</td>
<td>The cluster is in co-existence or migration mode. The current active version does not support the specified relationship attribute.</td>
<td>Retry after migration is completed.</td>
</tr>
<tr>
<td>2621-200</td>
<td>Equivalency name &quot;equivalency_name&quot; already defined.</td>
<td>An equivalency with this name was already defined.</td>
<td>Use an unique name and retry the operation.</td>
</tr>
<tr>
<td>2621-201</td>
<td>Equivalency membership must either be explicitly enumerated or specified with a select string.</td>
<td>An error was generated while both a select string and an enumerated set of resource handles are used to define equivalency membership.</td>
<td>Use either enumeration or select string (not both) and retry the operation.</td>
</tr>
<tr>
<td>2621-202</td>
<td>Equivalency has an invalid select string.</td>
<td>User entered an invalid select string.</td>
<td>Correct the problem, especially check the attribute name and value. Retry the operation.</td>
</tr>
<tr>
<td>Error Code</td>
<td>Description</td>
<td>Explanation</td>
<td>User Response</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>2621-203</td>
<td>Equivalency has an invalid member.</td>
<td>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.</td>
<td>Correct the problem and retry the operation.</td>
</tr>
<tr>
<td>2621-204</td>
<td>Equivalency of nodes has invalid member.</td>
<td>A node in an equivalency do not belong to IBM.PeerNode class.</td>
<td>Correct the problem and retry the operation.</td>
</tr>
<tr>
<td>2621-205</td>
<td>Equivalency has members belonging to different resource classes.</td>
<td>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.</td>
<td>Correct the problem and retry the operation.</td>
</tr>
<tr>
<td>2621-206</td>
<td>Equivalency membership has a duplicated resource handle &quot;resource_handle&quot;.</td>
<td>Two members of an equivalency has the same resource handle.</td>
<td>Remove one and then retry the operation.</td>
</tr>
<tr>
<td>2621-207</td>
<td>Equivalency membership has resource handles containing multiple class ids (class_id1 and class_id2).</td>
<td>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.</td>
<td>Correct the problem and retry the operation.</td>
</tr>
<tr>
<td>2621-208</td>
<td>Equivalency need to specify both select string and a valid resource class name.</td>
<td>An error was generated while an invalid resource class name was used with the dynamic select string.</td>
<td>Correct the class name and retry the operation.</td>
</tr>
<tr>
<td>2621-209</td>
<td>Can not find resource class information for equivalency &quot;equivalency_name&quot;.</td>
<td>An error was generated while enumerating the class information for the member class.</td>
<td>This may be an internal error, report to your software service organization.</td>
</tr>
<tr>
<td>2621-210</td>
<td>Resource class &quot;resource_class_name&quot; is invalid for equivalency.</td>
<td>A resource from this class is not valid for this equivalency. Class id may be different from other members.</td>
<td>Use the resources from the same class to correct the problem.</td>
</tr>
<tr>
<td>2621-211</td>
<td>Resource class may not be changed in an equivalency without replacing the members.</td>
<td>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).</td>
<td>Remove the members before changing the MemberClass.</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2621-310</td>
<td>Cannot perform the &quot;CompleteMigration&quot; action. Current joined RecoveryRM daemon member count (daemon_member_count) is different than the total node count (total_node_count). Use force option (&quot;-f&quot;) to override.</td>
<td>Since not all the RecoveryRM daemons are up and running, we cannot start the migration complete action.</td>
<td>Make sure that all the RecoveryRM daemons are up and running or use the force option (&quot;-f&quot;) to start the migration complete action.</td>
</tr>
<tr>
<td>2621-311</td>
<td>Publisher is not supported in the current active version of the cluster.</td>
<td>The cluster is in co-existence or migration mode. The current active version does not support the Publisher feature.</td>
<td>Retry after migration is completed.</td>
</tr>
<tr>
<td>2621-312</td>
<td>License file &quot;license_file_name&quot; does not exit.</td>
<td>The license file to be installed does not exist.</td>
<td>Find the correct location of the license file to be installed, and retry the operation.</td>
</tr>
<tr>
<td>2621-313</td>
<td>Configuration command not allowed - daemon is in replace configuration mode.</td>
<td>The command being issued is not allowed in replace configuration mode.</td>
<td>Wait for the completion of replace configuration action.</td>
</tr>
<tr>
<td>2621-314</td>
<td>Input to the &quot;CompleteMigration&quot; action is not valid. Current RSCT active version number is incompatible to this NewActiveVersion: &quot;version&quot;</td>
<td>The current RSCT active version number is incompatible to the selected new RecoveryRM daemon active version number.</td>
<td>Correct the problem and retry the operation.</td>
</tr>
<tr>
<td>2621-315</td>
<td>attribute &quot;attribute_name&quot; has an invalid value &quot;invalid_value&quot;.</td>
<td>During the process of attempting to add or change attribute values, it was discovered that the specified value is invalid or out of range.</td>
<td>Correct the problem and retry the operation.</td>
</tr>
<tr>
<td>2621-316</td>
<td>IBM.RecoveryRM publisher configuration file file_name not found.</td>
<td>IBM.RecoveryRM publisher configuration file not found. This publisher can not be enabled.</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the <code>\samctrl -e \</code> command.</td>
</tr>
<tr>
<td>2621-317</td>
<td>IBM.RecoveryRM publisher configuration file file_name syntax error in line number line_number.</td>
<td>IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the <code>\samctrl -e \</code> command.</td>
</tr>
<tr>
<td>2621-318</td>
<td>IBM.RecoveryRM publisher TEC EIF configuration file not found. The specified configuration file &quot;ConfigPath=config_file&quot; is not valid in the publisher configuration file &quot;file_name&quot; for the publisher name &quot;publisher_name&quot;</td>
<td>IBM.RecoveryRM publisher TEC EIF configuration file not found. This publisher can not be enabled.</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the <code>\samctrl -e \</code> command.</td>
</tr>
<tr>
<td>User response:</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the \samctrl -e \ command.</td>
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</tr>
<tr>
<td>2621-319</td>
<td>IBM.RecoveryRM publisher configuration file syntax error. Parameter &quot;parameter&quot; not found in publisher configuration file &quot;file_name&quot; for the publisher name &quot;publisher_name&quot;.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation:</td>
<td>IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User response:</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the \samctrl -e \ command.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-320</td>
<td>IBM.RecoveryRM publisher configuration file syntax error. Same publisher name found multiple times in publisher configuration file &quot;file_name&quot; with the publisher name &quot;publisher_name&quot;.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation:</td>
<td>IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User response:</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the \samctrl -e \ command.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-321</td>
<td>IBM.RecoveryRM publisher configuration file syntax error. Too many publishers found in publisher configuration file &quot;file_name&quot;. Maximum number of max_number_publishers publishers supported.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation:</td>
<td>IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User response:</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the \samctrl -e \ command.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-322</td>
<td>The command &quot;samctrl -e Id&quot; failed. detailed_msg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation:</td>
<td>During the process of attempting to add or change a publisher, it was discovered that the specified publisher name can not be set.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User response:</td>
<td>Correct the problem and retry the operation.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-323</td>
<td>IBM.RecoveryRM publisher configuration file &quot;file_name&quot; does not contain publisher name &quot;publisher_name&quot;.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation:</td>
<td>IBM.RecoveryRM publisher not found. This publisher can not be enabled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User response:</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the \samctrl -e \ command.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-324</td>
<td>IBM.RecoveryRM publisher configuration file syntax error. Publisher name does not follow syntax rules in publisher configuration file &quot;file_name&quot; for the publisher name &quot;publisher_name&quot;. Publisher name length: 1-8, Publisher name valid characters: '0'-9', 'A'-Z', 'a'-z' and '_'.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation:</td>
<td>IBM.RecoveryRM publisher configuration file syntax error. This publisher can not be enabled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User response:</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the \samctrl -e \ command.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2621-325</td>
<td>IBM.RecoveryRM publisher configuration file &quot;file_name&quot; does not contain a valid publisher name.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Explanation:</td>
<td>IBM.RecoveryRM publisher not found. This publisher can not be enabled.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>User response:</td>
<td>Fix the problem with the publisher configuration files and enable this publisher by using the \samctrl -e \ command.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**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" -&gt; "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.

### 2621-777
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.
<table>
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<tr>
<th>Message ID</th>
<th>Description</th>
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<tbody>
<tr>
<td>2621-789</td>
<td>SA detected a problem in domain &quot;domain_name&quot;. The resource &quot;resource_name&quot; can’t be turned into the requested state.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>Event Attributes: sa_event_reason=[ResourceHung]; severity=CRITICAL</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>An automation operation on the specified resource cannot be performed. Inspect the individual status fields of this resource.</td>
</tr>
<tr>
<td>2621-790</td>
<td>SA detected a problem in domain &quot;domain_name&quot;. The resource &quot;resource_name&quot; needs a manual reset by the operator.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>Event Attributes: sa_event_reason=[ResourceBroken]; severity=CRITICAL</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>An automation operation on the specified resource cannot be performed. Reset the automation resource manually.</td>
</tr>
<tr>
<td>2621-791</td>
<td>SA detected a problem in domain &quot;domain_name&quot;. The resource &quot;resource_name&quot; has problems caused by a offline system.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>Event Attributes: sa_event_reason=[SystemGone]; severity=CRITICAL</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>The resource has problems caused by a offline system. Inspect the system status of this resource.</td>
</tr>
<tr>
<td>2621-792</td>
<td>SA detected a problem in domain &quot;domain_name&quot;. The operational quorum is lost.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>Event Attributes: sa_event_reason=[NoQuorum]; severity=CRITICAL</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>The operational quorum is lost. Inspect the cluster status.</td>
</tr>
<tr>
<td>2621-793</td>
<td>Node &quot;node_name&quot; cannot be made offline. System Automation Manager reports that there are resources online on this node.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>Stopping system automation on this node is prevented because of running resources.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>There are resources online on this node, that must be stopped prior to stopping the system automation.</td>
</tr>
<tr>
<td>2621-794</td>
<td>Node can be made offline.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>Stopping system automation is not prevented on this node.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>There are no controllable resources online on this node.</td>
</tr>
<tr>
<td>2622-001</td>
<td>program_name: 2622-001 Not a recognized flag: flag.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The flag or combination of flags passed to &lt;program_name&gt; was either an unsupported flag or an invalid combination of flags.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Refer to the Usage statement which lists the valid flag. Correct the command and re-enter.</td>
</tr>
<tr>
<td>2622-002</td>
<td>program_name: 2622-002 Flag &quot;flag&quot; is not allowed with the unsupported operand &quot;operand&quot;.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The operand passed with the flag was an unsupported or invalid operand or combination of operands.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Refer to the Usage statement which lists the valid operand. Correct the command and re-enter.</td>
</tr>
<tr>
<td>2622-003</td>
<td>program_name: 2622-003 The combination of flags &quot;flag&quot; and &quot;flag or operand&quot; is not allowed.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The combination of the specified flags or flag and operand is not allowed.</td>
</tr>
<tr>
<td><strong>User response:</strong></td>
<td>Either choose a different flag or do not enter the operand. Refer to the Usage statement which lists the valid flag, operands, and flag operand combinations.</td>
</tr>
</tbody>
</table>
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.
<table>
<thead>
<tr>
<th>Message ID</th>
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<th>Explanation</th>
<th>User Response</th>
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</thead>
<tbody>
<tr>
<td>2622-013</td>
<td>program_name: 2622-013</td>
<td>The resource group &quot;resource_group&quot; does not exist.</td>
<td>The specified resource group name does not exist.</td>
<td>Check the resource group name and issue the command again.</td>
</tr>
<tr>
<td>2622-014</td>
<td>program_name: 2622-014</td>
<td>The resource &quot;resource_name&quot; not found in the class &quot;resource_class&quot;.</td>
<td>The resource specified does not belong in the specified class.</td>
<td>Check the resource and class name combination and issue the command again.</td>
</tr>
<tr>
<td>2622-015</td>
<td>program_name: 2622-015</td>
<td>None of the resources with the specified types exists in their respective classes.</td>
<td>All the resources specified were not found in their respective classes.</td>
<td>Make sure the resources with the specified types are part of their classes and then re-enter command.</td>
</tr>
<tr>
<td>2622-016</td>
<td>program_name: 2622-016</td>
<td>No resources were found with the selection string &quot;selection_string&quot; from the class &quot;resource_class&quot;.</td>
<td>No resources were found using the specified selection string.</td>
<td>Check the class name and selection string combination and then issue the command again.</td>
</tr>
<tr>
<td>2622-017</td>
<td>program_name: 2622-017</td>
<td>Resource &quot;resource&quot; already exists as a Member of Group &quot;resource_group&quot;.</td>
<td>Resource already exist as a member resource.</td>
<td>No action required.</td>
</tr>
<tr>
<td>2622-018</td>
<td>program_name: 2622-018</td>
<td>Resource &quot;resource&quot; is not a member resource of Resource Group &quot;resource_group&quot;.</td>
<td>Resource is not a member resource of the specified resource group.</td>
<td>May be required to add this resource to the specified resource group.</td>
</tr>
<tr>
<td>2622-019</td>
<td>program_name: 2622-019</td>
<td>All of the specified resources are already managed resources.</td>
<td>All member resources already exist as a managed Resource.</td>
<td>No action required.</td>
</tr>
<tr>
<td>2622-020</td>
<td>program_name: 2622-020</td>
<td>None of the resources specified are member resources of resource group &quot;resource_group&quot;.</td>
<td>All member resources don't exist for the specified resource group.</td>
<td>Add these resources as member resources.</td>
</tr>
<tr>
<td>2622-021</td>
<td>program_name: 2622-021</td>
<td>Multiple entries of the flag flag not allowed.</td>
<td>User had entered the same flag with operands more than once.</td>
<td>Re-enter the command with only one occurrence of the concerned flag.</td>
</tr>
<tr>
<td>Program Name</td>
<td>Message Description</td>
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<tr>
<td>2622-022</td>
<td>None of the resources specified are managed resources.</td>
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<td></td>
<td>Explanation: None of the resources specified exist as managed resources.</td>
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<td></td>
<td>User response: Check resources and re-enter with valid resources.</td>
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<tr>
<td>2622-023</td>
<td>Resource &quot;resource&quot; is not a managed resource.</td>
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<tr>
<td></td>
<td>Explanation: Specified resource is not a managed resource.</td>
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<td></td>
<td>User response: Check Resources and re-enter with valid resources.</td>
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<tr>
<td>2622-024</td>
<td>Either flag &quot;flag1&quot; or &quot;flag2&quot; or &quot;flag3&quot; is required with the -N flag.</td>
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<tr>
<td></td>
<td>Explanation: One the three flags are required when using current flag.</td>
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<td></td>
<td>User response: Add the required flags to the command and try again.</td>
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<tr>
<td>2622-025</td>
<td>The specified source resource &quot;source_resource&quot; does not exist.</td>
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<tr>
<td></td>
<td>Explanation: The specified source resource name does not exist in the specified class.</td>
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<tr>
<td></td>
<td>User response: Check the resource name and class name combination and then issue the command again.</td>
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<tr>
<td>2622-026</td>
<td>The specified source selection string &quot;source_string&quot; did not match any resource.</td>
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<tr>
<td></td>
<td>Explanation: The specified source selection string did not match any resource in the specified class.</td>
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<tr>
<td></td>
<td>User response: Check the selection string or class name combination and then issue the command again.</td>
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<tr>
<td>2622-027</td>
<td>More than one relations were found with the same name &quot;source_resource&quot;.</td>
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<tr>
<td></td>
<td>Explanation: More than one relations was returned for the source when the operation only requires one relationship.</td>
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<tr>
<td></td>
<td>User response: Make the query more specific and issue the command again.</td>
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<tr>
<td>2622-028</td>
<td>Name change not allowed for more than one relations that matched from &quot;query&quot;.</td>
<td></td>
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<tr>
<td></td>
<td>Explanation: The selection string or query returned more than one source resource. Relation name has to be unique.</td>
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</tr>
<tr>
<td></td>
<td>User response: Check the selection string or query and issue the command again.</td>
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<tr>
<td>2622-029</td>
<td>The specified equivalency &quot;equivalency&quot; already exists.</td>
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<tr>
<td></td>
<td>Explanation: Specified equivalency already exists.</td>
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<tr>
<td></td>
<td>User response: Re-enter the command with an equivalency name that does not already exist.</td>
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<tr>
<td>2622-030</td>
<td>The specified equivalency &quot;equivalency&quot; does not exist.</td>
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<tr>
<td></td>
<td>Explanation: Specified equivalency does not exist.</td>
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<tr>
<td></td>
<td>User response: Make sure the equivalency name already exist, re-issue the command.</td>
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<tr>
<td>2622-031</td>
<td>The node &quot;node_name&quot; does not exist in the cluster.</td>
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<tr>
<td></td>
<td>Explanation: The node specified does not belong in the cluster.</td>
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<tr>
<td></td>
<td>User response: Check the node name and issue the command again.</td>
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<tr>
<td>Message ID</td>
<td>Program Name</td>
<td>Message Text</td>
<td>Explanation</td>
<td>User Response</td>
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<td>---------------------------------------------------------------------------------------------------------</td>
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<tr>
<td>2622-032</td>
<td>2622-032</td>
<td>Resource &quot;resource_name&quot; of resource class &quot;class_name&quot; is not from the allowed nodes for resource group &quot;Resource_group_name&quot;.</td>
<td>Member resource is not from the allowed nodes for the new resource group.</td>
<td>Member resources must be part of the allowed node list of resource group.</td>
</tr>
<tr>
<td>2622-033</td>
<td>2622-033</td>
<td>Resource Group &quot;resource_group&quot; has no member resources.</td>
<td>The specified resource group name does not contain any member resources.</td>
<td>Check the resource group name and issue the command again.</td>
</tr>
<tr>
<td>2622-034</td>
<td>2622-034</td>
<td>No resource groups were found that matched the specified query.</td>
<td>No existing resource groups matched the specified Query.</td>
<td>Check the resource group name and issue the command again.</td>
</tr>
<tr>
<td>2622-035</td>
<td>2622-035</td>
<td>No member resources were found that matched the specified query.</td>
<td>No existing member resources matched the specified query.</td>
<td>Check the selection string or resource group name and issue the command again.</td>
</tr>
<tr>
<td>2622-036</td>
<td>2622-036</td>
<td>actual_error_message</td>
<td>Display the error message from lsrsrc-api.</td>
<td>Check the error message for appropriate action.</td>
</tr>
<tr>
<td>2622-037</td>
<td>2622-037</td>
<td>Invalid user error. The return code was return code</td>
<td>SAM command line interface user Error.</td>
<td>Check the error message for appropriate action.</td>
</tr>
<tr>
<td>2622-038</td>
<td>2622-038</td>
<td>No resources were found. The return code was return code</td>
<td>No resources were found.</td>
<td>Check the error message for appropriate action.</td>
</tr>
<tr>
<td>2622-039</td>
<td>2622-039</td>
<td>No resources were specified for class class_name</td>
<td>No resources were specified for the class in the command line.</td>
<td>Repeat the command with resources associated with the specified class.</td>
</tr>
<tr>
<td>2622-040</td>
<td>2622-040</td>
<td>Multiple resources of the same type were matched for resource &quot;resource_name&quot; from class &quot;resource_class&quot;</td>
<td>Multiple resources of the same resource type were found for the specified resource.</td>
<td>Make sure only one resource is matched with same Type and then re-enter the command.</td>
</tr>
<tr>
<td>2622-901</td>
<td>2622-901</td>
<td>Attributes and Arguments are mismatched.</td>
<td>Arguments are missing for some of the attributes in the input file.</td>
<td>Repeat the command by updating the input file.</td>
</tr>
<tr>
<td>Message Number</td>
<td>Message Description</td>
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<tr>
<td>2622-902</td>
<td>Do not specify attribute attribute when defining resource resource_class row: row.</td>
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<tr>
<td><strong>Explanation:</strong> Arguments are missing for some of the attributes in the input file.</td>
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</tr>
<tr>
<td><strong>User response:</strong> Repeat the command by updating the input file.</td>
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</tr>
<tr>
<td>2622-903</td>
<td>Error processing attribute attribute_name value &quot;attribute_value&quot;.</td>
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</tr>
<tr>
<td><strong>Explanation:</strong> The value for this particular attribute is not valid. See the preceding error message for additional details.</td>
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<tr>
<td><strong>User response:</strong> Verify the data type for this particular attribute using the lsrsrcdef 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.</td>
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</tr>
<tr>
<td>2622-904</td>
<td>Required argument argument_name argument name (SD element name) for resource resource_class name of the resource class must be specified.</td>
<td></td>
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<tr>
<td><strong>Explanation:</strong> The specified command arguments for this resource class and this command must be specified.</td>
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<tr>
<td><strong>User response:</strong> Run lscmdargdef command to see the list of argument names and data types expected as input for this command.</td>
<td></td>
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<tr>
<td>2622-905</td>
<td>No resources were entered for resource class &quot;resource_class&quot;.</td>
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</tr>
<tr>
<td><strong>Explanation:</strong> Resources were not entered with the command for the specified class.</td>
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<tr>
<td><strong>User response:</strong> Enter the resources and retry the command.</td>
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<tr>
<td>2622-906</td>
<td>Failed to create some or all resources from Input file &quot;input_file_name&quot;.</td>
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</tr>
<tr>
<td><strong>Explanation:</strong> Failed to create some or all resources from input file for specified class.</td>
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</tr>
<tr>
<td><strong>User response:</strong> Check the file data, correct if possible and re-run command.</td>
<td></td>
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<tr>
<td>2622-907</td>
<td>Fixed resource resource on node node_name is not a managed resource.</td>
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</tr>
<tr>
<td><strong>Explanation:</strong> Specified fixed resource is not a managed resource.</td>
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</tr>
<tr>
<td><strong>User response:</strong> Check Resources and re-enter with valid resources.</td>
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</tr>
<tr>
<td>2622-908</td>
<td>Resource &quot;resource_name&quot; of resource class &quot;class_name&quot; is not from the allowed nodes for the Top resource group &quot;Top_Resource_group_name&quot;.</td>
<td></td>
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</tr>
<tr>
<td><strong>Explanation:</strong> Member resource is not from the allowed nodes for the new resource group’s top most group.</td>
<td></td>
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</tr>
<tr>
<td><strong>User response:</strong> Member resources must be part of the allowed node list of resource group and its top most group.</td>
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</tr>
<tr>
<td>2622-909</td>
<td>A Consumer is required for the Specified subscription &quot;Subscription&quot;.</td>
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<td></td>
</tr>
<tr>
<td><strong>Explanation:</strong> Specified Subscription is missing the consumer.</td>
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</tr>
<tr>
<td><strong>User response:</strong> Re-enter subscription with a valid Consumer.</td>
<td></td>
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</tr>
<tr>
<td>2622-910</td>
<td>The event family &quot;event_family&quot; specified with the subscription &quot;subscription&quot; is not supported.</td>
<td></td>
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<tr>
<td><strong>Explanation:</strong> Specified Subscription contains an invalid event family value.</td>
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</tr>
<tr>
<td><strong>User response:</strong> Re-enter subscription with a valid event family.</td>
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</tr>
</tbody>
</table>
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.
<table>
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<tr>
<th>Code</th>
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<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2622-121</td>
<td><strong>program_name</strong>: 2622-121 No resources were entered for resource class &quot;resource_class&quot;.</td>
<td>Resources were not entered with the command for the specified class.</td>
<td>Enter the resources and retry the command.</td>
</tr>
<tr>
<td>2622-122</td>
<td><strong>program_name</strong>: 2622-122 No selection string entered for Resource class &quot;resource_class&quot;.</td>
<td>Selection string was not entered with the command for the specified class.</td>
<td>Enter the selection string and retry the command.</td>
</tr>
<tr>
<td>2622-123</td>
<td><strong>program_name</strong>: 2622-123 None of the specified member resources are from the allowed nodes for resource group &quot;resource_group&quot;.</td>
<td>All of the specified resources are not in the allowed node list of the new resource group.</td>
<td>Member resources must be part of the allowed node list of resource group.</td>
</tr>
<tr>
<td>2622-124</td>
<td><strong>program_name</strong>: 2622-124 The specified managed resource input file &quot;input_file_name&quot; does not exist.</td>
<td>Specified resource file name was not found.</td>
<td>Make sure the managed resource file name exist, re-enter the command.</td>
</tr>
<tr>
<td>2622-125</td>
<td><strong>program_name</strong>: 2622-125 Failed to create resources from the specified managed resource input file &quot;input_file_name&quot;.</td>
<td>Failed to create resources from the specified resource file.</td>
<td>Correct the associated error with this and, re-enter the command.</td>
</tr>
<tr>
<td>2622-126</td>
<td><strong>program_name</strong>: 2622-126 None of the nodes specified exists in the cluster.</td>
<td>The specified node names do not exist in the cluster.</td>
<td>Check the node names and issue the command again.</td>
</tr>
<tr>
<td>2622-127</td>
<td><strong>program_name</strong>: 2622-127 Fixed resource &quot;resource_name&quot; is not allowed to have an ExcludedList.</td>
<td>The specified fixed resource can not be moved, therefore point less to carry an ExcludedList.</td>
<td>Add all the fixed resources without an ExcludedList.</td>
</tr>
<tr>
<td>2622-128</td>
<td><strong>program_name</strong>: 2622-128 None of the specified managed resources were created.</td>
<td>None of the specified managed resources were created because they were fixed resources.</td>
<td>Add all the fixed resources without an ExcludedList or Policy.</td>
</tr>
<tr>
<td>2622-141</td>
<td><strong>program_name</strong>: 2622-141 No resources were entered for resource class &quot;resource_class&quot;.</td>
<td>Resources were not entered with the command for the specified class.</td>
<td>Enter the resources and retry the command.</td>
</tr>
<tr>
<td>2622-142</td>
<td><strong>program_name</strong>: 2622-142 No selection string was entered for resource class &quot;resource_class&quot;.</td>
<td>Selection string was not entered with the command for the specified class.</td>
<td>Enter the resources and retry the command.</td>
</tr>
</tbody>
</table>
### Messages

<table>
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<th>Message Description</th>
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<tbody>
<tr>
<td>2622-161</td>
<td>Must change attributes of member resources.</td>
<td>At least one of the member resource attributes must be changed when using chrgmbr command.</td>
<td>Enable the appropriate options to change required attributes of resource group.</td>
</tr>
<tr>
<td>2622-162</td>
<td>No resources were entered for resource class &quot;resource_class&quot;.</td>
<td>Resources were not entered with the command for the specified class.</td>
<td>Enter the resources and retry the command.</td>
</tr>
<tr>
<td>2622-163</td>
<td>No selection string was entered for Resource class &quot;resource_class&quot;.</td>
<td>Selection string was not entered with the command for the specified class.</td>
<td>Enter the resources and retry the command.</td>
</tr>
<tr>
<td>2622-164</td>
<td>None of the specified member resources are from the allowed nodes for resource group &quot;resource_group&quot;.</td>
<td>All of the specified resources are not in the allowed node list of the new resource group.</td>
<td>Member resources must be part of the allowed node list of resource group.</td>
</tr>
<tr>
<td>2622-165</td>
<td>The specified node &quot;excluded_node&quot; does not exist in the list.</td>
<td>The specified node name does not exist in the excluded node list.</td>
<td>Check the node name and issue the command again.</td>
</tr>
<tr>
<td>2622-166</td>
<td>The specified node &quot;excluded_node&quot; already exists in the list.</td>
<td>The specified node name already exists in the excluded node list.</td>
<td>Check the node name and issue the command again.</td>
</tr>
<tr>
<td>2622-167</td>
<td>None of the nodes specified exists in the list.</td>
<td>The specified node names do not exist in the excluded node list.</td>
<td>Check the node names and issue the command again.</td>
</tr>
<tr>
<td>2622-168</td>
<td>None of the nodes specified exists in the cluster.</td>
<td>The specified node names do not exist in the cluster.</td>
<td>Check the node names and issue the command again.</td>
</tr>
<tr>
<td>2622-169</td>
<td>All the nodes specified already exists in the list.</td>
<td>All the nodes specified nodes already exist in the excluded node list.</td>
<td>Check the node names and issue the command again.</td>
</tr>
<tr>
<td>2622-170</td>
<td>Too many resources were specified to change to the new ExcludedList.</td>
<td>Only one resource can be specified to change the excluded node list attribute.</td>
<td>Check the resource count and issue the command again.</td>
</tr>
<tr>
<td>Message ID</td>
<td>Program Name</td>
<td>Message</td>
<td>Explanation</td>
</tr>
<tr>
<td>------------</td>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>2622-171</td>
<td>program_name: 2622-171</td>
<td>Fixed resource &quot;resource_name&quot; is not allowed to have an ExcludedList or Policy.</td>
<td>The specified fixed resource can not be moved, therefore point less to carry an ExcludedList or SelectFromPolicy.</td>
</tr>
<tr>
<td>2622-172</td>
<td>program_name: 2622-172</td>
<td>None of the specified managed resources were created.</td>
<td>None of the specified managed resources were created because they were fixed resources.</td>
</tr>
<tr>
<td>2622-181</td>
<td>program_name: 2622-181</td>
<td>The specified Source resource source_resource is not a member resource.</td>
<td>specified Source Resource is not a member resource.</td>
</tr>
<tr>
<td>2622-182</td>
<td>program_name: 2622-182</td>
<td>The specified source resource matched from selection string &quot;source_string&quot; is not a member resource.</td>
<td>specified source resource matched from selection string is not a member resource.</td>
</tr>
<tr>
<td>2622-183</td>
<td>program_name: 2622-183</td>
<td>Source resource &quot;source_resource&quot; already exists.</td>
<td>Source resource cannot already exist when creating it.</td>
</tr>
<tr>
<td>2622-184</td>
<td>program_name: 2622-184</td>
<td>Source resource matched from selection string &quot;source_resource&quot; already exists.</td>
<td>Source resource cannot already exist when creating it.</td>
</tr>
<tr>
<td>2622-185</td>
<td>program_name: 2622-185</td>
<td>None of the specified source resources Exists.</td>
<td>There were no source resources.</td>
</tr>
<tr>
<td>2622-186</td>
<td>program_name: 2622-186</td>
<td>None of the specified target resources Exists.</td>
<td>There were no target resources.</td>
</tr>
<tr>
<td>2622-187</td>
<td>program_name: 2622-187</td>
<td>More than one source resources were matched for &quot;source&quot;.</td>
<td>More than one source was matched for specified source name.</td>
</tr>
</tbody>
</table>
Messages

2622-188  program_name: 2622-188 More than one source resource were matched using selection string "selection_string" on class_name class.

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".

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.
<table>
<thead>
<tr>
<th>Program Name</th>
<th>Message Description</th>
<th>Explanation</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2622-206</td>
<td>Target resource target_resource already has relationship with the source.</td>
<td>Target resource already maintains relationship with the Source.</td>
<td>Use the delete target resource option to remove targets or do nothing.</td>
</tr>
<tr>
<td>2622-207</td>
<td>Target resource &quot;target_resource&quot; does not have any relationship with the source.</td>
<td>Target resource does not maintain any relationship with the Source.</td>
<td>Use mkrel to make relationships related to this source resource.</td>
</tr>
<tr>
<td>2622-208</td>
<td>At least one change must be made to the relationship.</td>
<td>No changes were requested by the command.</td>
<td>Use chrel to change one or more attributes of the relations related to this source resource.</td>
</tr>
<tr>
<td>2622-209</td>
<td>There are no relations defined for sources matched from selection string &quot;selection_string&quot;.</td>
<td>Selection string did not match a relationship.</td>
<td>Use mkrel to make relationships related to this source resource.</td>
</tr>
<tr>
<td>2622-210</td>
<td>The selection string &quot;selection_string&quot; did not match any relationships.</td>
<td>Selection string did not match a relationship.</td>
<td>Re-enter command with string that will match at least a relationship.</td>
</tr>
<tr>
<td>2622-211</td>
<td>The managed relation &quot;managed_relation&quot; does not exist as a relationship.</td>
<td>The managed relation specified does not exist.</td>
<td>Re-enter command with an existing managed relationship.</td>
</tr>
<tr>
<td>2622-212</td>
<td>None of the queried target resources Exists.</td>
<td>The target resources used to query the relationships do not exist.</td>
<td>No action required.</td>
</tr>
<tr>
<td>2622-213</td>
<td>None of the specified source resources exists.</td>
<td>There were no source resources.</td>
<td>No action is required.</td>
</tr>
<tr>
<td>2622-214</td>
<td>Specified condition is not allowed with the relationship &quot;relationship&quot;.</td>
<td>Only locate-with relationships are allowed to have conditions.</td>
<td>No action is required.</td>
</tr>
<tr>
<td>2622-221</td>
<td>No relationships matched the query &quot;source_query.&quot;</td>
<td>Source query did not match any existing relationships.</td>
<td>Check the query and re-run the command.</td>
</tr>
<tr>
<td>Message ID</td>
<td>Program Name</td>
<td>Description</td>
<td>Explanation</td>
</tr>
<tr>
<td>------------</td>
<td>--------------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>2622-222</td>
<td>program_name: 2622-222</td>
<td>There are no relationships defined for source resource &quot;source&quot; matched from selection string &quot;selection_string&quot;.</td>
<td>Source resource must already have a relationship defined.</td>
</tr>
<tr>
<td>2622-223</td>
<td>program_name: 2622-223</td>
<td>There are no relationships defined for any of the specified source resources.</td>
<td>Source resource must already have a relationship defined.</td>
</tr>
<tr>
<td>2622-224</td>
<td>program_name: 2622-224</td>
<td>The selection string &quot;selection_string&quot; did not match any managed relations.</td>
<td>Selection string did not match any managed relations.</td>
</tr>
<tr>
<td>2622-225</td>
<td>program_name: 2622-225</td>
<td>None of the specified relation &quot;relation_names&quot; exists.</td>
<td>All the managed relations specified does not exist.</td>
</tr>
<tr>
<td>2622-226</td>
<td>program_name: 2622-226</td>
<td>None of the specified queried target resources exists.</td>
<td>The target resources used to query the relationships do not exist.</td>
</tr>
<tr>
<td>2622-227</td>
<td>program_name: 2622-227</td>
<td>None of the specified source resources exists.</td>
<td>There were no source resources.</td>
</tr>
<tr>
<td>2622-228</td>
<td>program_name: 2622-228</td>
<td>Relationship &quot;relation_name&quot; does not exist or could not be removed.</td>
<td>Specified relationship was not found or even if it was found it just couldn't be removed.</td>
</tr>
<tr>
<td>2622-229</td>
<td>program_name: 2622-229</td>
<td>None of the specified Relationships were found or could not be removed.</td>
<td>None of the specified relationships or selection string matched any existing relationships or some of them just couldn't be removed.</td>
</tr>
<tr>
<td>2622-261</td>
<td>program_name: 2622-261</td>
<td>The specified logicdeck file &quot;logicdeck_filename&quot; with the &quot;option_flag&quot; flag does not exist.</td>
<td>The specified logic deck file name does not exist in the specified location.</td>
</tr>
</tbody>
</table>
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.
<table>
<thead>
<tr>
<th>Program Name</th>
<th>Error Description</th>
<th>Explanation</th>
<th>User Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2622-281</td>
<td>The specified equivalency input file &quot;input_file_name&quot; does not exist.</td>
<td>Specified equivalency file name was not found.</td>
<td>Make sure the equivalency file name exist, re-enter the command.</td>
</tr>
<tr>
<td>2622-282</td>
<td>No resources were entered for resource class &quot;resource_class&quot;.</td>
<td>Resources were not entered with the command for the specified class.</td>
<td>Enter the resources and retry the command.</td>
</tr>
<tr>
<td>2622-283</td>
<td>No Selection string was entered for Resource class &quot;resource_class&quot;.</td>
<td>Selection string was not entered with the command for the specified class.</td>
<td>Enter the resources and retry the command.</td>
</tr>
<tr>
<td>2622-284</td>
<td>Policy other than Any is not allowed with option &quot;option_flag&quot;.</td>
<td>Selection string was not entered with SelectFromPolicy Any.</td>
<td>Retry making equivalency with Policy Any.</td>
</tr>
<tr>
<td>2622-285</td>
<td>Failed to create resources from the specified equivalency input file &quot;input_file_name&quot;.</td>
<td>Failed to create resources from the specified equivalency input file.</td>
<td>Correct the associated error with this and, re-enter the command.</td>
</tr>
<tr>
<td>2622-286</td>
<td>All of the specified members for equivalency &quot;equivalency_name&quot; are floating resources.</td>
<td>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</td>
<td>Add at least a fixed resources as a member of an equivalency.</td>
</tr>
<tr>
<td>2622-301</td>
<td>The equivalency &quot;equivalency&quot; already has a SelectString defined.</td>
<td>There is already a SelectString defined therefore won’t allow an add or delete function.</td>
<td>Try using the overwrite function for command.</td>
</tr>
<tr>
<td>2622-302</td>
<td>No changes were made to the equivalency &quot;equivalency&quot;.</td>
<td>Specified equivalency did not change.</td>
<td>Re-enter the command based on the information that preceded this error.</td>
</tr>
<tr>
<td>2622-303</td>
<td>At least one change must be made to the equivalency &quot;equivalency&quot;.</td>
<td>Must make a change when using this command.</td>
<td>Specify a change to the equivalency when issuing the command.</td>
</tr>
<tr>
<td>2622-304</td>
<td>No resources were entered for resource class &quot;resource_class&quot;.</td>
<td>Resources were not entered with the command for the specified class.</td>
<td>Enter the resources and retry the command.</td>
</tr>
</tbody>
</table>
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.

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.
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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 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.
Chapter 3. Messages used with IBM Tivoli System Automation
**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.

**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 allow 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.
<table>
<thead>
<tr>
<th>Message Code</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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. |
| 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. |
### Messages

#### 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. Stdout = stdout generated by the reset command

**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.

**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.

**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.

**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.

**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.

**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.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2661-023</td>
<td>The IP address specified is the base address for a network interface and therefore cannot be used.</td>
<td>The address specified is already the base IP address for a network interface which makes it invalid for use as a service IP address.</td>
<td>Choose a different IP address and retry the operation.</td>
</tr>
<tr>
<td>2661-024</td>
<td>The resource &quot;resource_name&quot; cannot be deleted because it is online.</td>
<td>The resource cannot be deleted because it is online.</td>
<td>Make sure the resource is offline and retry the operation.</td>
</tr>
<tr>
<td>2661-025</td>
<td>The operation cannot be completed because one or more resources from the resource class name is online.</td>
<td>The operation (stop node, stop domain or remove domain) cannot be completed because one or more resources are online on the target node(s).</td>
<td>Make sure the resource is offline and retry the operation.</td>
</tr>
<tr>
<td>2661-026</td>
<td>Invalid parameter format passed to the configCoordinationAll action for resource class resource class name.</td>
<td>The configCoordinationAll action was received by the RM for the indicated class but the input format is not valid or not supported.</td>
<td>This is an internal error so contact your software service organization.</td>
</tr>
<tr>
<td>2661-027</td>
<td>An online or offline operation is not valid when the resource is in the failed offline state.</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>2661-028</td>
<td>Receiver of the SendElFevent is not online, or not a constituent resource.</td>
<td>An internal error of the GblResRM.</td>
<td>Record the above information and contact your software service organization.</td>
</tr>
<tr>
<td>2661-029</td>
<td>Resource received a start command but is already in pending online state.</td>
<td>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.</td>
<td>Perform the reset operation against the resource and then retry the online operation. The command 'resetrsrc' can be used to reset a resource.</td>
</tr>
<tr>
<td>2661-030</td>
<td>Resource received a stop command, but is already in pending offline state.</td>
<td>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.</td>
<td>Perform the reset operation against the resource. The command 'resetrsrc' can be used to reset a resource.</td>
</tr>
</tbody>
</table>
### Messages

<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
<th>Explanation</th>
<th>User response</th>
</tr>
</thead>
<tbody>
<tr>
<td>2662-001</td>
<td>Attribute &quot;attribute_name&quot; cannot be specified when defining a new resource.</td>
<td>While attempting to create an Application resource, an attribute was encountered that is not allowed to be defined.</td>
<td>Do not specify this attribute when attempting to create an Application resource.</td>
</tr>
<tr>
<td>2662-002</td>
<td>Attribute &quot;attribute_name&quot; appears in request more than once.</td>
<td>An attribute appears more than once in a request.</td>
<td>Specify an attribute only once in a request.</td>
</tr>
<tr>
<td>2662-003</td>
<td>Class name &quot;class_name&quot; is not recognized by this resource manager.</td>
<td>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.</td>
<td>Record the above information and contact your software service organization.</td>
</tr>
<tr>
<td>2662-004</td>
<td>Could not initialize control point for class &quot;class_name&quot;.</td>
<td>The Resource Manager was unable to create and initialize RCCP for the named resource class.</td>
<td>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.</td>
</tr>
<tr>
<td>2662-005</td>
<td>Attribute &quot;attribute_name&quot; must be specified when defining a new resource.</td>
<td>The Resource Manager was unable to create the resource because a mandatory attribute was not defined.</td>
<td>Make sure to specify this attribute during creation of the resource.</td>
</tr>
<tr>
<td>2662-006</td>
<td>The value of the attribute must be 0 or 1.</td>
<td>The value of this attribute must be 0 or 1.</td>
<td>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.</td>
</tr>
<tr>
<td>2662-007</td>
<td>The value of the ResourceType attribute must be 0 or 1.</td>
<td>While attempting to create or change an Application resource, a ResourceType attribute was encountered that is not valid.</td>
<td>Correct the value for the ResourceType attribute to be either 0 (for fixed resources) or 1 (for floating resources).</td>
</tr>
<tr>
<td>2662-008</td>
<td>The time in the Start/Stop/Move attribute must be (\geq 0) and (&lt; 600) (10 min)</td>
<td>The specified value for this attribute is not within the allowed range.</td>
<td>Specify a value between 0 and 600.</td>
</tr>
<tr>
<td>2662-009</td>
<td>The value of ForceOpState must be a valid rmc opstate ((0,1,2,3,4,5,6,8))</td>
<td>The specified value does not match a valid rmc opstate.</td>
<td>Specify one of the following opstates (0,1,2,3,4,5,6,8).</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Message ID</th>
<th>Description</th>
</tr>
</thead>
</table>
| 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.  
**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.
<table>
<thead>
<tr>
<th>Code</th>
<th>Message</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMP0049E</td>
<td>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.</td>
</tr>
<tr>
<td><strong>Explanation:</strong></td>
<td>The current process was interrupted by this exception and cannot complete.</td>
</tr>
<tr>
<td><strong>System action:</strong></td>
<td>The policy activation process stops and will return with this error message.</td>
</tr>
<tr>
<td><strong>Operator response:</strong></td>
<td>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.</td>
</tr>
</tbody>
</table>

| 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 couldn 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 collocated, 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 collocated.

System action: Application continues.

Operator response: Check that all members of this group are collocated 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 `startrpmdomain <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.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Explanation</th>
<th>System action</th>
<th>Operator response</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAMA0036E</td>
<td>Request request is not implemented.</td>
<td>The request is currently not supported</td>
<td>The request is not performed</td>
<td>Check if a more recent version of the automation adapter is available that supports the request.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAMA0037E</td>
<td>No domain that is online was detected. Automation adapter is stopped.</td>
<td>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.</td>
<td>The automation adapter does not accept any further requests. The automation adapter is stopped.</td>
<td>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 <code>samadapter start</code> after the domain has become online. Use command <code>samadapter status</code> to find out if the automation adapter is automated.</td>
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<tr>
<td>SAMA0038E</td>
<td>Request req on resource res returned with code: rc, and error message: error.</td>
<td>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.</td>
<td>The request was not performed</td>
<td>Examine the message for the reason why the request failed.</td>
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<tr>
<td>SAMA0039E</td>
<td>Request req on resource res returned without result.</td>
<td>The request did not respond with return code and message.</td>
<td>Most likely the request was not performed.</td>
<td>None. If the error persists. Examine the trace for other messages around that time.</td>
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<tr>
<td>SAMA0040E</td>
<td>Login for user-ID user failed for an unknown reason, message is: msg</td>
<td>The user-ID and password validation could not be performed because PAM returned with an error.</td>
<td>NO requests will be accepted for this user-ID.</td>
<td>Examine the message. Try to login again. Make sure you type the user-ID and password using correct upper and lower case characters.</td>
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<tr>
<td>SAMA0041E</td>
<td>Login for user-ID user failed, message is: msg</td>
<td>The user-ID and password failed validation on the node where the login was performed.</td>
<td>NO requests will be accepted for this user-ID.</td>
<td>Examine the message. Try to login again. Make sure you type the user-ID and password using correct upper and lower case characters.</td>
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<tr>
<td>SAMA0042E</td>
<td>Login for user-ID user failed, because the user account expired, message is: msg</td>
<td>The user account is expired.</td>
<td>The request was not performed</td>
<td>Have the system administrator change the expiration date of the user account.</td>
</tr>
</tbody>
</table>
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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Base Component Reference
Version 2.1

Publication No. SC33-8212-00

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