

Working with Multiple Command Objects

Introduction

The Multiple Command (MC) object issues a series of commands to multiple objects with a single command action.

This chapter describes how to:

- add a Multiple Command object
- edit a Multiple Command object
- add Action Table entries to a Multiple Command object
- delete Action Table entries from a Multiple Command object
- command a Multiple Command object
- delete a Multiple Command object

Key Concepts

Multiple Command Object

The Multiple Command object issues a series of commands to multiple objects with a single command action. Commanding the Multiple Command object results in the execution of the commands for a given state. It supports States 1-32.

A possible use of the Multiple Command object involves using one command to start building controls for the day. For instance, a Multiple Command object can be added with three states using Occupancy mode states text (Unoccupied, Occupied, and Startup). When the building is in Unoccupied mode, the Multiple Command object can turn off fans, lower the setpoint to 60°F, and secure the doors of the building. During the Startup mode, the Multiple Command object can unlock doors, and start boiler circulating pumps. When in Occupied mode, the Multiple Command object can turn on fans and raise setpoints to 72°F.

Another possible use for the Multiple Command object involves using one command to run fan sequencing-type operations. For instance, a number of fans listed in the Action Table attribute start sequentially at one minute intervals by setting the Delay accordingly. The Delay time is cumulative, so if a one minute delay between each fan start is desired, then the Delay times would be 0, 60 120, 180 minutes, etc.

Attributes

The values of an object's attributes determine how the object operates. The Multiple Command object attributes described below are listed in the order that they appear on the screen. Entry requirements for these attributes are in Table 17-2.

For additional information about the Multiple Command object and its attributes, refer to *Object Dictionary*.

Object Name

Identifies the object on the user interface.

Description

Provides optional information to further describe the object.

Object Type

Indicates the kind of object, such as Schedule, N2 Analog Input, or Multiple Command.

Object Category

Determines the general classification of an object to help define user access capability and message routing.

Enabled

Indicates if the object is active and executing an operational condition.

Commands Priority

Determines the order of all commands sent by importance. If it is set to No Priority, commands are sent at each individual priority specified in the Action Table attribute.

Relinquish Default

Indicates the default value used for the Present Value attribute when commands are not controlling this object. If this attribute is configured with a value, the object sends commands for the value immediately.

Number Of States

Specifies the number of possible Multiple Command object states, 1-32.

States Text

Indicates the displayed text for the Present Value.

Action Table (State0...StateN)

Contains the list of actions to take for each supported state. Each action contains a slave object reference, a delay, a command and parameters associated with the command, and a priority. The priority in this table is used only when Command Priority is set to No Priority. The delay is the number of seconds before the given command is issued. Command delays can be lengthened or shortened to result in commands being sent out after, before, or at the same time as any other command.

Note: The total number of commands identified in the Action Table command set should not exceed 40.

Procedure Overview

Table 17-1: Working with Multiple Command Objects

To Do This	Follow These Steps:
Add a Multiple Command Object	Browse to and highlight the Programming container. Press the F3 (Add) key. Highlight Multiple Command and press Enter. Fill in the fields using Table 17-2. Move the cursor to State 0 under Action Table. Press Enter. Type in an object name. Press the Tab key or the down arrow key to move to the next field. Type in or choose the required information. Press the F3 (Add Item) key to add a blank entry. Press the F4 (Back) key to return to the previous screen. Move the cursor to the next State. Press the F3 (Save) key. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. Press any key to continue. Press the F4 (Cancel) key to return to the container hierarchy.
Edit a Multiple Command Object	Browse to and highlight a Multiple Command object. Press Enter to open the object. Press the F3 (Edit) key. Edit the fields using Table 17-2. Press the F3 (Save) key. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. Press any key to continue. Press the F4 (Cancel) key to return to the container hierarchy.
Add Action Table Entries to a Multiple Command Object	Browse to and highlight a Multiple Command object. Press Enter to open the object. Press the F3 (Edit) key. Move the cursor to the appropriate State under Action Table. Press Enter. Press the F3 (Add Item) key to add a blank entry. Type in an object name. Press the Tab key or the down arrow key to move to the next field. Type in or choose the required information. Press the F3 (Add Item) key to add a blank entry. Press the F4 (Back) key to return to the previous screen. Move the cursor to the next State, if necessary. Press the F3 (Save) key. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. Press any key to continue. Press the F4 (Cancel) key to return to the container hierarchy.
Delete Action Table Entries from a Multiple Command Object	Browse to and highlight a Multiple Command object. Press Enter to open the object. Press the F3 (Edit) key. Move the cursor to the appropriate State under Action Table. Press Enter. Highlight any field for the object reference to be deleted. Press the F2 (Del Item) key. Press the F4 (Back) key to return to the previous screen. Move the cursor to the next state, if necessary. Press the F3 (Save) key. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. Press any key to continue. Press the F4 (Cancel) key to return to the container hierarchy.
Command a Multiple Command Object	Browse to and highlight a Multiple Command object. Press the F2 (Command) key. Use the Spacebar and the Backspace key to cycle through the list until the desired command appears. Press Enter.
Delete a Multiple Command Object	Browse to highlight a Multiple Command object. Press Enter to open the object. Press the Delete key. Press the Tab key to confirm the deletion.

Detailed Procedures

Adding a Multiple Command Object

To add an Multiple Command object:

1. Browse to and highlight the Programming container.
2. Press the F3 (Add) key. The Add Objects list appears.
3. Highlight Multiple Command and press Enter. The Multiple Command object attribute screen appears (Figure 17-1).

```

Dean: ADMIN                               Mon 20 Sep 1999 14:02 CDT
-----
ADMN.Programming.Multi Cmd
-----
Object
Object Name          ████████████████████████████████████████████████████████
Description
Object Type          MULTIPLE COMMAND
Object Category      HVAC
Enabled              True
Engineering Values
Commands Priority    Default
Relinquish Default
Action Table
State 0              [0] Items
State 1              [0] Items
State 2              [0] Items
State 3              [0] Items

F3-Save F4-Cancel
Enter an alphanumeric string
    
```

Figure 17-1: Multiple Command Object Attribute Screen

4. Fill in the fields using Table 17-2.

Table 17-2: Attribute Entry Requirements

Screen Area	Attribute	Required	Default	Options/Range
Object	Object Name	No	Blank	Maximum 32 characters Invalid characters: @ . ? * \$ # : ' [] If not complete the system assigns a name.
	Description	No	Blank	Maximum 40 characters
	Object Type	Yes	Multiple Command	Default is preset and cannot be changed.
	Object Category	Yes	HVAC	Use the Spacebar and the Backspace key to view and select options: HVAC, Fire, Security, Services, Administrative.
	Enabled	Yes	True	True, False
Engineering Values	Commands Priority	Yes	Default	Use the Spacebar and the Backspace key to view and select options. Refer to <i>Write Priority Enumeration Set</i> in <i>Appendix A: Object Enumeration Sets of the Object Dictionary (LIT-694980)</i> .
	Relinquish Default	No	Blank	Use the Spacebar and the Backspace key to view and select options: Blank, State 0, State 1, State 2, State 3.
Display	Number Of States	Yes	4	Use the Spacebar and the Backspace key to view and select options: 1-32 This attribute determines the number of states to appear in the Action Table.
	States Text	Yes	States	Use the Spacebar and the Backspace key to view and select options. Refer to <i>States Text</i> in <i>Appendix A: Object Enumeration Sets of the Object Dictionary (LIT-694980)</i> .
Action Table	Action Table (State0...State32)	Yes		Actions to take for each supported state. Each action contains an object reference, a delay, a command, and parameters associated with the command, and possibly a priority. Note: The total number of commands identified in the Action Table 1 command set should not exceed 40.

5. Move the cursor to State 0 under Action Table.
6. Press Enter. The Multiple Command object State list appears (Figure 17-2).

```
Dean: ADMIN                               Mon 20 Sep 1999 14:03 CDT
=====
ADMN.Programming.Multi Cmd
=====
State 0
 1: Object Name                ████████████████████████████████████████
   Delay
   Command ID

          F2-Del Item F3-Add Item F4-Back
Enter object name
```

Figure 17-2: Multiple Command object State List

7. Type in an object name.
8. Press the Tab key or the down arrow key to move to the next field.
9. Type in or choose the required information.
10. Repeat Steps 8 and 9 for all of the required fields.
11. Press the F3 (Add Item) key to add a blank entry.
12. Repeat Steps 7 through 11 for each object reference to be added.
13. Press the F4 (Back) key to return to the previous screen.
14. Move the cursor to the next State.
15. Repeat Steps 6 through 14 for each State being configured as determined by the Number of States attribute.
16. Press the F3 (Save) key.
17. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. If errors were detected, correct them and resave the entries. Once the save is successful, continue with Step 18.
18. Press any key to continue.
19. Press the F4 (Cancel) key to return to the container hierarchy.

Editing a Multiple Command Object

To edit a Multiple Command object:

Note: To delete or add Action Table values, refer to the appropriate sections of this chapter.

1. Browse to and highlight a Multiple Command object.
2. Press Enter to open the object.

Note: Additional attributes appear. Refer to the *Object Dictionary* for more information.

3. Press the F3 (Edit) key. The Multiple Command object attribute screen appears (Figure 17-1).
4. Edit the fields using Table 17-2.
5. Press the F3 (Save) key.
6. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. If errors were detected, correct them and resave the entries. Once the save is successful, continue with Step 7.
7. Press any key to continue.
8. Press the F4 (Cancel) key to return to the container hierarchy.

Adding Action Table Entries to a Multiple Command Object

To add Action Table entries to a Multiple Command object:

1. Browse to and highlight a Multiple Command object.
2. Press Enter to open the object.
3. Press the F3 (Edit) key. The Multiple Command object attribute screen appears (Figure 17-1).
4. Move the cursor to appropriate State under Action Table.
5. Press Enter. The Multiple Command object State list appears.
6. Press the F3 (Add Item) key to add a blank entry.
7. Type in an object name.
8. Press the Tab key or the down arrow key to move to the next field.
9. Type in or choose the required information.
10. Repeat Steps 8 and 9 for all of the required fields.
11. Press the F3 (Add Item) key to add a blank entry.
12. Repeat Steps 7 through 11 for each object reference to be added to the State list.

13. Press the F4 (Back) key to return to the previous screen.
14. Move the cursor to the next State, if necessary.
15. Repeat Steps 5 through 14 for each State having an object reference added to it.
16. Press the F3 (Save) key.
17. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. If errors were detected, correct them and resave the entries. Once the save is successful, continue with Step 18.
18. Press any key to continue.
19. Press the F4 (Cancel) key to return to the container hierarchy.

Deleting Action Table Entries from a Multiple Command Object

To delete Action Table entries from a Multiple Command object:

1. Browse to and highlight a Multiple Command object.
2. Press Enter to open the object.
3. Press the F3 (Edit) key. The Multiple Command object attribute screen appears (Figure 17-1).
4. Move the cursor to the appropriate State under Action Table.
5. Press Enter. The Multiple Command object State list appears.
6. Highlight any field for the object reference to be deleted.
7. Press the F2 (Del Item) key.
8. Repeat Steps 6 and 7 for each object reference to be deleted from the State list.
9. Press the F4 (Back) key to return to the previous screen.
10. Move the cursor to the next State, if necessary.
11. Repeat Steps 5 through 10 for each State having an object reference deleted from it.
12. Press the F3 (Save) key.
13. Check the User Assistance area of the screen to verify if the save was successful or if there were errors. If errors were detected, correct them and resave the entries. Once the save is successful, continue with Step 14.
14. Press any key to continue.
15. Press the F4 (Cancel) key to return to the container hierarchy.

Commanding a Multiple Command Object

To command a Multiple Command object:

1. Browse to and highlight a Multiple Command object.
2. Press the F2 (Command) key. The Command field appears.
3. Use the Spacebar and the Backspace key to cycle through the list until the desired command appears. The Multiple Command object supports the commands described in Table 17-3.

Table 17-3: Supported Commands

Command	Description
State 0 . . . State 31	Releases Command Priorities 9-15 (scheduling) and then writes to the Present Value at the Default (16) command priority. The state command names and number of commands depend on the States Text and Number of States attributes.
Override	Updates the Present Value at Command Priority Operator Override. Choose State 1-31.
Override Release	Releases Command Priority Operator Override from Present Value.
Release	Releases the identified Command Priority from the specified attribute. Choose an attribute name and command priority.
Release All	Releases Command Priorities 3-15 (scheduling), and then writes the highest of the released values at the Default (16) command priority. Command Priorities 1 and 2 remain. Choose an attribute name.
Enable	Allows the object's functionality.
Disable	Locks all outputs and prevents the object's functionality.

4. If the desired command appears with additional parameters below it, press the Tab key to highlight the field and either type in the necessary information or use the Spacebar and Backspace key to cycle through the list of options.
5. Press Enter.

Deleting a Multiple Command Object

To delete a Multiple Command object:

1. Browse to highlight a Multiple Command object.
2. Press Enter to open the object.
3. Press the Delete key.
4. Press the Tab key to confirm the deletion.