

Table 56 – SetSchedule command

SetSchedule		Access class: WRITE_SYSTEM
Message name	Description	
SetScheduleRequest	<i>This message contains:</i> <ul style="list-style-type: none"> "Schedule": The Schedule item to create or modify tsc:Schedule Schedule [1][1]	
SetScheduleResponse	<i>This message shall be empty.</i>	
Fault codes	Description	
env:Receiver ter:CapabilityViolated ter:ClientSuppliedTokenSupported	<i>The device does not support that the client supplies the token.</i>	
env:Receiver ter:CapabilityViolated ter:MaxSchedules	<i>There is not enough space to add a new schedule, see MaxSchedules capability.</i>	
env:Sender ter:CapabilityViolated ter:MaxSpecialDaysSchedules	<i>There are too many SpecialDaysSchedule entities referred in this schedule, see MaxSpecialDaysSchedules capability.</i>	
env:Sender ter:CapabilityViolated ter:MaxTimePeriodsPerDay	<i>There are too many time periods in a day schedule, see MaxTimePeriodsPerDay capability.</i>	
env:Sender ter:InvalidArgVal ter:ReferenceNotFound	<i>A referred entity token is not found (some devices may not validate referred entities).</i>	

8.4.9 ModifySchedule command

This operation modifies the specified schedule.

The token of the schedule to modify is specified in the token field of the Schedule structure and shall not be empty. All other fields in the structure shall overwrite the fields in the specified schedule.

If no token was specified in the request, the device shall return InvalidArgs as a generic fault code.

A device shall support this command as described in Table 57.

Table 57 – ModifySchedule command

ModifySchedule		Access class: WRITE_SYSTEM
Message name	Description	
ModifyScheduleRequest	<i>This message contains:</i> <ul style="list-style-type: none"> "Schedule": The Schedule to modify/update. tsc:Schedule Schedule [1][1]	
ModifyScheduleResponse	<i>This message shall be empty.</i>	
Fault codes	Description	
env:Sender ter:InvalidArgVal ter:NotFound	<i>The specified token is not found.</i>	
env:Sender ter:CapabilityViolated ter:MaxSpecialDaysSchedules	<i>There are too many SpecialDaysSchedule entities referred in this schedule, see MaxSpecialDaysSchedules capability.</i>	
env:Sender ter:CapabilityViolated ter:MaxTimePeriodsPerDay	<i>There are too many time periods in a day schedule, see MaxTimePeriodsPerDay capability.</i>	
env:Sender ter:InvalidArgVal ter:ReferenceNotFound	<i>A referred entity token is not found (some devices may not validate referred entities).</i>	

8.4.10 DeleteSchedule command

This operation will delete the specified schedule.

If it is associated with one or more entities some devices may not be able to delete the schedule, and consequently a ReferenceInUse fault shall be generated.

If no token was specified in the request, the device shall return InvalidArgs as a generic fault code.

A device shall support this command as described in Table 58.

Table 58 – DeleteSchedule command

DeleteSchedule		Access class: WRITE_SYSTEM
Message name	Description	
DeleteScheduleRequest	<i>This message contains:</i> <ul style="list-style-type: none"> "Token": The token of the schedule to delete. pt:ReferenceToken Token [1][1]	
DeleteScheduleResponse	<i>This message shall be empty.</i>	
Fault codes	Description	
env:Sender ter:InvalidArgVal ter:NotFound	<i>Schedule token is not found.</i>	
env:Sender ter:InvalidArgVal ter:ReferenceInUse	<i>Failed to delete, Schedule token is in use.</i>	

8.5 Special day group information

8.5.1 General

A special day group are days (or parts of days) that require the regular schedule to be overridden with an alternate schedule, for example holidays, half-days, working Sundays.

8.5.2 Data structures

8.5.2.1 SpecialDayGroupInfo

The SpecialDayGroupInfo structure contains the basic information about the special days list.

The device shall provide the following fields for each SpecialDayGroupInfo instance:

- **token**
A service-unique identifier of the special day group.
- **Name**
User readable name. It shall be up to 64 characters.

To provide more information, the device may include the following optional field:

- **Description**
User readable description for the special days. It shall be up to 1 024 characters.

8.5.2.2 SpecialDayGroup

The special day group structure shall include all properties of the SpecialDayGroupInfo structure and also a set of special days. A special day group are days (or parts of days) that require the regular schedule to be overridden with an alternate schedule, for example holidays, half-days, working Sundays.

The device shall provide the following field for each SpecialDayGroup instance:

- **Days**
An iCalendar structure that contains a group of special days. Is of type string (containing an iCalendar structure).

8.5.3 GetSpecialDayGroupInfo command

This operation requests a list of SpecialDayGroupInfo items matching the given tokens.

The device shall ignore tokens it cannot resolve and shall return an empty list if there are no items matching specified tokens. The device shall not return a fault in this case.

If the number of requested items is greater than MaxLimit, a TooManyItems fault shall be returned.

A device that signals support for the SpecialDaysSupported capability shall support this method as described in Table 59.

Table 59 – GetSpecialDayGroupInfo command

GetSpecialDayGroupInfo		Access class: READ_SYSTEM
Message name	Description	
GetSpecialDayGroupInfoRequest	<i>This message contains:</i> <ul style="list-style-type: none"> • <i>"Token": Tokens of SpecialDayGroupInfo items to get.</i> pt:ReferenceToken Token [1][unbounded]	
GetSpecialDayGroupInfoResponse	<i>This message contains:</i> <ul style="list-style-type: none"> • <i>"SpecialDayGroupInfo": List of SpecialDayGroupInfo items.</i> tsc:SpecialDayGroupInfo SpecialDayGroupInfo [0][unbounded]	
Fault codes	Description	
env:Sender ter:InvalidArgs ter:TooManyItems	<i>Too many items were requested, see MaxLimit capability.</i>	

8.5.4 GetSpecialDayGroupInfoList command

This operation requests a list of all SpecialDayGroupInfo items provided by the device.

A call to this method shall return a StartReference when not all data is returned and more data is available. The reference shall be valid for retrieving the next set of data. Refer to IEC 60839-11-32:2016, 4.7.3 for more details.

The number of items returned shall not be greater than the Limit parameter.

A device that signals support for the SpecialDaysSupported capability shall support this method as described in Table 60.

Table 60 – GetSpecialDayGroupInfoList command

GetSpecialDayGroupInfoList		Access class: READ_SYSTEM
Message name	Description	
GetSpecialDayGroupInfoListRequest	<p><i>This message contains:</i></p> <ul style="list-style-type: none"> • <i>"Limit": Maximum number of entries to return. If not specified, less than one or higher than what the device supports, the number of items is determined by the device.</i> • <i>"StartReference": Start returning entries from this start reference. If not specified, entries shall start from the beginning of the dataset.</i> <p>xs:int Limit [0][1] xs:string StartReference [0][1]</p>	
GetSpecialDayGroupInfoListResponse	<p><i>This message contains:</i></p> <ul style="list-style-type: none"> • <i>"NextStartReference": StartReference to use in next call to get the following items. If absent, no more items to get.</i> • <i>"SpecialDayGroupInfo": List of SpecialDayGroupInfo items.</i> <p>xs:string NextStartReference [0][1] tsc:SpecialDayGroupInfo SpecialDayGroupInfo [0][unbounded]</p>	
Fault codes	Description	
env:Sender ter:InvalidArgVal ter:InvalidStartReference	<p><i>StartReference is invalid or has timed out. Client needs to start fetching from the beginning.</i></p>	

8.5.5 GetSpecialDayGroups command

This operation requests a list of SpecialDayGroup items matching the given tokens.

The device shall ignore tokens it cannot resolve and shall return an empty list if there are no items matching the specified tokens. The device shall not return a fault in this case.

If the number of requested items is greater than MaxLimit, a TooManyItems fault shall be returned.

A device that signals support for the SpecialDaysSupported capability shall support this method as described in Table 61.

Table 61 – GetSpecialDayGroups command

GetSpecialDayGroups		Access class: READ_SYSTEM
Message name	Description	
GetSpecialDayGroupsRequest	<i>This message contains:</i> <ul style="list-style-type: none"> • <i>"Token": Tokens of the SpecialDayGroup items to get.</i> pt:ReferenceToken Token [1][unbounded]	
GetSpecialDayGroupsResponse	<i>This message contains:</i> <ul style="list-style-type: none"> • <i>"SpecialDayGroup": List of SpecialDayGroup items.</i> tsc:SpecialDayGroup SpecialDayGroup [0][unbounded]	
Fault codes	Description	
env:Sender ter:InvalidArgs ter:TooManyItems	Too many items were requested, see MaxLimit capability.	

8.5.6 GetSpecialDayGroupList command

This operation requests a list of all SpecialDayGroupList items provided by the device.

A call to this method shall return a StartReference when not all data is returned and more data is available. The reference shall be valid for retrieving the next set of data. Refer to IEC 60839-11-32:2016, 4.7.3 for more details.

The number of items returned shall not be greater than the Limit parameter.

A device that signals support for the SpecialDaysSupported capability shall support this method as described in Table 62.

Table 62 – GetSpecialDayGroupList command

GetSpecialDayGroupList		Access class: READ_SYSTEM
Message name	Description	
GetSpecialDayGroupListRequest	<p><i>This message contains:</i></p> <ul style="list-style-type: none"> • <i>"Limit": Maximum number of entries to return. If not specified, less than one or higher than what the device supports, the number of items is determined by the device.</i> • <i>"StartReference": Start returning entries from this start reference. If not specified, entries shall start from the beginning of the dataset.</i> <p>xs:int Limit [0][1] xs:string StartReference [0][1]</p>	
GetSpecialDayGroupListResponse	<p><i>This message contains:</i></p> <ul style="list-style-type: none"> • <i>"NextStartReference": StartReference to use in next call to get the following items. If absent, no more items to get.</i> • <i>"SpecialDayGroup": List of SpecialDayGroup items.</i> <p>xs:string NextStartReference [0][1] tsc:SpecialDayGroup SpecialDayGroup [0][unbounded]</p>	
Fault codes	Description	
env:Sender ter:InvalidArgVal ter:InvalidStartReference	<p><i>StartReference is invalid or has timed out. Client needs to start fetching from the beginning.</i></p>	

8.5.7 CreateSpecialDayGroup command

This operation creates the specified special day group in the device.

The token field of the SpecialDayGroup structure shall be empty and the device shall allocate a token for the special day group. The allocated token shall be returned in the response.

If the client sends any value in the token field, the device shall return InvalidArgVal as a generic fault code.

A device that signals support for the SpecialDaysSupported capability shall support this method as described in Table 63.

Table 63 – CreateSpecialDayGroup command

CreateSpecialDayGroup		Access class: WRITE_SYSTEM
Message name	Description	
CreateSpecialDayGroupRequest	<i>This message contains:</i> <ul style="list-style-type: none"> "SpecialDayGroup": The special day group to create. tsc:SpecialDayGroup SpecialDayGroup [1][1]	
CreateSpecialDayGroupResponse	<i>This message contains:</i> <ul style="list-style-type: none"> "Token": The token of created special day group. pt:ReferenceToken Token [1][1]	
Fault codes	Description	
env:Receiver ter: CapabilityViolated ter:MaxSpecialDayGroups	There is not enough space to add new SpecialDayGroup items, see the MaxSpecialDayGroups capability.	
env:Sender ter: CapabilityViolated ter:MaxDaysInSpecialDayGroup	There are too many special days in a SpecialDayGroup, see MaxDaysInSpecialDayGroup capability.	

8.5.8 SetSpecialDayGroup command

This method is used to synchronize a special day group in a client with the device.

If a special day group with the specified token does not exist in the device, the special day group is created. If a special day group with the specified token exists, then the special day group is modified.

A call to this method takes a special day group structure as input parameter. The token field of the SpecialDayGroup structure shall not be empty.

A device that signals support for the ClientSuppliedTokenSupported capability shall implement this command as described in Table 64.

Table 64 – SetSpecialDayGroup command

SetSpecialDayGroup		Access class: WRITE_SYSTEM
Message name	Description	
SetSpecialDayGroupRequest	<p><i>This message contains:</i></p> <ul style="list-style-type: none"> • <i>"SpecialDayGroup": The SpecialDayGroup item to create or modify.</i> <p>tsc:SpecialDayGroup SpecialDayGroup [1][1]</p>	
SetSpecialDayGroupResponse	<i>This message shall be empty.</i>	
Fault codes	Description	
env:Receiver ter:CapabilityViolated ter:ClientSuppliedTokenSupported	<i>The device does not support that the client supplies the token.</i>	
env:Receiver ter:CapabilityViolated ter:MaxSpecialDayGroups	<i>There is not enough space to add new SpecialDayGroup items, see the MaxSpecialDayGroups capability.</i>	
env:Sender ter:CapabilityViolated ter:MaxDaysInSpecialDayGroup	<i>There are too many special days in a SpecialDayGroup, see MaxDaysInSpecialDayGroup capability.</i>	
env:Sender ter:InvalidArgVal ter:MissingToken	<i>The token of the special day group item shall be specified.</i>	

8.5.9 ModifySpecialDayGroup command

This operation modifies the specified special day group.

The token of the special day group to modify is specified in the token field of the SpecialDayGroup structure and shall not be empty. All other fields in the structure shall overwrite the fields in the specified special day group.

A device that signals support for the SpecialDaysSupported capability shall support this method as described in Table 65.

Table 65 – ModifySpecialDayGroup command

ModifySpecialDayGroup		Access class: WRITE_SYSTEM
Message name	Description	
ModifSpecialDayGroupRequest	<i>This message contains:</i> <ul style="list-style-type: none"> "SpecialDayGroup": The SpecialDayGroup item to modify/update. tsc:SpecialDayGroup SpecialDayGroup [1][1]	
ModifySpecialDayGroupResponse	<i>This message shall be empty.</i>	
Fault codes	Description	
env:Sender ter:InvalidArgVal ter:NotFound	<i>The specified token is not found.</i>	
env:Sender ter:CapabilityViolated ter:MaxDaysInSpecialDayGroup	<i>There are too many special days in a SpecialDayGroup, see MaxDaysInSpecialDayGroup capability.</i>	

8.5.10 DeleteSpecialDayGroup command

This method deletes the specified special day group.

If it is associated with one or more schedules some devices may not be able to delete the special day group, and consequently a ReferenceInUse fault shall be generated.

A device that signals support for the SpecialDaysSupported capability shall support this method as described in Table 66.

Table 66 – DeleteSpecialDayGroup command

DeleteSpecialDayGroup		Access class: WRITE_SYSTEM
Message name	Description	
DeleteSpecialDayGroupRequest	<i>This message contains:</i> <ul style="list-style-type: none"> "Token": The token of the SpecialDayGroup item to delete. pt:ReferenceToken Token [1][1]	
DeleteSpecialDayGroupResponse	<i>This message shall be empty.</i>	
Fault codes	Description	
env:Sender ter:InvalidArgVal ter:NotFound	<i>Special day group token is not found.</i>	
env:Sender ter:InvalidArgVal ter:ReferenceInUse	<i>Failed to delete, Special day group token is in use.</i>	

8.6 Schedule status

8.6.1 ScheduleState data structure

The ScheduleState contains state information for a schedule. The two fields below forms four different states that a schedule can have.