

**OCF Jakarta+ – simple grouping feature – Core Technology WG CR 3514**

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\*\*\*\*\* First Change

### **3 Terms, definitions, and abbreviated terms**

#### **3.1 Terms and definitions**

##### **3.1.x Grouping**

Function to UPDATE a predefined group of Devices with a single SSM command.

#### **3.2 Abbreviated terms**

\*\*\*\*\* Second Change

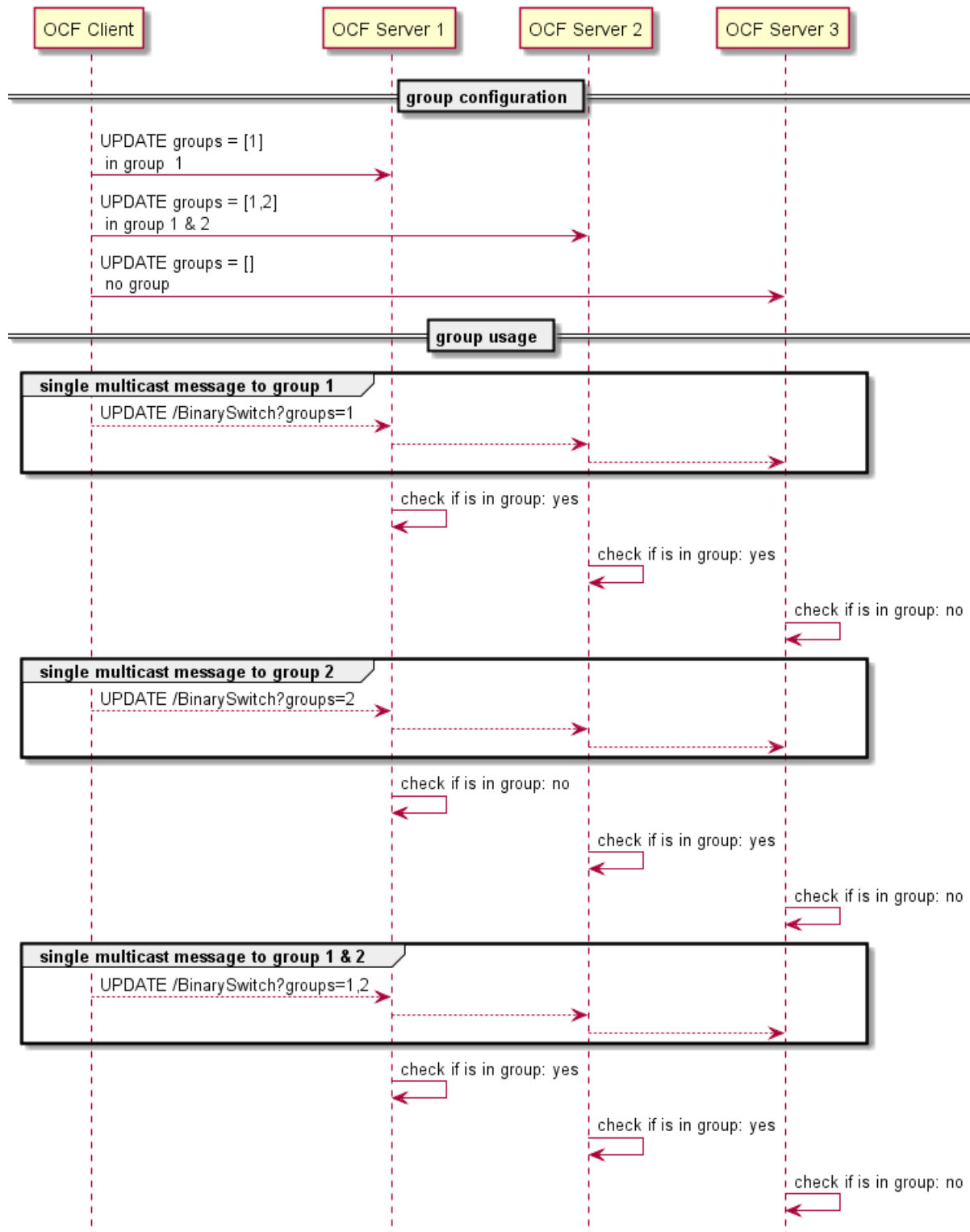
### **5 Overview...**

#### **5.5 Grouping**

The Grouping functionality enables multiple Devices to be enacted upon with a single Simple Secure Multicast (SSM) command. The SSM feature [XXX] already defines how to send a single message over multicast, e.g., sending a message to a set of Devices. However, an SSM command acts on all Devices implementing an SSM enabled Resource. The Grouping feature enables a subset of SSM enabled Resources to be enacted upon. The Grouping feature also allows a Device to be part of more than one group. The broadcast identification is used on Grouping enabled Resources. The usage of broadcast commands is that all Devices will act on that command, regardless of the configured Grouping.

##### **5.5.1 Architecture**

The Grouping feature consists of assigning groups to a Device and issuing SSM UPDATE commands to a specific group. The configuration and usage flow are depicted in figure [XX].



**Figure 1 Group configuration and usage flows.**

The assignment to a group is done with the Resource Type "oic.r.groups". This Resource Type sets the groups that the Device is part of. The groups are identified by an integer and the Groups Resource Type manages the list. The Device only acts on a group command when it is part of the group. The Device does not belong to any group when the "groups" value is an empty array, e.g. []. The UPDATE command indicates for which groups the command is intended for. The Device will only execute the command if one of the received groups is listed in the groups Resource. Furthermore; the enactment on the SSM enabled UPDATE command is only executed when all security checks have been passed.

**Table 1 - Groups Resource Type**

Pre-defined URI	Resource Type Title	Resource Type ID ("rt" value)	OCF Interfaces	Description	Related Functional Interaction
-	Groups	"oic.r.groups"	"oic.if.baseline", "oic.if.rw"	Groups manager Resource	SSM

**Table 2 – Properties of "oic.r.groups" Resource Type**

Property title	Property name	Value type	Value rule	Unit	Access mode	Mandatory	Description
groups	"groups"	"array"	array of integer	N/A	RW	Yes	This Property maintains the list of groups

The Client will use SSM (UPDATE) messages with the additional group query parameter. The query parameter "groups" has no default, e.g., the query parameter always has to contain one or more group identifiers.

The Client can identify the support of Grouping by detecting if the "oic.r.groups" is implemented. The Resource to which the Grouping applies has an OSCORE enabled OCF Endpoint and is accessible by the OCF Interface "oic.if.w".

The query parameter "groups" contains the group identifiers to indicate which groups the UPDATE command should be applied to. Only the Devices that belong to the supplied groups will enact on the UPDATE command. E.g., all devices that do not belong to the group will ignore the command. Multiple groups in a query parameter "groups" shall be handled as a "logical OR", e.g., if one of the groups matches on the Device the command is applied. Note that Devices do not send responses to SSM UPDATE commands. The query parameter "groups" is listed in the IDD of the Server as part of the resource description.

Example of configuring a Device to be part of group 1.

```
Request: UPDATE /groupsResURI
Payload:
{
  "groups": [1]
}
```

Example of configuring a Device to be part of group 1 and 2.

```
Request: UPDATE /groupsResURI
Payload:
```

```
{
  "groups": [1,2]
}
```

Example of updating all Devices in group 1 to set the binary switch value to true.

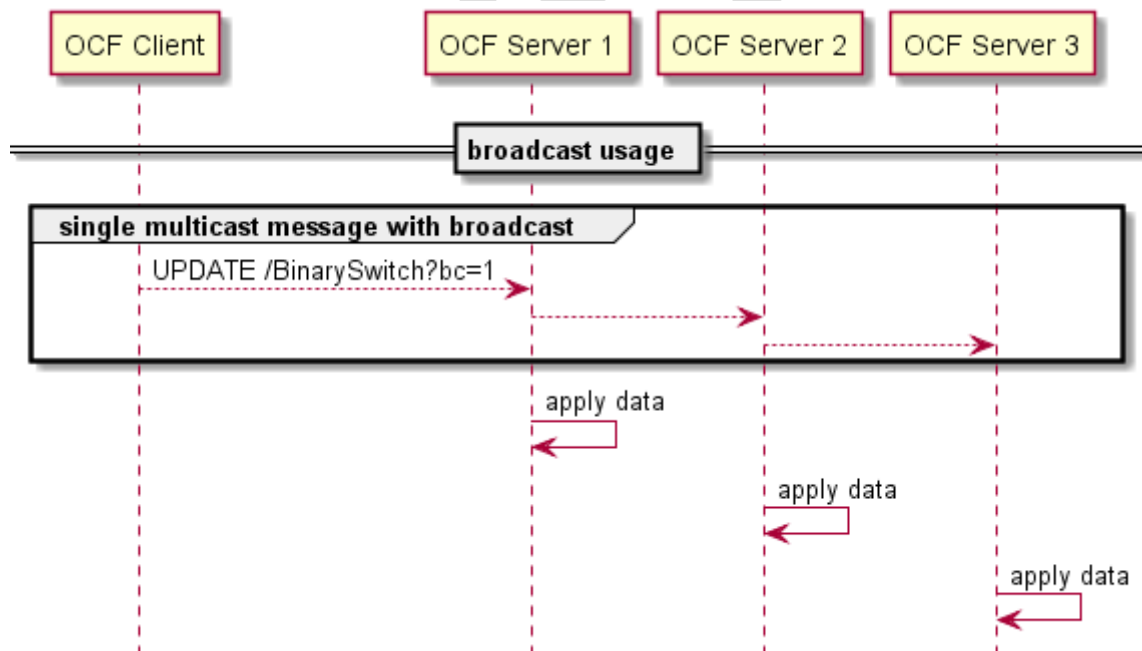
```
Request: UPDATE /BinarySwitch?groups=1
Payload:
{
  "value": true
}
```

Example of updating all Devices in groups 2 and 3 to set the dimming setting to 50%.

```
Request: UPDATE /Dimming?groups=2,3
Payload:
{
  "dimmingSetting": 50
}
```

### 5.5.2 Broadcast with query parameter

The broadcast feature is mandatory for all Devices implementing the Grouping feature. The broadcast feature is the mechanism to send an SSM command to all Devices exposing that Resource. The feature uses a query parameter equal to 1. The query parameter "bc" indicates that the broadcast feature is used. The query parameter "bc" is listed in the IDD of the Server Device.



**Figure 2 Broadcast usage flows.**

Example of updating all Devices via a SSM broadcast command to set the dimming setting to 50%.

```
Request: UPDATE /Dimming?bc=1
Payload:
{
  "dimmingSetting": 50
}
```

### 5.5.3 SSM enabled Resources

The SSM enabled Resource should all have the same local URI, since only one command is being issued. The example Resource URI of the Resource Type definition should be used for the primary URI, without the ResURI part if that is part of the definition. If multiple Resources with the same "rt" value are implemented on the Device then all secondary resources should be post-fixed with the sequence number, starting with 1.

For example, "oic.r.switch.binary" has the "BinarySwitchResURI" as the path in the Resource Type definition. In that case the URI for the primary Resource in the Device will be "BinarySwitch". The path to secondary Resources will be "BinarySwitch1", "BinarySwitch2", etc.