DLMS Object layer:
SAP assignment class

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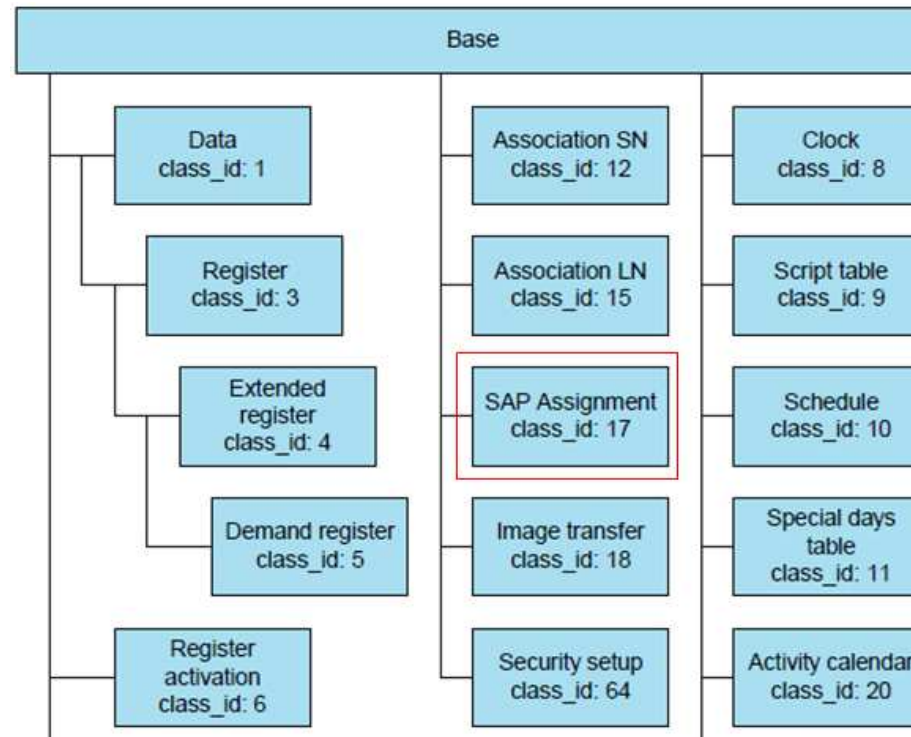April 4, 2013   Rev. 1.00

Revision History

Rev.	Date	Description	
		Slide No.	Summary
1.00	April 12, 2013	All	Draft revision

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DLMS Object layer: SAP assignment class

- This document will describe about implementation for SAP Assignment class (class_id: 17)

DLMS Object layer: SAP assignment class

- Based on Blue Book spec, page 62, we have class description for SAP assignment as below:

SAP assignment		0...1		class_id = 17, version = 0		
Attribute(s)		**Data type**	**Min.**	**Max.**	**Def.**	**Short name**
1. logical_name (static)		octet-string				x
2. SAP_assignment_list (static)		asslist_type			0	x + 0x08
Specific methods		**m/o**				
1. connect_logical_device (data)		o				x + 0x20

- So, we define list of attributes:

No.	Attribute name	Type
1	logical_name[6]	Unsigned8
2	p_access_right	access_right_t *
3	p_sap_assignment	asslist_entry_t *
4	n_sap_assignment	Unsigned8

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DLMS Object layer: SAP assignment class

- How to add new class and object ???

r_dlms_obis.c

gMaster_Table

Class version	no. attrs	no. methods	distributor	child_list size	child_list pointer	child_item size
Class version	no. attrs	no. methods	distributor	child_list size	child_list pointer	child_item size

...

g_AccessRight_Table[]

Attributes: 32	Method: 16
Attributes: 32	Method: 16
...	

R_OBIS_DistributeSAPAssigmentClass()

r_dlms_obis_ic.c

g_ChildTableClass17 []

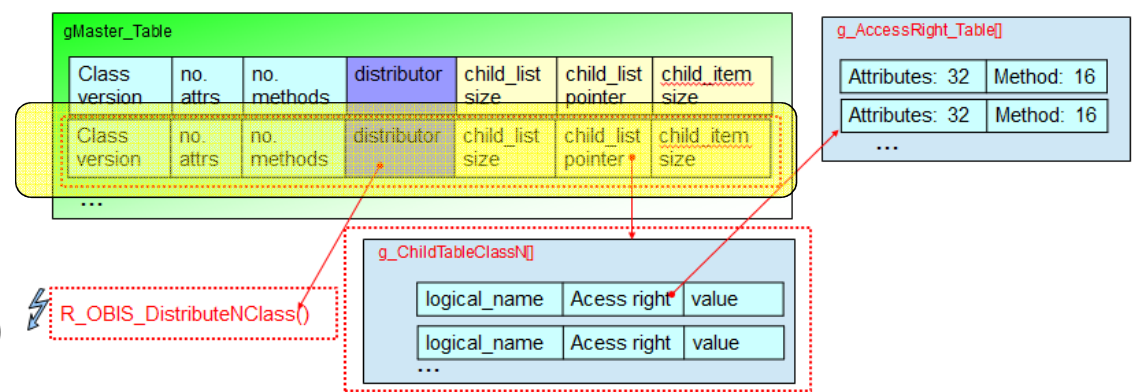| logical_name	Acess right	p_sap_assignment	n_sap_assignment
...			

r_dlms_obis_ic.c

r_dlms_data_ic.c

Need to append

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SAP assignment class

- Step 1: append to g_MasterTable[]

R_OBIS_DistributeSAPAssigmentClass()

gMaster_Table

Class version	no. attrs	no. methods	distributor	child_list size	child_list pointer	child_item size
Class version	no. attrs	no. methods	distributor	child_list size	child_list pointer	child_item size
...						

g_AccessRight_Table[]

Attributes: 32	Method: 16
Attributes: 32	Method: 16
...	

R_OBIS_DistributeNClass()

g_ChildTableClassN[]

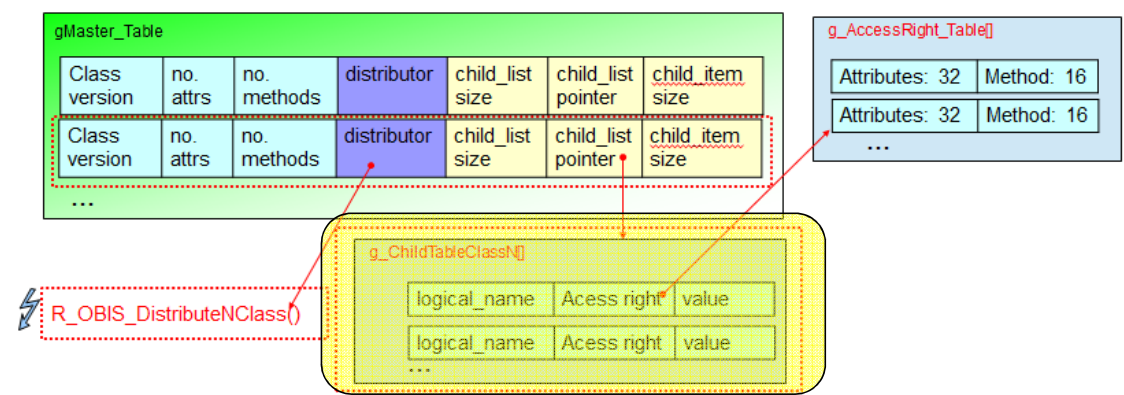| logical_name	Acess right	value
logical_name	Acess right	value
...		

```
r_dlms_obis.c

/* Master table */
const master_record_t g_MasterTable[] =
{
…
/* 17 - SAP Assignment */
    {
        0, 2, 1,
#if (defined(USED_CLASS_17) && USED_CLASS_17 == 1)
        R_OBIS_DistributeSAPAssigmentClass,
        &g_ChildTableLengthClass17,
        &g_ChildTableClass17,
        sizeof(class17_child_record_t),
#else
        NULL, NULL, NULL, 0,
#endif
    },
…
}
```

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SAP assignment class

- Step 2: Append asslist_entry_t type
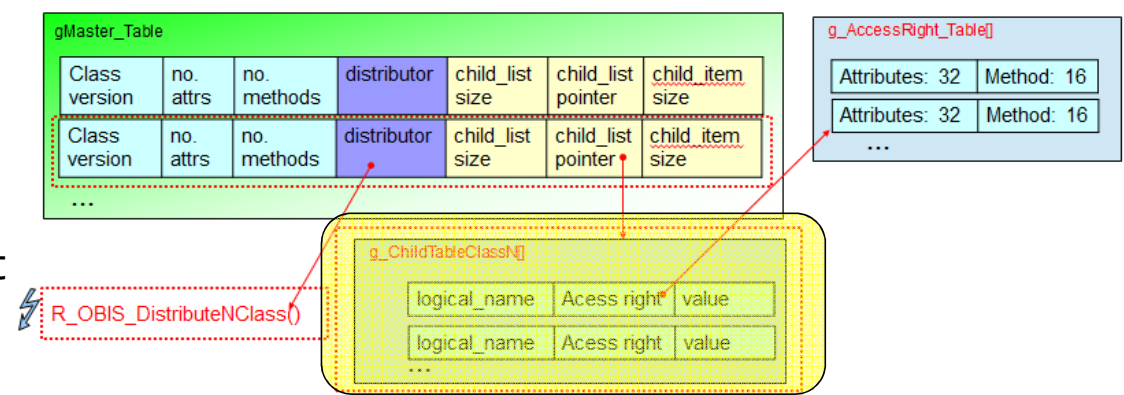

r_dlms_obis_ic.h

```
/* SAP assignment element */
typedef struct tag_asslist_entry_t
{
    Unsigned16  sap;
    value_t logical_device_name;
} asslis_entry_t;
```

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SAP assignment class
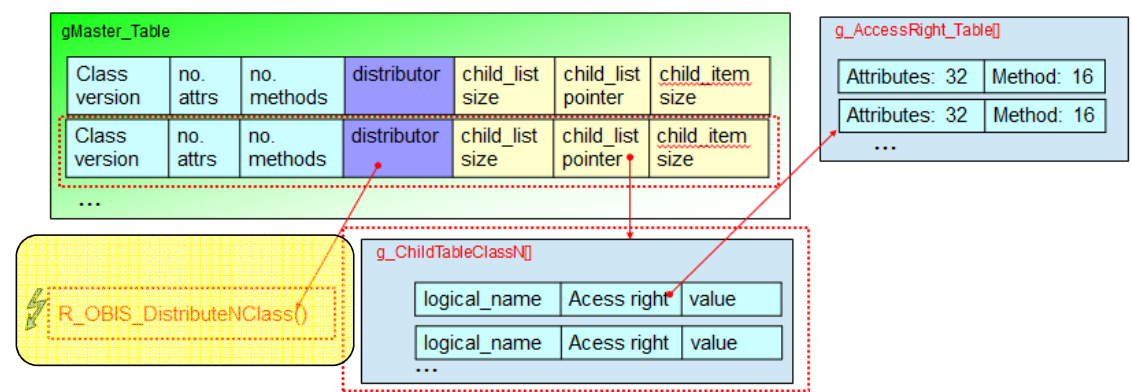
- Step 3: define class17_child_record_t


```
r_dlms_obis.h

typedef struct tag_class17_child_record_t
{
    Unsigned8   logical_name[6]; /* Logical name (OBIS code) of the object. */
    access_right_t    *p_access_right;  /* Access right definition for 1 object */
    asslist_entry_t    * p_sap_assignment; /* SAP assignment list*/
    Unsigned8          nr_sap_assignment;      /* number of SAP assignment entries*/
} class17_child_record_t;
```

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SAP assignment class

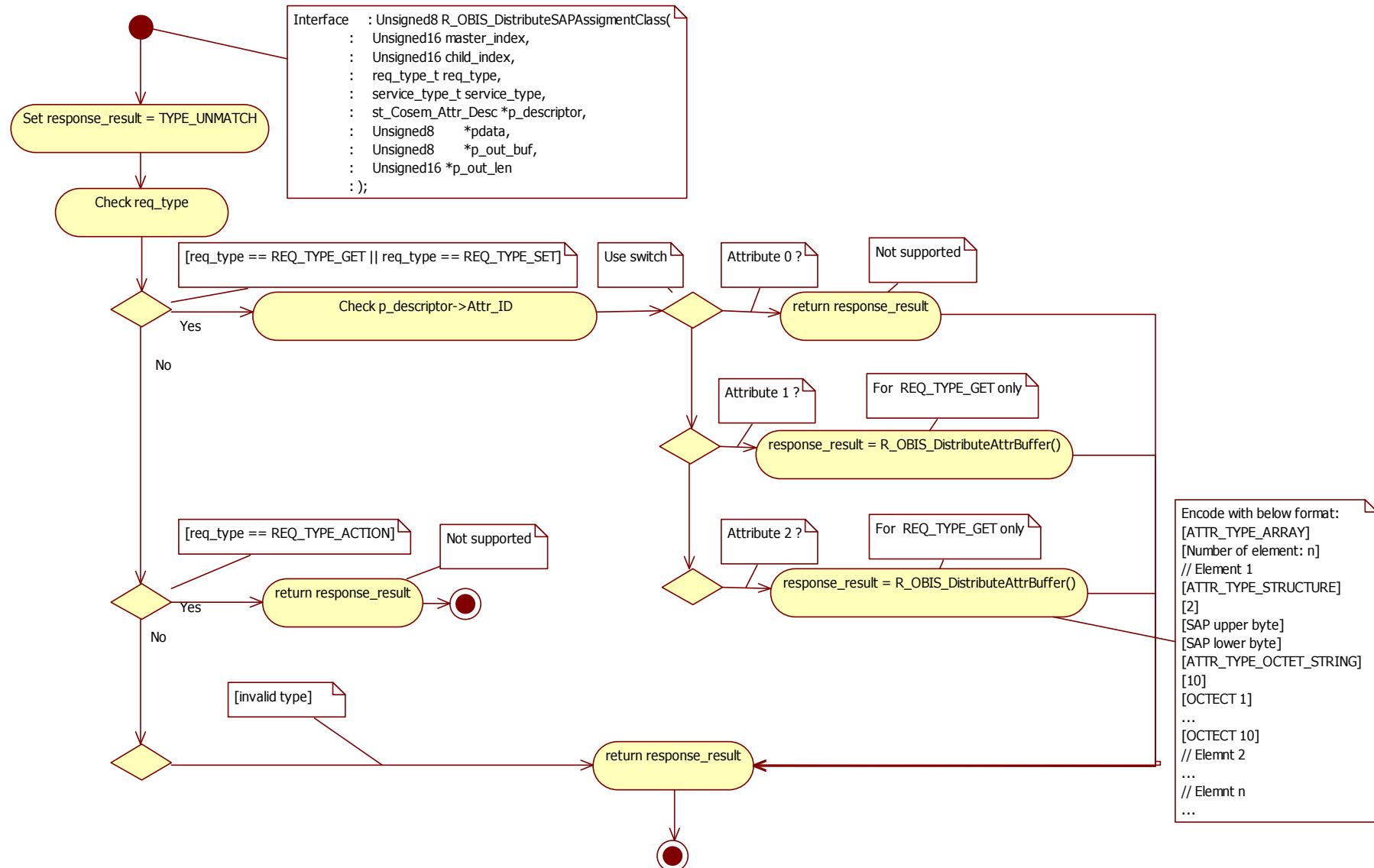- Step 4: Implement distribute function R_OBIS_DistributeSAPAssigmentClass()

r_dlms_data.c

```c
Unsigned8 R_OBIS_DistributeSAPAssigmentClass(
    st_Cosem_Attr_Desc *cosem_attr_desc,
    service_type_t service_type,
    Unsigned16 child_id,
    Unsigned8  *p_out_buf,
    Unsigned16 *p_out_len,
    Unsigned8 *block_transfer,
    Unsigned8 *p_data
)
{
/* Append implement here */
/* Refer in next slide */
}
```

SAP assignment class

- Step 4: Processing flow:

SAP assignment class

- Step 5: Append object (dummy only)

r_dlms_data_ic.c

```
#if (defined(USED_CLASS_08) && USED_CLASS_08 == 1)
const Unsigned8  g_LDN_name[] = "RES 5418 1";
const asslis_entry_t  g_Class17_SAP_lists[] = {
{0x0001, VALUE(CHOICE_OCTET_STRING(strlen(g_LDN_name)), & g_LDN_name)},
{0x0002, VALUE(CHOICE_OCTET_STRING(strlen(g_LDN_name)), & g_LDN_name)},
{0x0003, VALUE(CHOICE_OCTET_STRING(strlen(g_LDN_name)), & g_LDN_name)},
};
const class17_child_record_t g_ChildTableClas17[] =
{
    /* SAP assignment */
    {
        {  1,  0,  99,  1,  0, 255 }, /* Field 1. Logical name (OBIS code) of the object. */
        g_AccessRightTable[0],     /* Field 2. Access right definition for 1 object    */
        &g_Class17_SAP_lists,      /* Field 3. SAP assignment list */
         sizeof(g_Class17_SAP_lists) / sizeof(asslis_entry_t),  /* Field 4. number of SAP
assignment entries*/
    },
};
const Unsigned16 g_ChildTableLengthClass17 = sizeof(g_ChildTableClass17) /
sizeof(class17_child_record_t);
#endif
```

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