entso@

TOOL SUMMARY FORM (PER TOOL)

Vendor/Tool: ODMS		Profile edition No: 1

Witnessed by

Name	Signature	Name	Signature
1.Svein Olsen	*(signed)*	9.	
2.		10.	
3.		11.	
4.		12.	
5.		13.	
6.		14.	
7.		15.	
8.		16.	

Performed tests

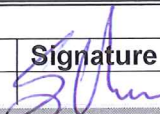| Test No	Score	Test No	Score	Test No	Score	Test No	Score	Test No	Score
1_1	4								
1_2	4								
2_1	4								
2_2	4								
3_1	4								
4_1	4								
5_1	4								
6_1	4								
7_1	4								
9_1	4								
10_1	4								

Comments:

Test 8 short-circuit was not executed since we were running out of time for doing the test. Test 27 and Test 28 was not executed, because there were no operation test models for ENTSO-E profile 1 available to import.

Date	Vendor		ENTSO-E	
2011-07-15	**Name**	**Signature**	**Name**	**Signature**
	Michael Ford	*(signed)*	Svein Olsen	*(signed)*

SINGLE TEST RECORD FORM

Test No: 1_1	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:	
Import	**Export**
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_BE_v5July.zip	

Comments/Results/Issues:

Imported the boundary zip file and then the BE MAS zip file.
Run load flow. Result is shown in the attached file.

We check the generator G1 in substation PP_Brussels\PPBRUG10

Nominal P = 90

Supplementary files:

BE_loadflow.png

Date	Vendor		Test witness	
	Name	**Signature**	**Name**	**Signature**
2011-07-11	Michael Ford		Svein Olsen	

SINGLE TEST RECORD FORM

Test No: 1_2	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:

Import	Export
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_NL_v5July.zip	

Comments/Results/Issues:

Imported the boundary zip file and then the NL MAS zip file.
Run load flow. Result is shown in the attached file.

We check the generator Transformer T1 under substation PP_AMSTERDAM

PowerTransformer.Winding.r=1.392

Supplementary files:

NL_loadflow.png

Date	Vendor		Test witness	
2011-07-11	**Name**	**Signature**	**Name**	**Signature**
	Michael Ford		Svein Olsen	

SINGLE TEST RECORD FORM

Test No: 2_1	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:

Import	Export
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_BE_v5July.zip	ENTSOE_1_BE_OD_11J11h.zip (ENTSOE_1_BE_OD_11J11h_EQ.xml) (ENTSOE_1_BE_OD_11J11h_TP.xml) (ENTSOE_1_BE_OD_11J11h_SV.xml) (ENTSOE_1_BE_OD_11J11h_DY.xml)

Comments/Results/Issues:

Imported the boundary zip file and then the BE MAS zip file.
The exported file was check with CIMspy. The result is shown in the attached file "CIMspy_EQ.bmp".
It was also check with CIMdesk with the same result.
The error reported for EQ is acceptable. This is due to that ODMS export both side of the assosation between cim:FossilFuel and cim:ThermalGeneratingUnit.
Test of TP and SV reported no errors.
CIMdesk report error on the TP file, but that is due to the boundary connections. The file is correct.

We check the data for ACLineSegment "DFG-THY 1" and found it to match. See attached file "Instance Comparison.txt"

Supplementary files:

CIMspy_EQ.png   CIMdesk_EQ.png   Instance Comparison.txt

Date	Vendor		Test witness	
	Name	**Signature**	**Name**	**Signature**
2011-07-11	Michael Ford		Svein Olsen	

European Network of
Transmission System Operators
for Electricity
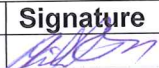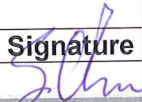
entsoe

SINGLE TEST RECORD FORM

Test No: 2_2	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:

Import	Export
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_NL_v5July.zip	ENTSOE_1_NL_OD_11J11h.zip (ENTSOE_1_NL_11J11h_NL_OD_EQ.xml) (ENTSOE_1_NL_11J11h_NL_OD_TP.xml) (ENTSOE_1_NL_11J11h_NL_OD_SV.xml) (ENTSOE_1_NL_11J11h_NL_OD_DY.xml)

Comments/Results/Issues:

Imported the boundary zip file and then the NL MAS zip file.

The exported file was check with CIMspy. The result is shown in the attached file "CIMspy_EQ.bmp".
It reports error on OperationalLimitType which is the same error reporting that it does for the original file.

We check the data for RegulatingControl _c1d5c08a8f8011e08e4d00247eb1f55e and found it to match. See attached file "Instance Comparison.txt"

Supplementary files:

CIMspy_EQ.png   Instance Comparison.txt

Date	Vendor		Test witness	
	Name	**Signature**	**Name**	**Signature**
2011-07-11	Michael Ford		Svein Olsen	
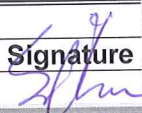
SINGLE TEST RECORD FORM

Test No: 3_1	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:

Import	Export
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_BE_v5July.zip	

Comments/Results/Issues:

Imported the boundary zip file and then the BE MAS zip file.

We compare the load flow result from TNA – DMS&EKC ("Test3.1_a_1st_TN_12J14h50.jpg" and "Test3.1_b_1st_TN_12J14h50.jpg") with the result from ODMS (ODMS_Loadflow_BE.pdf).

The following node and line were checked:

		TNA	ODMS	delta
Node C4	U [kV]	231.6	231.6	0.0%
	angle [°]	-38,2	-38	0.5%
Line_1	P [MW]	25,3	25,3	0.0%
	Q [Mvar]	-1	-1	0.0%

The results are acceptable.

Supplementary files:
ODMS_Loadflow_BE.pdf
Test3.1_a_1st_TN_12J14h50.jpg
Test3.1_b_1st_TN_12J14h50.jpg

Date	Vendor		Test witness	
	Name	**Signature**	**Name**	**Signature**
	Michael Ford		Svein Olsen	

SINGLE TEST RECORD FORM

Test No: 4_1	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:

Import	Export
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_NL_v5July.zip	ENTSOE_1_NL_OD_13J18h.zip (ENTSOE_1_NL_OD_13J18h_TP.xml) (ENTSOE_1_NL_OD_13J18h_SV.xml)

Comments/Results/Issues:

Imported the boundary zip file and then the NL MAS zip file.

Performed load flow calculation. The result was stored in "ODMS_S1_1_Loadflow_Before.pdf".

The switch B1 was changes from closed to open. New load flow calculation was done and the result can be seen in "ODMS_S2_1_Loadflow_After.pdf".

Topology (TP) and state variable (SV) were exported as a zip file.

The exported file was check with CIMdesk. The results are shown in the attached file starting with "CIMdesk" and include "13J18h". Note CIMdesk report incorrect error.

The exported file past the validation.

Supplementary files:
ODMS_S1_1_Loadflow_Before.pdf
ODMS_S2_1_Loadflow_After.pdf
CIMdesk_OD_13J18h_SV.png
CIMdesk_OD_13J18h_TP.png

Date	Vendor		Test witness	
	Name	Signature	Name	Signature
2011-07-13	Michael Ford		Svein Olsen	

SINGLE TEST RECORD FORM

Test No: 5_1	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:

Import	Export
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_BE_v5July.zip	ENTSOE_1_BE_OD_11J13h.zip (ENTSOE_1_BE_OD_11J13h_SV.xml)

Comments/Results/Issues:

Imported the boundary zip file and then the BE MAS zip file.

Change the generator G1 Schedule MW from 90 MW to 96 MW and the load L1 Total load MW from 200 to 206.

Run a new load flow and exported the result.

The exported file was check with CIMdesk. The result is shown in the attached file "CIMdesk_SV_Validation.bmp". No error was found.

Supplementary files:

CIMdesk_SV_Validation.png

LoadFlow

Date	Vendor		Test witness	
	Name	**Signature**	**Name**	**Signature**
2011-07-11	Michael Ford		Svein Olsen	
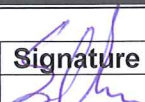
SINGLE TEST RECORD FORM

Test No: 6_1	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:

Import	Export
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_BE_v5July.zip ENTSOE_16_BE_OGS_MOD_12J10h_UCTE_TP.xml ENTSOE_16_BE_OGS_MOD_12J10h_SV.xml	

Comments/Results/Issues:

Imported the boundary zip file and then the BE MAS zip file.

We took a screenshot of the equipment not in service, "ODMS_S1_BeforeImport.PNG", that shows that all equipment are in service.

We imported the Test No 4 exported file from Open Grid System;
- ENTSOE_16_BE_OGS_MOD_12J10h_UCTE_TP.xml
- ENTSOE_16_BE_OGS_MOD_12J10h_SV.xml

They imported without any errors.
We did a new load flow calculation. Result is shown in the file, ODMS_Loadflow_AfterImport.PNG.
We checked that now the ShuntCompensator, S2, is not out of service. See file "ODMS_Loadflow_AfterImport.PNG".
This corresponds with the result from Open Grid System, "ModifiedLoadFlowResult-BE-OGS-12J10h.png"

Supplementary files:
ODMS_S1_BeforeImport.PNG
ODMS_Loadflow_AfterImport.PNG
ODMS_Loadflow_AfterImport.PNG
ModifiedLoadFlowResult-BE-OGS-12J10h.png

Date	Vendor		Test witness	
	Name	**Signature**	**Name**	**Signature**
2011-07-12	Michael Ford		Svein Olsen	

Single Test Record Form

Test No: 7_1	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:

Import	Export
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_BE_v5July.zip ENTSO-E16nodes_part_BE_v5July_TN_12J10h45_SV.xml	

Comments/Results/Issues:

Imported the boundary zip file and then the BE MAS zip file.

We took a screenshot of the load flow, "ODMS_S1_BeforeImport.PNG", the status of the load, "ODMS_S1_Load_BeforeImport.PNG" and generation, "ODMS_S1_Generator_BeforeImport.PNG"

We imported the Test No 5 exported file from DMSGroup (TN):

- ENTSO-E16nodes_part_BE_v5July_TN_12J10h45_SV.xml

The file imported without any errors.
We did a new load flow calculation. Result for loads is shown in the file, "ODMS_Load_AfterImport.PNG" and the generators status is shown in the file, "ODMS_S1_Generator_AfterImport.PNG".

We then compare it with the original status that shows that that the load L1 was changed from 200 MW to 250 MW. The exported SV file did not include a solved case. When ODMS run load flow calculation this change in load was picked up primarily by the generator Unit_G1 that went from 118.2 MW to 169.2 MW.

The test is passed.

Supplementary files:
ODMS_S1_BeforeImport.PNG
ODMS_S1_Load_BeforeImport.PNG
ODMS_S1_Generator_BeforeImport.PNG
ODMS_Load_AfterImport.PNG
ODMS_S1_Generator_AfterImport.PNG

Date	Vendor		Test witness	
	Name	**Signature**	**Name**	**Signature**
2011-07-12	Michael Ford		Svein Olsen	
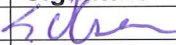
SINGLE TEST RECORD FORM

Test No: 9_1	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:

Import	Export
110504_ENTSO-E_Boundary_Set_4_May_2011_EU.zip ENTSO-E16nodes_part_BE_v5July.zip ENTSO-E16nodes_part_NL_v5July.zip ENTSOE_1_NL_OD_13J18h.zip	ENTSOE_1_S1_OD_13J17h.zip

Comments/Results/Issues:

Imported the boundary zip file, the BE MAS zip file and the NL MAS zip file.

Calculated load flow. See attached file for the diagram, "ODMS_S1_1_Loadflow.tif" and table, "Loadflow_Table_Solution1.lng" shows the load flow before the topology changes.

Exported the full model as one zip file. Verified OK.
The validation files starting with "CIMdesk" and include "13J17h" shows the validation of the exported files. Note that CIMdesk reports incorrect errors.
For validation the exported zip file was imported to ODMS without any problem.

Imported the topology and state solution done in Test 4 (with switch B1 changed from closed to open).

To import this we needed to clear out the current topology. This was done by importing TP for the boundary. We then needed to re-import the topology (TP) and state solution (SV) for BE. We could then import the exported change file with new TP and SV for NL from Test 4.

Calculated the new load flow.
The diagram "ODMS_S2_1_Loadflow.tif" shows the new load flow and that the switch is no open.

Supplementary files:
ODMS_S1_1_Loadflow.tif – power flow solution before applying the changes
Loadflow_Table_Solution1.lng
CIMdesk_OD_13J17h_NL_TP.PNG
CIMdesk_OD_13J17h_NL_EQ.PNG
CIMdesk_OD_13J17h_EU_TP.PNG
CIMdesk_OD_13J17h_EU_EQ.PNG
CIMdesk_OD_13J17h_BE_TP.PNG
CIMdesk_OD_13J17h_BE_EQ.PNG
ODMS_S2_1_Loadflow.tif – power flow solution after applying the changes
Loadflow_Table_Solution2.PNG

Date	Vendor		Test witness	
2011-07-13	**Name**	**Signature**	**Name**	**Signature**
	Michael Ford		Svein Olsen	

SINGLE TEST RECORD FORM

Test No: 10_1 (CP)	Profile edition No: 1	Tool: ODMS	Score: 4

Test files:		
Import		**Export**
(ENTSOE_16_CP_4_14J15h_SV.zip) ENTSO-E_Boundary_Set_4_May_2011_EU_EQ.xml ENTSO-E_Boundary_Set_4_May_2011_EU_TP.xml ENTSO-E16nodes_part_BE_v5July_EQ.xml ENTSO-E16nodes_part_BE_v5July_TP.xml ENTSO-E16nodes_part_NL_v11July_EQ.xml ENTSO-E16nodes_part_NL_v11July_TP.xml ENTSOE_16_CP_4_14J15h_SV.xml		

Comments/Results/Issues:

The file "ENTSOE_16_CP_4_14J15h_SV.zip" was unzipped and each file was imported in the order shown in the list. These files were exported as part of Open Grid Systems Test 9.

The file/files were imported without error message.
The load flow was calculated and the result was stored in the file "ODMS_S1_1_Loadflow.pdf".

The following node were checked:

		CP	ODMS	delta
23	U [kV]	219.745	219.757	0.01%
	angle [°]	-16.201	-16.713	3.06%
BB	P [MW]	597.443	601.81	0.73%
	Q [Mvar]	184.856	179.649	2.90%

The result from OGS is stored in the file "LoadFlowResult_CP_1_9.png".

The results are inside the tolerance of 5% and therefore acceptable.

Supplementary files:
\\Test10\Run1_CP\ODMS_S1_1_Loadflow.pdf
\\Test10\Run1_CP\LoadflowResult_CP_1_9_2.png

Date	Vendor		Test witness	
2011-07-14	**Name**	**Signature**	**Name**	**Signature**
	Michael Ford		Svein Olsen	

TOOL SUMMARY FORM (PER TOOL)

Vendor/Tool: ODMS	Profile edition No: 2

Witnessed by

Name	Signature	Name	Signature
1. Svein Olsen	*(signed)*	9.	
2. Andrei Karpatchev		10.	
3. Chavdar Ivanov	*(signed)*	11.	
4.		12.	
5.		13.	
6.		14.	
7.		15.	
8.		16.	

Performed tests

Test No	Score	Test No	Score	Test No	Score	Test No	Score	Test No	Score
1_1	4	15_1	3	27_1	4				
1_2	4	16_1	4	28_1	4				
2_1	4	17_1	4	29_1	4				
2_2	4			30_1	4				
3_1	4			31_1	4				
4_1	4			32_1	4				
5_1	4			33_1	4				
6_1	4								
7_1	4								
9_1	4								
10_1	4								
11_1	4								
12_1	4								
13_1	4								
14_1	4								

Comments:

Test 8 short-circuit was not executed since we were running out of time for doing the test

Date	Vendor		ENTSO-E	
2011-07-15	**Name**	**Signature**	**Name**	**Signature**
	Michael Ford	*(signed)*	Svein Olsen	*(signed)*

Chavdar Ivanov *(signed)*