

Auto Saving Programmable Detector with Coupled File Name

Abstract

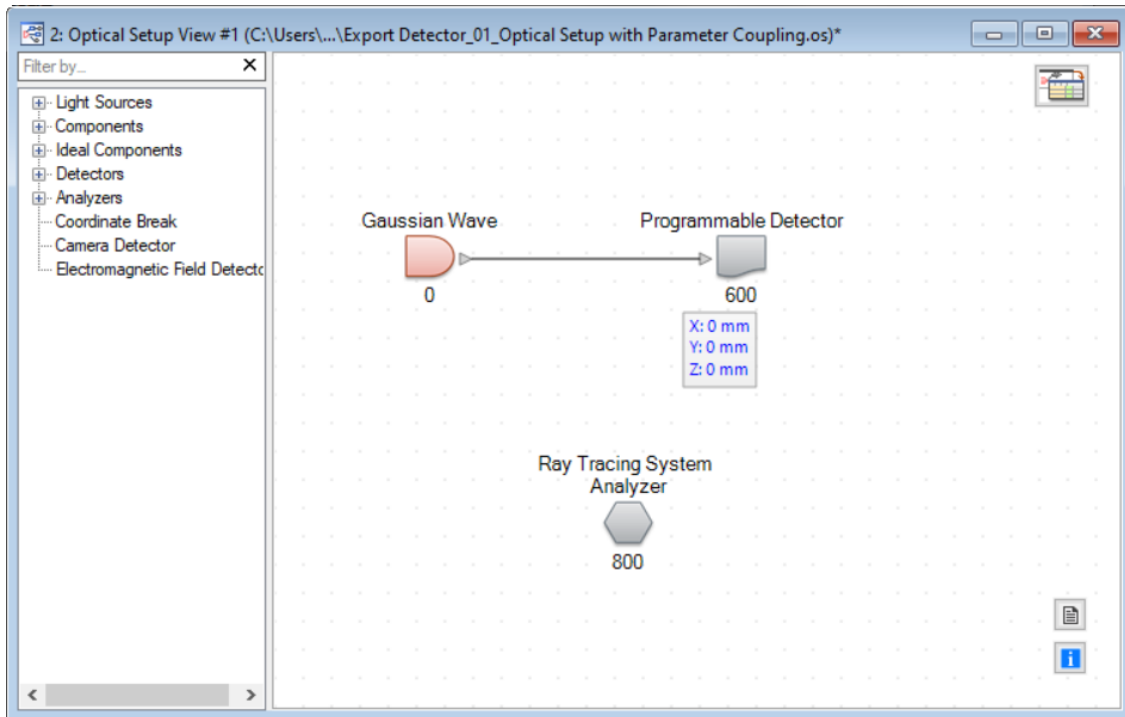
This Demo shows how to use a programmable detector, which can automatically save the simulation result with interested parameter information include in the file name.



```
1 DetectorResultObject[] detectorResults = new DetectorResultObject[1];
2
3 string pathname = @"E:\ExportDetector\";
4 string[] LP_label = new string[] { "LP01", "LP11", "LP02", "LP21", "LP31" };
5 string fileName = "testExport";
6
7 string pStr = CoupledParameter.ToString();
8 lock(Globals.DataDisplay){
9
10     for (int runSaveHFSMember = 0; runSaveHFSMember < InputField.Count; runSaveHFSMember++)
11     {
12         ComplexAmplitude caToExport = InputField[runSaveHFSMember];
13         caToExport.Save(pathname + fileName + "_" + pStr + "_" + LP_label[runSaveHFSMember] + ".hfs");
14
15         string filenameOfMember = pathname + fileName + "_" + pStr + "_" + LP_label[runSaveHFSMember] + ".ptf";
16         ImportExport.ExportPTF(caToExport, filenameOfMember);
17     }
18 }
19
20
21 detectorResults[0] = new DetectorResultObject(
22     new PhysicalValue(CoupledParameter, PhysicalProperty.NoUnit,
23     "File Index"), "Field Save Detector");
24 return detectorResults;
25
```

IndexOfDetector [int]
IndexOfLinkage [int]
SystemTemperature [double]
SystemPressure [double]
AutomaticFieldSize [bool]
FieldSizeFactor [Vector2]
ManualFieldSize [Vector2]
AutomaticSampling [bool]
ManualSamplingDefinesSamplingDistance [bool]
OversamplingFactor [Vector2]
ManualSamplingDistance [Vector2]
ManualNumberSamplingPoints [Vector2]
ResolveLinearPhase [bool]
ResolveRelativePosition [bool]
InputField [NameValueCollection]
SpectralField [ModeCollection]
ParentLightPath [Lightpath]
CoupledParameter [double]

Task Description



- Use programmable detector to save the simulation result.
- Use parameter coupling to link certain interesting parameter with the detector, so that the exported file name will contain the information.
- Use parameter run to scan the interesting parameter.

Program the Detector: Define Saving Location and File Name

```
Source Code Editor
Source Code Global Parameters Snippet Help Advanced Settings
Main Function
Snippet Body
1  DetectorResultObject[] detectorResults = new DetectorResultObject[1];
2
3  string pathname = @"E:\ExportDetector\";
4  string[] LP_label = new string[] { "LP01", "LP11", "LP02", "LP21", "LP31" };
5  string fileName = "testExport";
6
7  string pStr = CoupledParameter.ToString();
8  lock(Globals.DataDisplay){
9
10     for (int runSaveHFSSMember = 0; runSaveHFSSMember < InputField.Count; runSaveHFSSMember++)
11     {
12         ComplexAmplitude caToExport = InputField[runSaveHFSSMember];
13         caToExport.Save(pathname + fileName + "_" + pStr + "_" + LP_label[runSaveHFSSMember] + ".hfs");
14
15         string filenameOfMember = pathname + fileName + "_" + pStr + "_" + LP_label[runSaveHFSSMember] + ".ptf";
16         ImportExport.ExportPTF(caToExport, filenameOfMember);
17     }
18 }
19
20
21 detectorResults[0] = new DetectorResultObject(
22     new PhysicalValue(CoupledParameter, PhysicalProperty.NoUnit,
23     "File Index"), "Field Save Detector");
24 return detectorResults;
25
```

IndexOfDetector [int]
IndexOfLinkage [int]
SystemTemperature [double]
SystemPressure [double]
AutomaticFieldSize [bool]
FieldSizeFactor [VectorD]
ManualFieldSize [VectorD]
AutomaticSampling [bool]
ManualSamplingDefinesSamplingDistance [bool]
OversamplingFactor [VectorD]
ManualSamplingDistance [VectorD]
ManualNumberSamplingPoints [Vector]
ResolveLinearPhase [bool]
ResolveRelativePosition [bool]
InputField [HarmonicFieldsSet]
SpectralField [ModeCollection]
ParentLightPath [Lightpath]
CoupledParameter [double]

Check Consistency Validity: 2

OK Cancel Help

Link the Detector with Interested Parameter

Edit Parameter Coupling

Parameter Specification
Setup the parameter(s) to be used as input (independent variable) and output (dependent variable) of the coupling snippet.

Filter by: Show Only Used Parameters

1 2 *	Object	Category	Parameter	Use in Snippet	Short Name
	Gaussian Wave #0		Wavelength	<input checked="" type="checkbox"/>	Wavelength
	Programmable Detector #600		CoupledParameter	<input checked="" type="checkbox"/>	CoupledParameter

Source Code Editor

Source Code | Global Parameters | Snippet Help | Advanced Settings

```
1 Dictionary<string, double> returnValue = new Diction
2
3 /*****
4 ***** INSERT YOUR CODE HERE *****
5 *****/
6
7 // begin of sample code (can be removed)
8
9 // Access the current value of any parameter in the
10 double inputValue = Parameters["Wavelength"];
11
12 // Add a coupled parameter to the return value.
13 returnValue.Add("CoupledParameter", inputValue);
14
15 // Note that all used variable names must be specifi
16
17 //end of sample code
18
19 return returnValue;
```

Parameters [Dictionary<string, double>] ParentSystem [Lightpath]

Wavelength
CoupledParameter

Check Consistency Validity:

OK Cancel Help

- Use parameter coupling to link the interested parameter and the programmed file name.

Start Parameter Run to Scan the Parameter

The screenshot shows a software window titled "6: C:\Users\...\Export Detector_02_Scanning Wavelength.run*" with a "Results" section. The section contains a "Go!" button, a checked checkbox for "Use Already Calculated Results for Next Run", and a table of results. The table has columns for "Detector", "Subdetector", "Combined Output", and "Iteration Step" (1-9). The "Iteration Step" column is highlighted in green. The table data is as follows:

Detector	Subdetector	Combined Output	Iteration Step									
			1	2	3	4	5	6	7	8	9	
Varied Parameters	Wavelength (Gaussian Wa...	Data Array	530 nm	531 nm	532 nm	533 nm	534 nm	535 nm	536 nm	537 nm	538 nm	539 nm
Coupled Parameters	CoupledParameter (Progra...	Data Array	5.3E-07	5.31E-07	5.32E-07	5.33E-07	5.34E-07	5.35E-07	5.36E-07	5.37E-07	5.38E-07	5.39E-07
Programmable Detector #6...	Value #1: File Index	Data Array	5.3E-07	5.31E-07	5.32E-07	5.33E-07	5.34E-07	5.35E-07	5.36E-07	5.37E-07	5.38E-07	5.39E-07

At the bottom of the window, there is a "Create Output from Selection" button and navigation buttons: "< Back", "Next >", and "Show ▾".

Document Information

title	Auto Saving programmable Detector with Coupled File Name
document code	Demo.0025
version	1.0
VL version used for simulations	VirtualLab 2020.1 (Build 1)
category	Demo
further reading	
