

Weight & Balance for ENOVIA V5 (WC9)

BPA Delivery 6 for V5R19 (V5.6)

User Guide

V5R19



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Introduction

This document describes the user guide for the Weight & Balance for ENOVIA V5 (WC9) Business Process Accelerator.

This manual aims at providing the users information on how to use Weight & Balance for ENOVIA V5.

Related Documentation

- WC9_InstallationGuide
- WC9_ImplementationGuide

Prerequisite for Weight and Balance for ENOVIA V5

ENOVIA V5 platform is the main prerequisite for WC9 on the server side.
The integration of a DMC supporting the Weight & Balance required attributes is also a prerequisite.
A functional installation of ENOVIA VPM Navigator on the client side is also a prerequisite.

Information

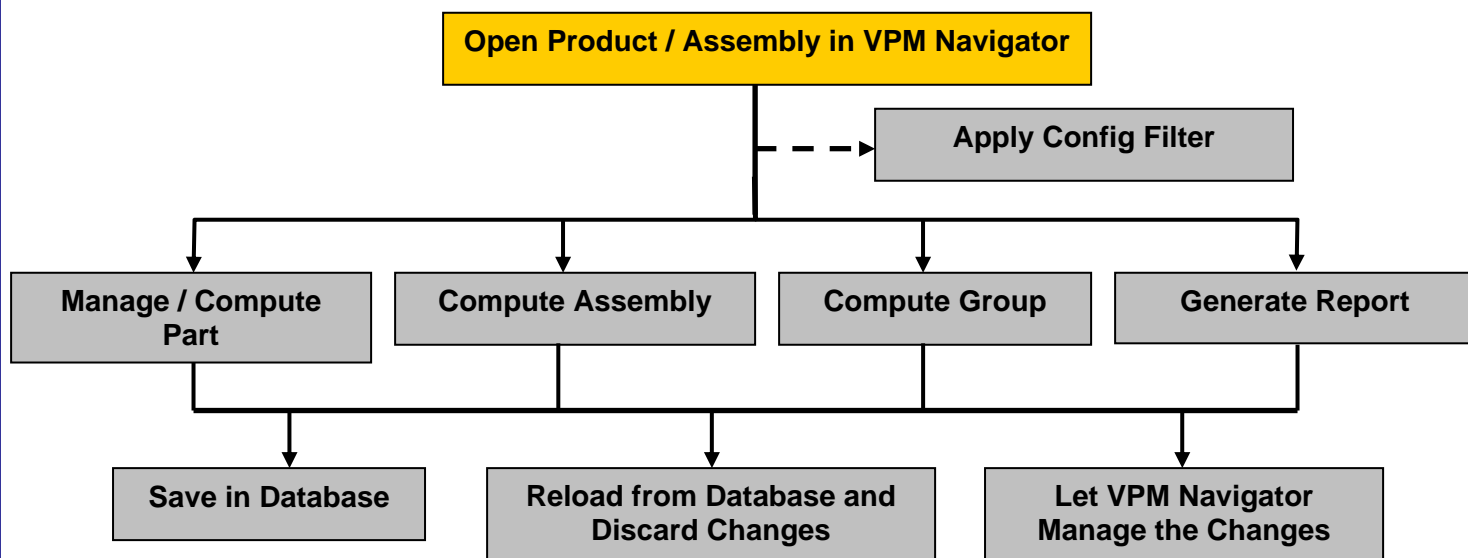
The required ENOVIA V5 is R19
The required CATIA V5 and ENOVIA VPM V5 is R19

Weight & Balance for ENOVIA V5

The Weight & Balance product for ENOVIA VPM Navigator is composed of a toolbar available in the VPM Navigator workbench, a batch program available on the server side and the settings editor interface to be launched by the administrator on the server side.

Process Flow

The flow chart below illustrates how the W&B product interfaces itself with VPM Navigator.



Launching Weight & Balance

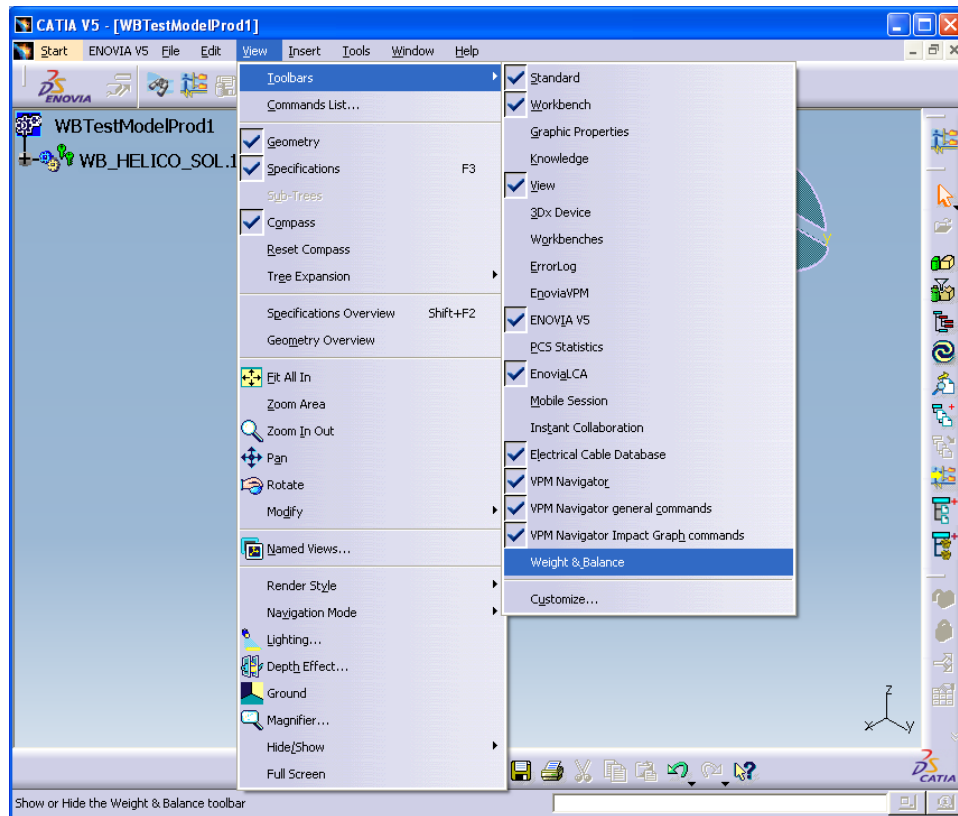
From VPM Navigator

The toolbar is available in every workbench but commands will only respond in a VPM Navigator context. Make sure the Weight & Balance toolbar is available by clicking on:
Views / Toolbars / Weight & Balance



Connection to ENOVIA Database

W&B is an application integrated in ENOVIA VPM Navigator. The toolbar containing the 5 W&B commands is called "Weight & Balance". If the toolbar is not available, click on "View / Toolbars / Weight & Balance".



The toolbar should appear like this:



To be able to use the commands, a connection to the ENOVIA database needs to be established. Once the connection is done, open a VPM Navigator window to access PRCs stored in the ENOVIA database.

Save assemblies in ENOVIA

If an assembly is saved from CATIA to ENOVIA, make sure that the attribute mapping is activated, otherwise, a standard assembly with no W&B metadata will be created in the ENOVIA database.

Click on "Tools / Options / General / Compatibility / ENOVIA V5"

Make sure the check box "Work with Attribute Mapping" is checked and a valid XML file is loaded.

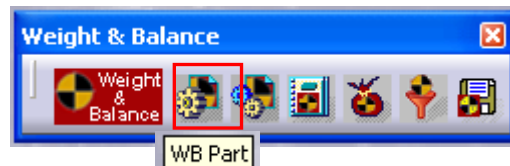
Example of XML file:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE MappingDescription SYSTEM "C:\Program Files\Dassault
Systemes\B18\intel_a\code\dictionary\AttributesMapping.dtd">
<MappingDescription>
  <DomainDef EntityType="Part" DefinitionType="FixedValue" Name="WBProduct"/>
  <DomainDef EntityType="Document" DefinitionType="FixedValue" Name="WBDoc"/>
  <AttributesMapping EntityType="Part" DomainName="WBProduct">
    <Attribute Name="Revision" Type="STRING">
      <CATIAInfo Name="Revision" Editable="No" Visible="Yes" />
      <DBInfo Name="V_version" LCASubEntity="PV" Editable="Yes" Visible="Yes"
    />
    </Attribute>
  </AttributesMapping>
  <AttributesMapping EntityType="Document" DomainName="WBDoc">
    <Attribute Name="Revision" Type="STRING">
      <CATIAInfo Name="Revision" Editable="No" Visible="Yes" />
      <DBInfo Name="V_version" LCASubEntity="DV" Editable="Yes" Visible="Yes"
    />
    </Attribute>
  </AttributesMapping>
</MappingDescription>
```

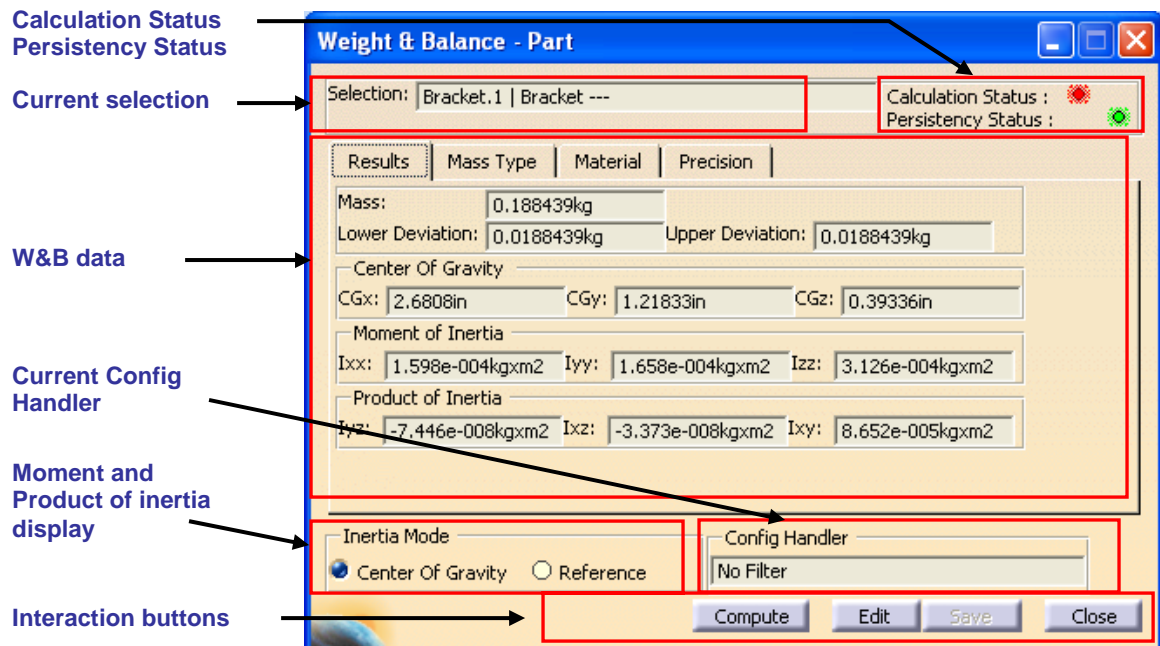
The Weight & Balance Toolbar

The WB Part Command

The purpose of this interface is to offer tools to analyze the product's mass properties at each assembly level. To display the W&B panel, a part needs to be selected in the VPM Navigator graph window.

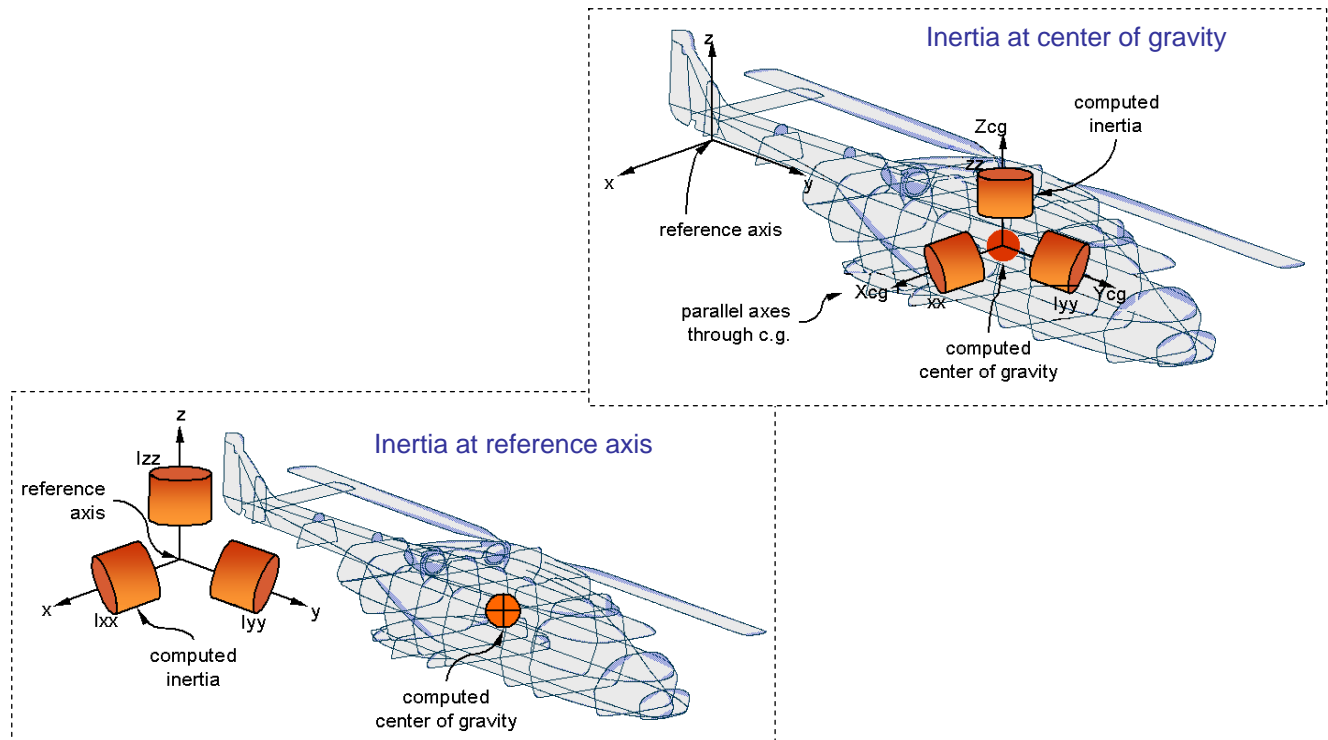


If it is the first time that W&B is launched on a part, the panel should look like the one below



1. **Calculation Status**: show the user that the last calculation date is lesser than the date of the last modification on the part. These modifications may have an impact on the W&B computed results.
2. **Persistence Status**: show the user that the modifications on the part will not be stored by default by VPM Navigator. However, the changes can still be made persistent with the WB Save Command.
3. **Current selection**: the name of the part that has been selected.
4. **W&B Data**: this frame displays the W&B data.
5. **Moment and Product of inertia display**: Radio button to display the inertia matrix with the part center of gravity or its center as reference.

The distinction of using either **Center of Gravity** or **Reference Axis** is illustrated hereunder.



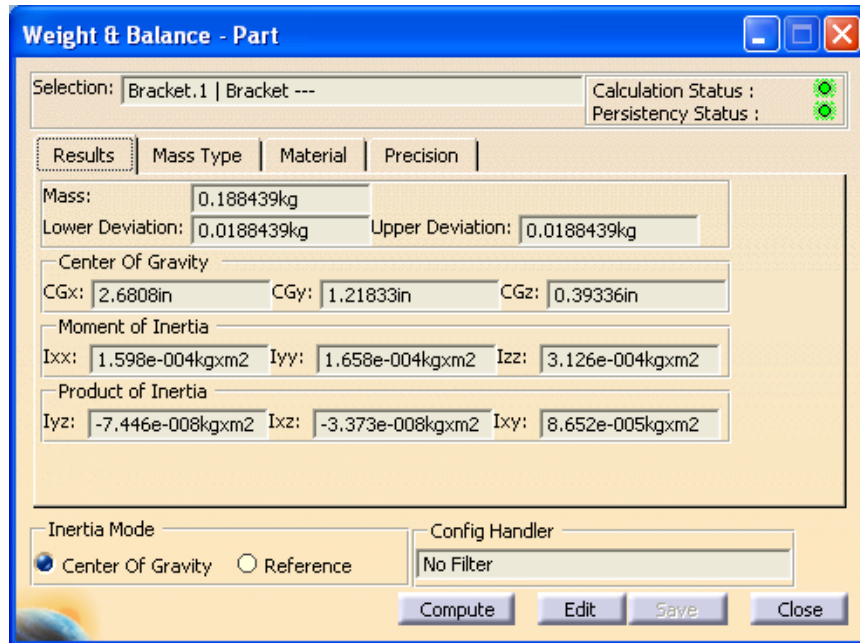
5. **Interaction buttons:** delete, compute, edit and save W&B data. The close button closes the window.

The panel has 4 tabs that display W&B data



1. Result tab
2. Mass Type tab
3. Material tab
4. Precision tab

Result tab

This tab displays the computed data only.



Weight & Balance - Part

Selection: Bracket.1 | Bracket --- Calculation Status : 
 Persistency Status : 

Results | Mass Type | Material | Precision

Mass: 0.188439kg
 Lower Deviation: 0.0188439kg Upper Deviation: 0.0188439kg

Center Of Gravity
 CGx: 2.6808in CGy: 1.21833in CGz: 0.39336in

Moment of Inertia
 Ixx: 1.598e-004kgxm2 Iyy: 1.658e-004kgxm2 Izz: 3.126e-004kgxm2

Product of Inertia
 Iyz: -7.446e-008kgxm2 Ixz: -3.373e-008kgxm2 Ixy: 8.652e-005kgxm2

Inertia Mode: ☒ Center Of Gravity ☐ Reference
 Config Handler: No Filter

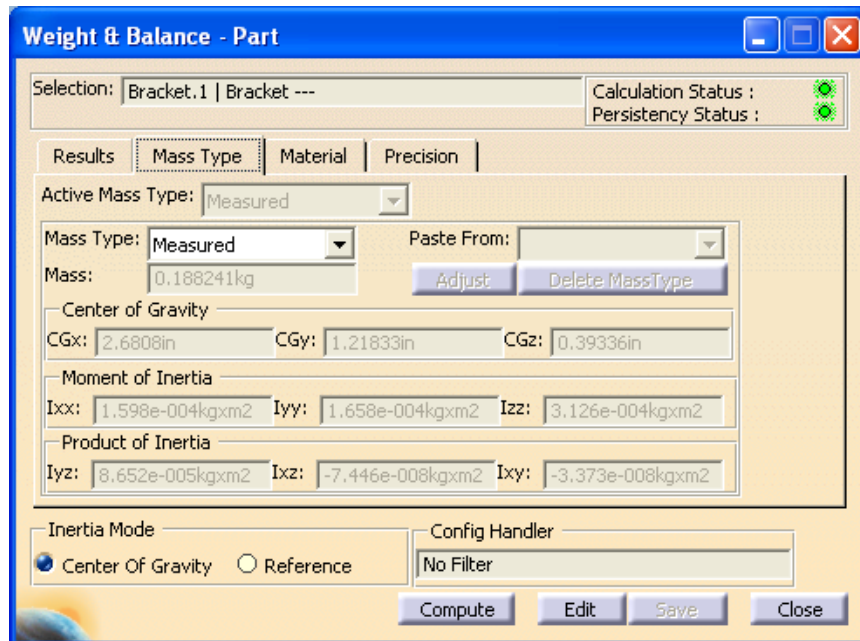
Compute Edit Save Close

This tab is updated when the “Compute” button has been hit.



If the Calculation status is green, it means that the data displayed are up to date with the last modification performed on the part, no need to hit the “Compute” button again.

Mass Type tab

This tab displays W&B data according to available mass types in the administrator settings.




Weight & Balance - Part

Selection: Bracket.1 | Bracket --- Calculation Status : 
 Persistency Status : 

Results | Mass Type | Material | Precision

Active Mass Type: Measured

Mass Type: Measured Paste From: 
 Mass: 0.188241kg Adjust Delete MassType

Center of Gravity
 CGx: 2.6808in CGy: 1.21833in CGz: 0.39336in

Moment of Inertia
 Ixx: 1.598e-004kgxm2 Iyy: 1.658e-004kgxm2 Izz: 3.126e-004kgxm2

Product of Inertia
 Iyz: 8.652e-005kgxm2 Ixz: -7.446e-008kgxm2 Ixy: -3.373e-008kgxm2

Inertia Mode: ☒ Center Of Gravity ☐ Reference
 Config Handler: No Filter

Compute Edit Save Close

Only the Mass type combo box is sensitive in this mode. Depending on the mass type selected, information displayed below this combo boxes are updated.

If the “Edit” button is hit, the fields are updatable if the selected mass type is not of type Computed. The Active Mass Type combo box is also available. If the “ByActiveType” option is selected during an assembly calculation, the W&B processor will take the values of the active type selected here for this specific part. Make sure to click on the save button before closing the window or all modifications will be lost.

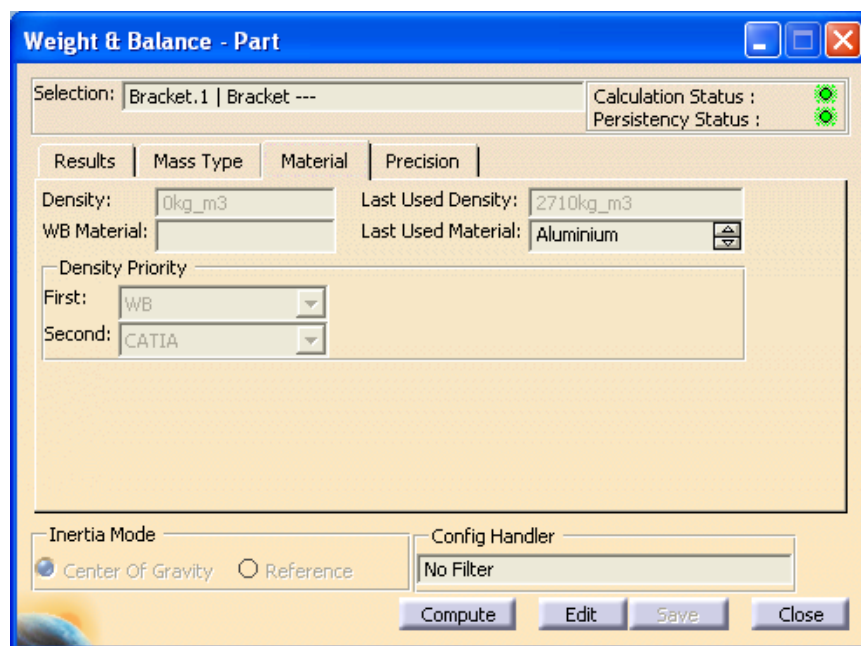
The Paste From combo allows to Paste value from another Mass Type in the Current one.

The Adjust button is available be right after the values have been pasted. When the user modifies the Mass from the previously copied value, this command will adjust the moment and product of inertia proportionally to this new mass.

The Delete button becomes active as an assigned mass type value has been entered. A single push on this button deletes de W&B data entered for this mass type.

Material tab

This tab displays the material information on the part and the density priority.



The user can add his material name and density, if the density priority is set to first priority for WB. The Edit button must be hit to be able to modify these fields.

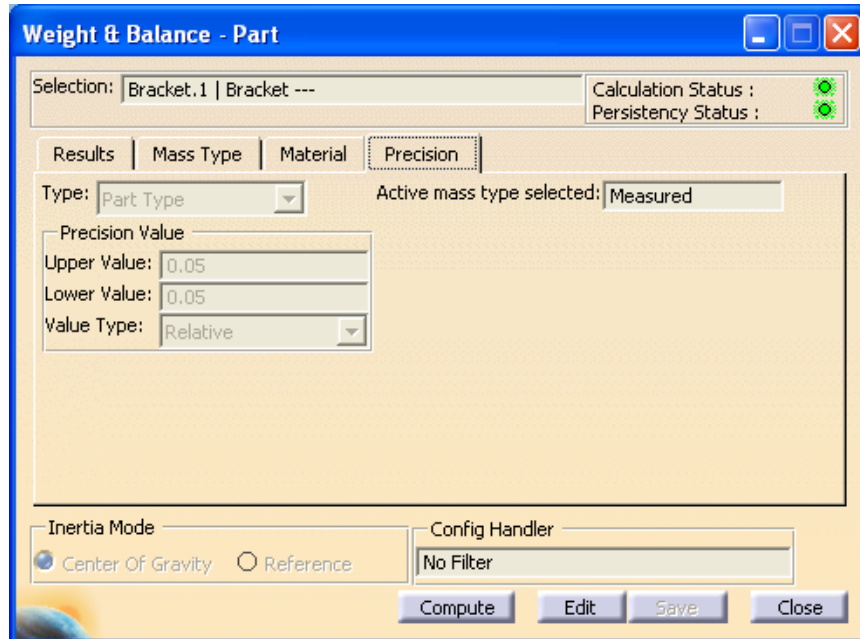
If a non-zero value has been entered and if the density priority is set to WB then the CATIA density will be taken by default.

The Last Used Density and Last Used Material are for information purpose. They correspond to the material used in the last computation. They may correspond to a material defined in Weight & Balance, a material defined in CATIA Material, an imposed Mass Type or a Default Material.

When modifying attributes in the Material Tab, the last calculation date is removed to make sure that the part will not be up to date. This is linked to the WC9UpdateToleranceDelay (see installation guide for more details).

Precision tab

This tab displays the precision information for the calculations of deviations.



If the Edit button is hit, the “Type” combo box will become sensitive. If the User defined value is chosen, the fields in the “Precision Value” frame will become editable.

Depending on the “Value Type” chosen, the Lower and Upper values entered by the user will be taken as a mass for “Absolute” value and a percentage for the “Relative” value.

Document tab

This tab is only available if the “Use Documents” option has been enabled through the “ENOWBSettingsEditor” by the Administrator. Through this tab, it is possible to select the active document revision that will be used for the computation of the part.

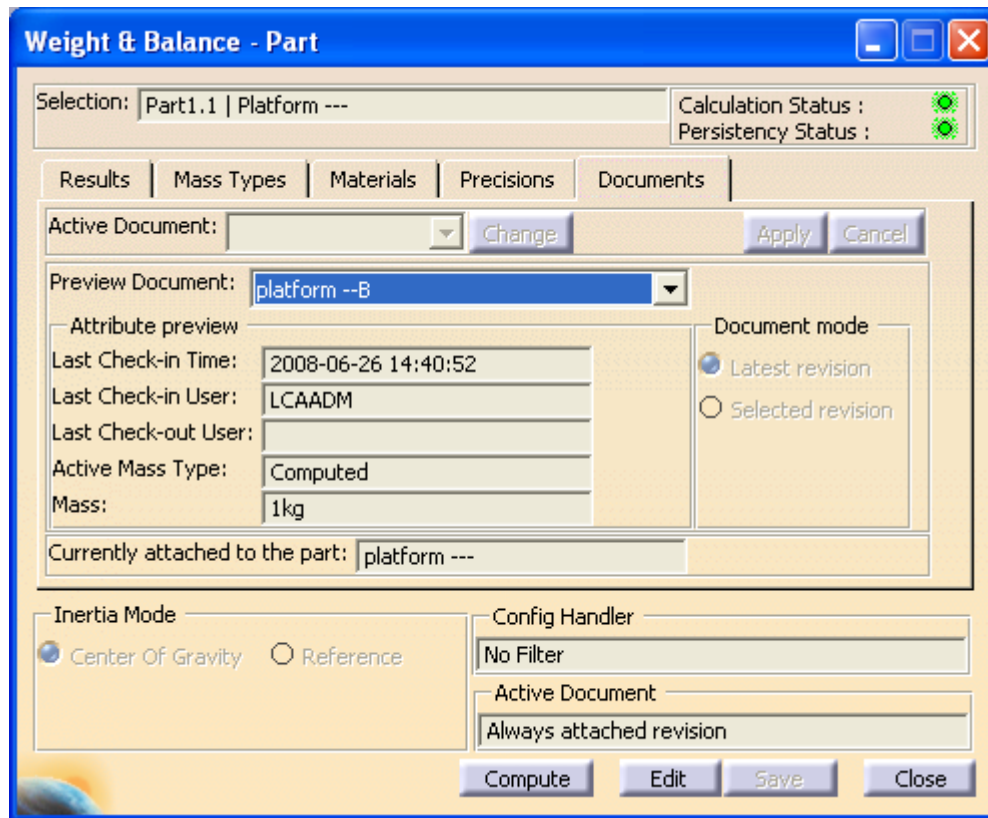
The “Document mode” allows choosing if the document should always be the latest revision, either the latest revision attached on the part or the latest revision available in the database depending on the setting defined by the Administrator, or a selected revision of the document currently attached to the part.

The “Preview Document” dropdown allows the user to preview some attributes on the available document revisions.

To change the document revision, the user must click on the “Edit” button, select the “Selected revision” button, click on the “Change” button, select the new Active Document, click on the “Apply” button and click on the “Save” button.

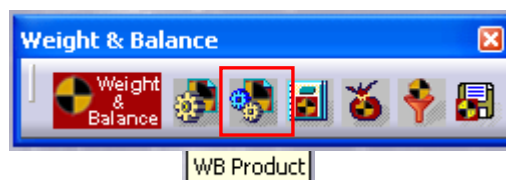
To default back to the Latest revision, the user must click on the “Edit” button and select “Latest revision” and click on “Save” to save the changes.

Note that the other tabs of this panel will show the “Active Document” field when the “Use Documents” has been enabled by the Administrator.

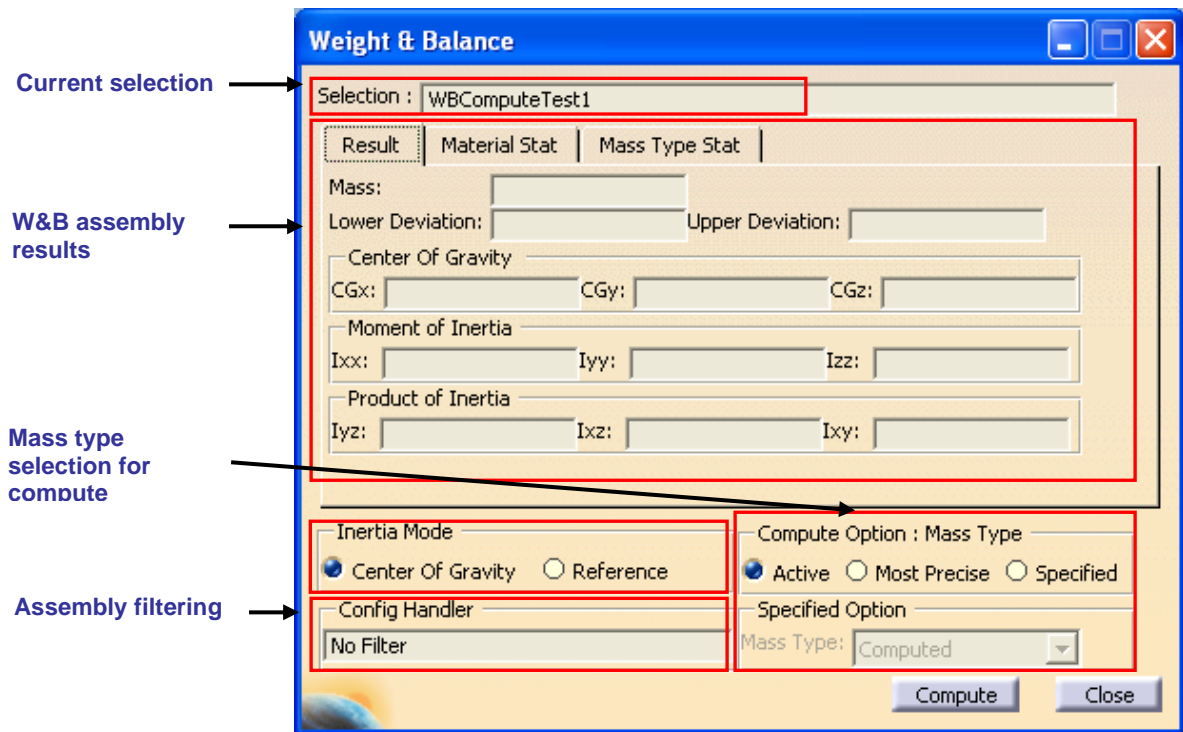


The WB Product Command

To display the assembly calculation, the user only needs to click on the “WB Product” command button.

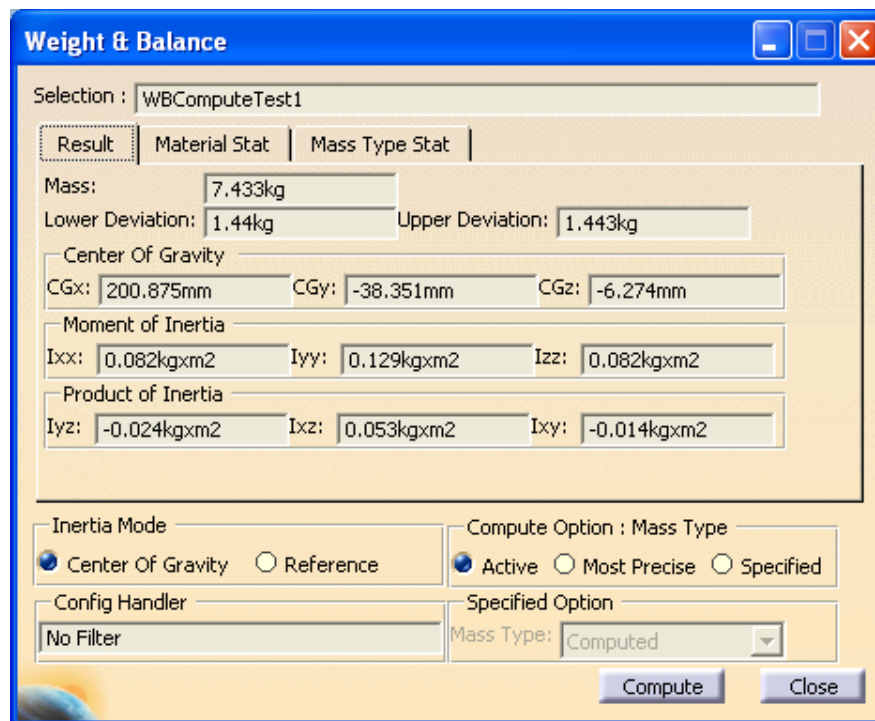


The root of the VPM Graph window is automatically selected.



Assembly Results tabs

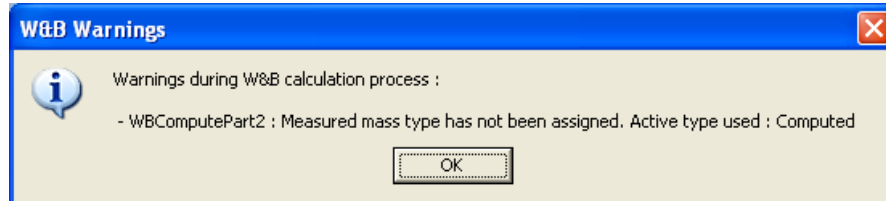
This tab displays the result of the W&B compute on the assembly.



This tab is updated when the “Compute” button has been hit. The results displayed can be modified depending on the Inertia selected.

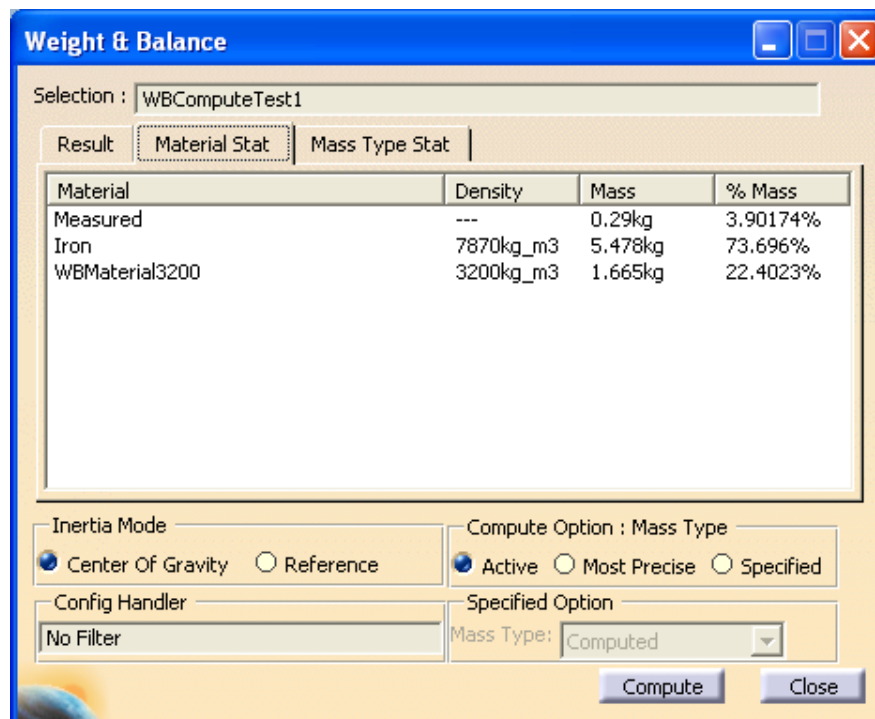
The “Compute Option” offers 3 possibilities.

1. Active: the mass type chosen for every part is the Active one (see chapter 3.4.2)
2. Most Precise: the mass type defined as most precise in the administrator settings is chosen for every part. If the most precise setting has no values assigned for a single part, the second one is taken and so on and so forth...
3. Specified: if this option is chosen, the “Specified Option” frame become sensitive. A list of mass types from the administrator settings is available. If the mass type chosen has no values assigned, the active mass type is chosen. A warning message is displayed to warn the user.



Material Stat tab

This tab displays the material statistics after a calculation.



The first column displays the name of the material. If a mass type is displayed, it means that several parts have values been assigned. If a W&B mass is assigned by the user to a part, the density has no means for the calculation.

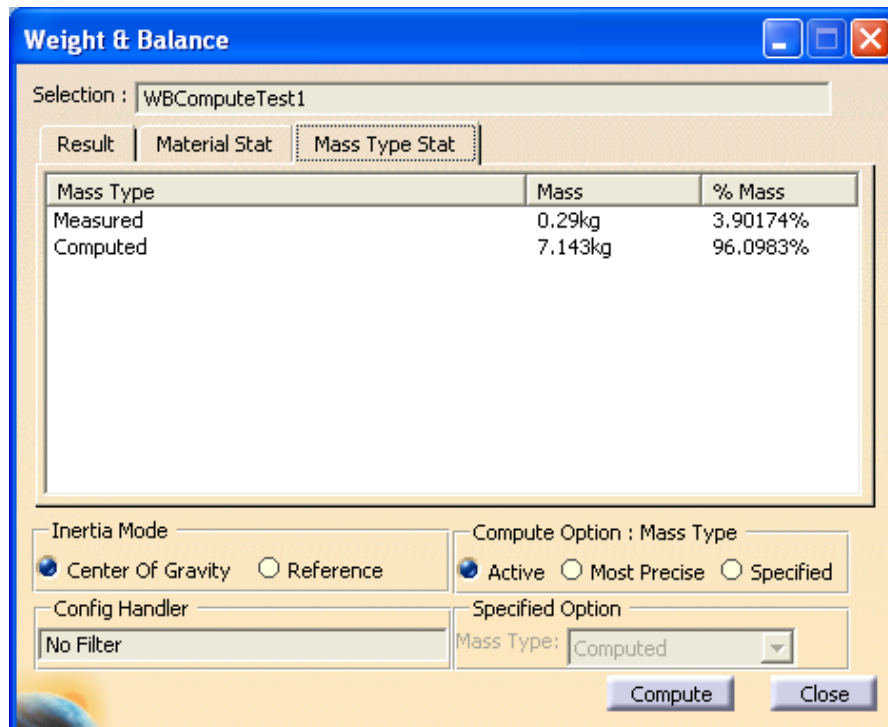
The second column displays the density used for the computation. Note that the density displayed can have different origins from 1 row to another. In the example above, the density of the second row has been assigned by the user, while the one from the third row has been evaluated from CATIA.

The third column displays the mass used for the computation. Each material is displayed only once and the mass displayed is the result of the addition of all the masses from the same material.

The last column displays the percentage of the material present in the part.

Mass Type Stat tab

This tab displays the mass type distribution after a calculation.



Mass Type	Mass	% Mass
Measured	0.29kg	3.90174%
Computed	7.143kg	96.0983%

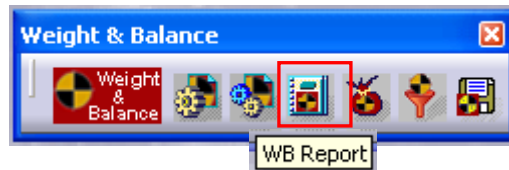
The first column displays the different mass type used in the calculation of the W&B data for an assembly.

The second column displays the total mass of each mass type.

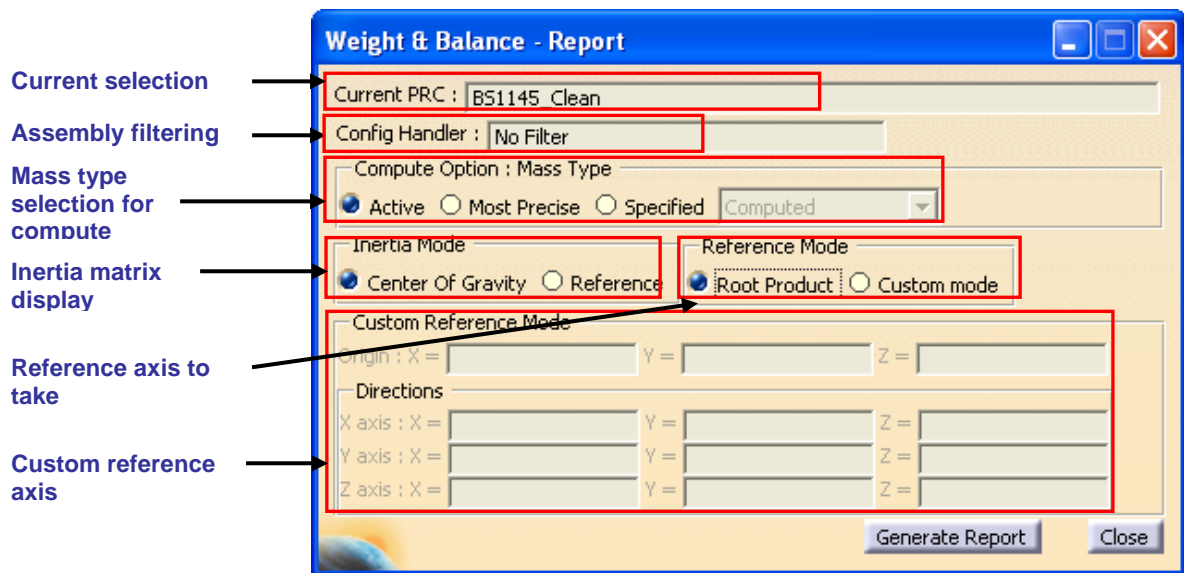
The third column displays the percentage of each mass types present in the assembly.

The WB Report Command

To generate a report on the assembly calculation, the user needs to click on the “WB Repor” command button.



The root of the VPM Graph window is automatically selected.



The report will display W&B compute for the assembly and for each part.

Every option is the same as the ones for the calculation of the assembly. Only the “Reference Mode” has been added to display the moment and product of inertia of each part in 3 different kinds of axis.

1. Root Product: The reference axis is the one of the PRC.
2. Custom Mode: The user can add is own reference axis and point of origin.

Note: if the Custom Mode is selected and blanks are left in one or several fields, the system will assume they are 0 values.

Once every option has been set, the user will click on the “Generate button”. A preview panel will appear showing every Weight & Balance Attributes. Warning messages are displayed in case of wrong specified mass types.

Example:

Report Preview

Current PRC : BracketAssembly

Report

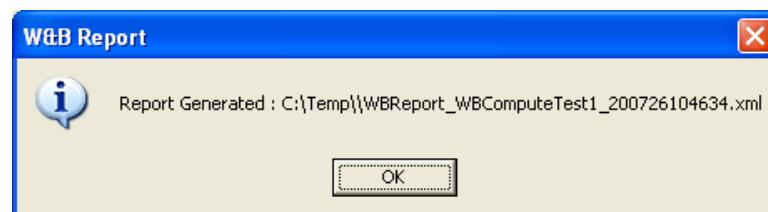
II Level	Instance ID	Part ID	WB Mass	Material	Density	WB Lower Deviation	WB Upper Deviation	CGx	CGy	CGz	MOIxx	MOIyy	MO
0	BracketAssembly		0.779046			0.0590608	0.0590608	3.70635	1.01709	0.62902	0.001	0.002	9.8
1	BracketIntermediary.1	BracketIntermediary	0.389523			0.0295304	0.0295304	3.70635	1.01709	0.62902	5.952e-004	8.955e-004	4.9
2	Bolt.1	Bolt	0.00543496	WBMaterial	1384	0.0005435	0.0005435	3.12069	1.02953	2.39208	1.495e-007	7.233e-007	7.2
2	Bolt.2	Bolt	0.00543496	WBMaterial	1384	0.0005435	0.0005435	5.60098	1.01665	-0.10792	7.233e-007	7.233e-007	1.4
2	Bracket.1	Bracket	0.188439	Measured	0	0.00942195	0.00942195	3.90445	1.01631	0.59538	1.598e-004	3.126e-004	1.6
2	Plate1.1	Plate1	0.103463	Aluminium	2710	0.0103463	0.0103463	2.54982	1.01823	1.76867	1.752e-004	1.445e-004	3.1
2	Plate2.1	Plate2	0.0867515	Magnesium	1798	0.00867515	0.00867515	4.57331	1.01665	-0.72138	5.769e-005	8.541e-005	1.4
1	Product2.1	Product2	0.389523			0.0295304	0.0295304	3.70635	1.01709	0.62902	5.952e-004	8.955e-004	4.9
2	Product3.1	Product3[1]	0.389523			0.0295304	0.0295304	3.70635	1.01709	0.62902	5.952e-004	8.955e-004	4.9
3	Bolt.1	Bolt	0.00543496	WBMaterial	1384	0.0005435	0.0005435	3.12069	1.02953	2.39208	1.495e-007	7.233e-007	7.2
3	Bolt.2	Bolt	0.00543496	WBMaterial	1384	0.0005435	0.0005435	5.60098	1.01665	-0.10792	7.233e-007	7.233e-007	1.4
3	Bracket.1	Bracket	0.188439	Measured	0	0.00942195	0.00942195	3.90445	1.01631	0.59538	1.598e-004	3.126e-004	1.6
3	Plate1.1	Plate1	0.103463	Aluminium	2710	0.0103463	0.0103463	2.54982	1.01823	1.76867	1.752e-004	1.445e-004	3.1
3	Plate2.1	Plate2	0.0867515	Magnesium	1798	0.00867515	0.00867515	4.57331	1.01665	-0.72138	5.769e-005	8.541e-005	1.4

Save Close

The user can choose if he wants the report to be saved in an xml format or not.

If Save button is pushed, a notification window will appear showing the path where the report has been saved generated.

Example:



Note: The folder, where the report is generated, corresponds to the temporary directory assigned to the variable REPORTPATH.

The generated report is an XML file. An XML style sheet (XSL) is provided to generate an HTML type report. W&B data and other attributes (see chapter on administrator settings) defined by the administrator are displayed. The user is free to create his own XSL to display W&B results according to his wishes.

XML Report architecture:

```
<?xml version='1.0' ?>
<?xml-stylesheet type="text/xsl" href="C:\Temp\WBReport_StyleSheet.xsl"?>
<Report Title = "Report W&B" .....>
  <PRC .....>
    <PartInstance ..... />
    <PartInstance ..... >
    <PartInstance ..... />
  < / PartInstance >
< / PRC>
< / Report>
```

Example of XML with Weight & Balance style sheet applied:

WB Report - Windows Internet Explorer

C:\JSPWC9WBClient\Reports\WBReport_BracketAssembly_20082115521.xml

Google

File Edit View Favorites Tools Help

WB Report

Page Tools

Computation Units	Mass	Density	Center of gravity	Moment of inertia	Product of inertia	Inertia Reference Point	Inertia Reference Axis
	kg	kg_m3	in	kgxm2	kgxm2	Center of gravity	Root Product

PRC V_ID	WBMass	WBLowerDeviation	WBUpperDeviation	CGx	CGy	CGz	MOIxx	MOIyy	MOIzz	POIxy	POIxz	POIyz
BracketAssembly	0.779046	0.0590608	0.0590608	3.70635	1.01709	0.62902	0.001	0.002	9.809e-004	-1.634e-007	-3.256e-004	1.698e-004

Part Instance level	Instance ID	Part ID	WBMass	Material	Density	WB Lower Deviation	WB Upper Deviation	WB Density	WB Active Mass Type	WB Last Imposed Mass Type	WB Last Calculation Date	CGx	CGy	CGz	MOIxx	MOIyy	MOIzz	POIxy	POIxz	POIyz
1	BracketIntermediary.1	BracketIntermediary	0.389523			0.0295304	0.0295304	0	Computed	Computed	08-02-01 15:05 18s	3.70635	1.01709	0.62902	5.952e-004	8.955e-004	4.5			
2	Bolt.1	Bolt	0.00543496	WBMaterial	1384	0.0005435	0.0005435	1384	Computed	Computed	08-01-31 13:35 16s	3.12069	1.02953	2.39208	1.495e-007	7.233e-007	7.2			
2	Bolt.2	Bolt	0.00543496	WBMaterial	1384	0.0005435	0.0005435	1384	Computed	Computed	08-01-31 13:35 16s	5.60098	1.01665	-0.10792	7.233e-007	7.233e-007	1.4			
2	Bracket.1	Bracket	0.188439	Measured	0	0.00942195	0.00942195	0	Measured	Measured	69-12-31 19:00 00s	3.90445	1.01631	0.59538	1.598e-004	3.126e-004	1.6			
2	Plate.1.1	Plate1	0.103463	Aluminium	2710	0.0103463	0.0103463	0	Computed	Computed	08-01-31 12:18 34s	2.54982	1.01823	1.76867	1.752e-004	1.445e-004	3.1			
2	Plate.2.1	Plate2	0.0867515	Magnesium	1798	0.00867515	0.00867515	0	Computed	Computed	08-01-31 12:18 35s	4.57331	1.01665	-0.72138	5.769e-005	8.541e-005	1.4			
1	Product.2.1	Product2	0.389523			0.0295304	0.0295304	0	Computed	Computed	08-02-01 15:05 19s	3.70635	1.01709	0.62902	5.952e-004	8.955e-004	4.5			
2	Product.3.1	Product3[1]	0.389523			0.0295304	0.0295304	0	Computed	Computed	08-02-01 15:05 19s	3.70635	1.01709	0.62902	5.952e-004	8.955e-004	4.5			
3	Bolt.1	Bolt	0.00543496	WBMaterial	1384	0.0005435	0.0005435	1384	Computed	Computed	08-01-31 13:35 16s	3.12069	1.02953	2.39208	1.495e-007	7.233e-007	7.2			
3	Bolt.2	Bolt	0.00543496	WBMaterial	1384	0.0005435	0.0005435	1384	Computed	Computed	08-01-31 13:35 16s	5.60098	1.01665	-0.10792	7.233e-007	7.233e-007	1.4			
3	Bracket.1	Bracket	0.188439	Measured	0	0.00942195	0.00942195	0	Measured	Measured	69-12-31 19:00 00s	3.90445	1.01631	0.59538	1.598e-004	3.126e-004	1.6			
3	Plate.1.1	Plate1	0.103463	Aluminium	2710	0.0103463	0.0103463	0	Computed	Computed	08-01-31 12:18 34s	2.54982	1.01823	1.76867	1.752e-004	1.445e-004	3.1			
3	Plate.2.1	Plate2	0.0867515	Magnesium	1798	0.00867515	0.00867515	0	Computed	Computed	08-01-31 12:18 35s	4.57331	1.01665	-0.72138	5.769e-005	8.541e-005	1.4			

See [Description of report basic attributes](#)

The WB Group Command

This command is used to compute and generate reports on a group of part instances.



A part instance needs to be selected in order to display the Weight & Balance - Group panel. There are three tabs in this panel.

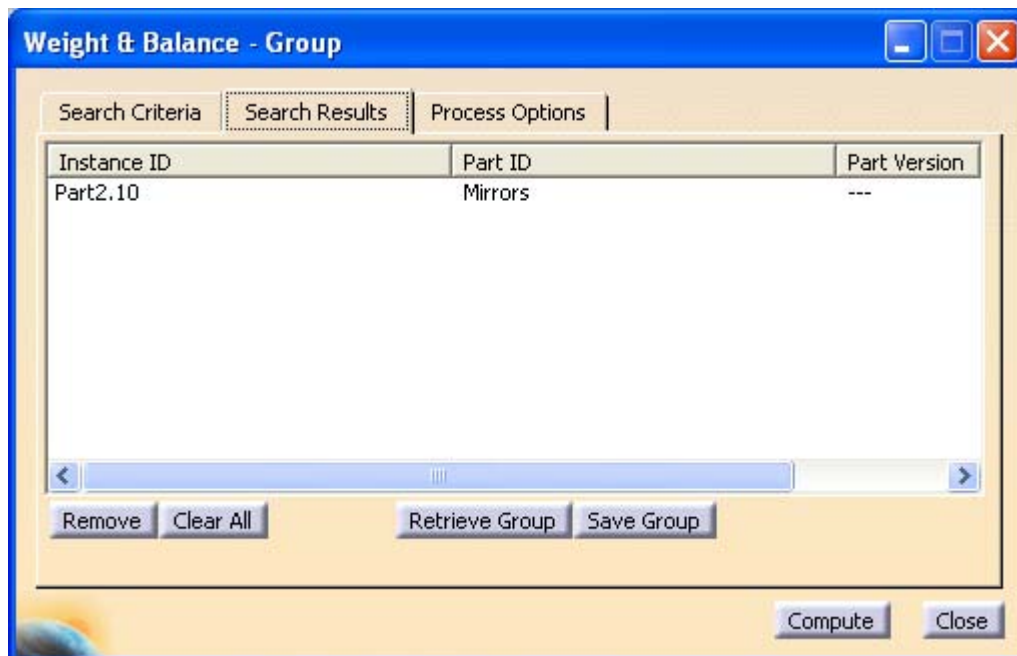
The Search Results tab presents the list of instances currently selected.

The Remove button is used to remove lines of instances from the list.

The Clear All button is used to remove all the lines of instances from the list.

The Retrieve Group button allows the retrieval of the last group of instances previously saved locally by the current user on the current Product with the same Config Handler applied.

The Save Group button allows the save of the current group of instances by the current user on the current Product with the same Config Handler applied.



The Search Criteria tab presents the list of criterias to be used for querying instances from the current Product.

The Remove button is used to remove lines of criteria from the list.

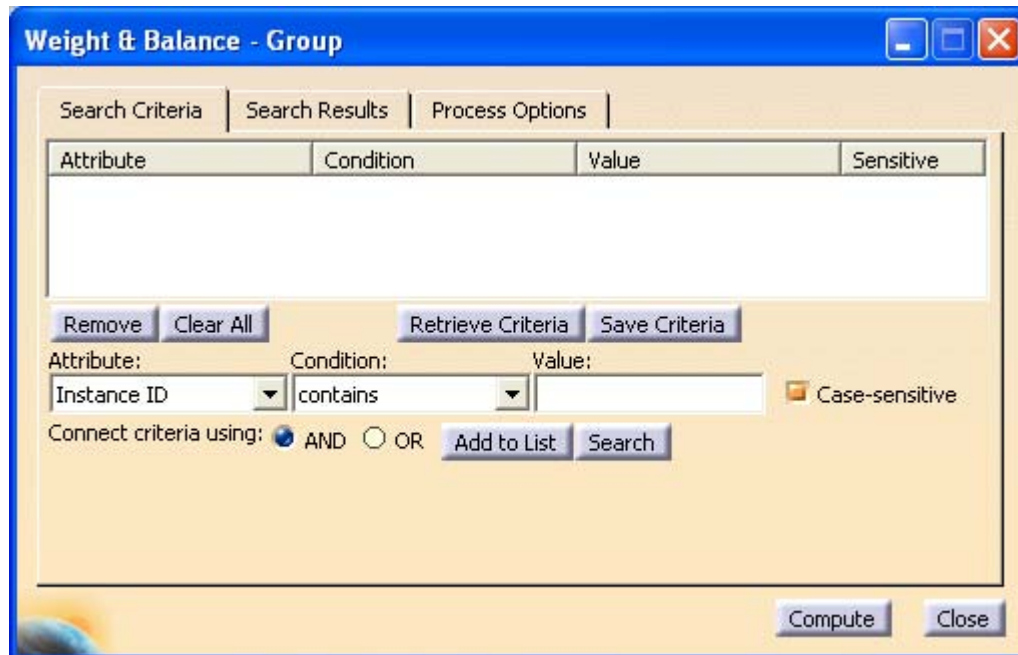
The Clear All button is used to remove all the lines of criteria from the list.

The Retrieve Group button allows the retrieval of the last group of criteria previously saved locally by the current user on the current Product with the same Config Handler applied.

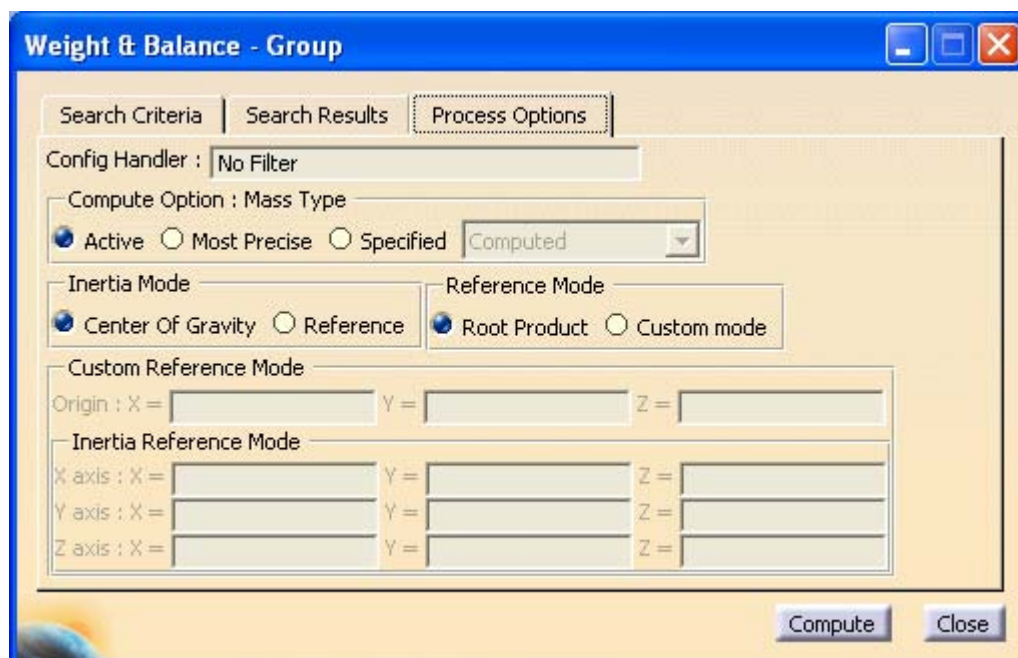
The Save Group button allows the save of the current group of criteria by the current user on the current Product with the same Config Handler applied.

The Add to List button is used to add a criterion to the list.

The Search button is used to search in the database for instances corresponding to the current criteria.



The Process Options tab presents the same compute options then with the WB Report command.



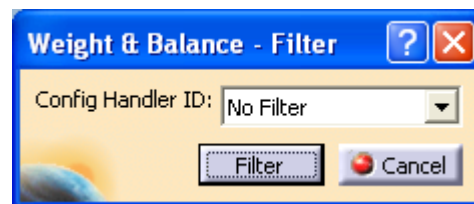
When clicking on compute, a preview report will be open showing the instances of the subassembly selected under the current PRC.

The WB Filter Command

In order to define which configuration filter to use on the assembly, the applied configuration handler needs to be selected.



Once a configuration Handler has been chosen, it will be applied on any W&B calculation that needs it.

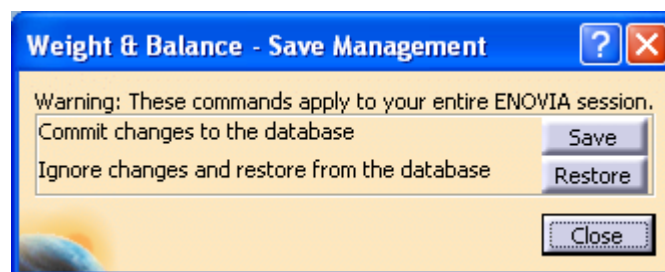


The WB Save Command

The Save Management allows the user to commit the change to the database or to restore the values from the database. (See Process Flow for more details)



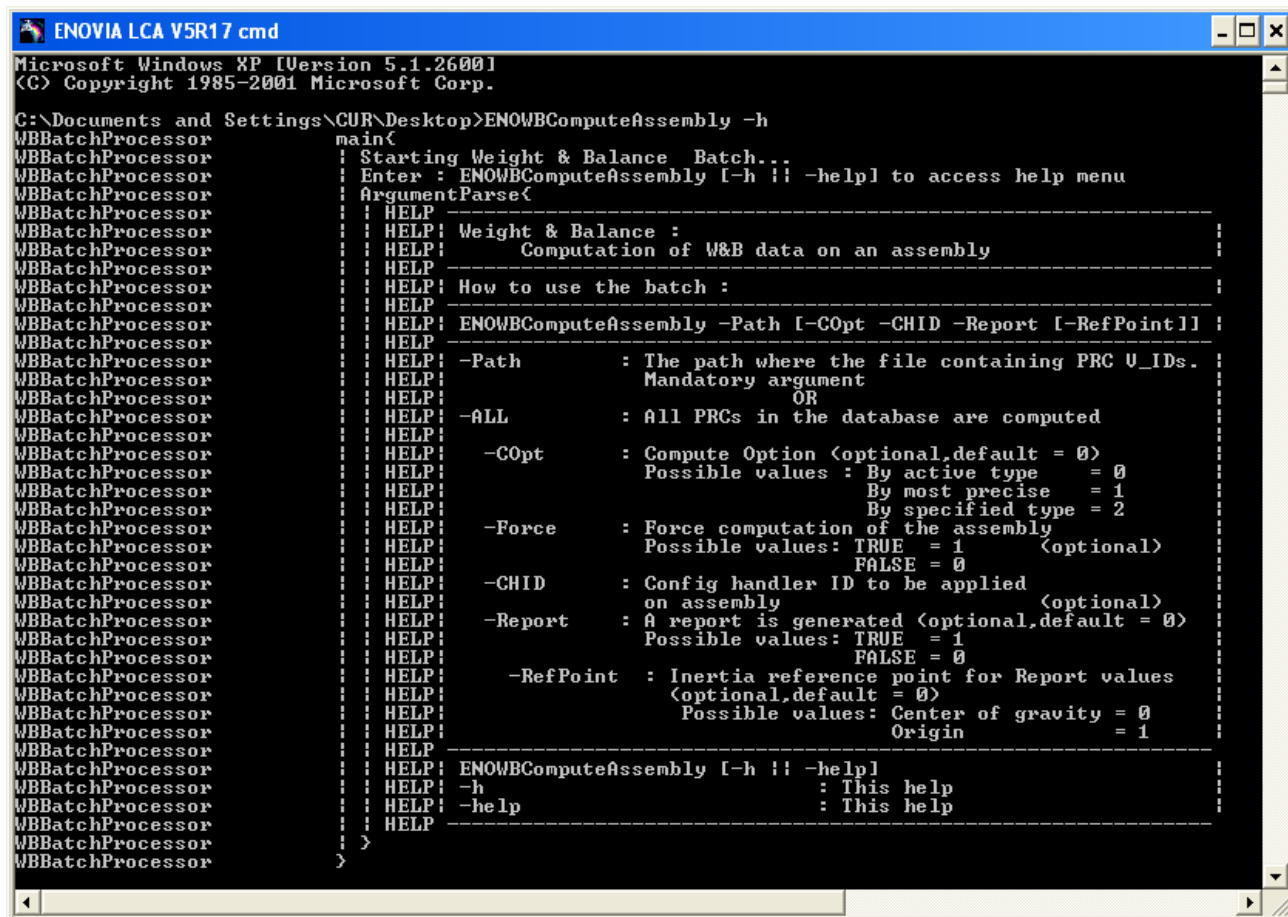
Note that these Save or Restore commands apply to the entire ENOVIA session and not only to the current VPM Navigator window.



Weight & Balance batch processor

Independent to the VPM Navigator environment, W&B can be used as a batch program.

Using the application **ENOWBComputeAssembly**, the batch takes several parameters as inputs.



```

Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

C:\Documents and Settings\CUR\Desktop>ENOWBComputeAssembly -h
WBBatchProcessor      main(
WBBatchProcessor      | Starting Weight & Balance Batch...
WBBatchProcessor      | Enter : ENOWBComputeAssembly [-h || -help] to access help menu
WBBatchProcessor      | ArgumentParse(
WBBatchProcessor      | | HELP
WBBatchProcessor      | | HELP: Weight & Balance :
WBBatchProcessor      | | HELP: Computation of W&B data on an assembly
WBBatchProcessor      | | HELP
WBBatchProcessor      | | HELP: How to use the batch :
WBBatchProcessor      | | HELP
WBBatchProcessor      | | HELP: ENOWBComputeAssembly -Path [-COpt -CHID -Report [-RefPoint]]
WBBatchProcessor      | | HELP
WBBatchProcessor      | | HELP: -Path      : The path where the file containing PRC U_IDs.
WBBatchProcessor      | | HELP: Mandatory argument
WBBatchProcessor      | | HELP: OR
WBBatchProcessor      | | HELP: -ALL       : All PRCs in the database are computed
WBBatchProcessor      | | HELP
WBBatchProcessor      | | HELP: -COpt      : Compute Option (optional,default = 0)
WBBatchProcessor      | | HELP: Possible values : By active type = 0
WBBatchProcessor      | | HELP:                  By most precise = 1
WBBatchProcessor      | | HELP:                  By specified type = 2
WBBatchProcessor      | | HELP: -Force      : Force computation of the assembly
WBBatchProcessor      | | HELP: Possible values: TRUE = 1 (optional)
WBBatchProcessor      | | HELP:                  FALSE = 0
WBBatchProcessor      | | HELP: -CHID       : Config handler ID to be applied (optional)
WBBatchProcessor      | | HELP: on assembly
WBBatchProcessor      | | HELP: -Report     : A report is generated (optional,default = 0)
WBBatchProcessor      | | HELP: Possible values: TRUE = 1
WBBatchProcessor      | | HELP:                  FALSE = 0
WBBatchProcessor      | | HELP: -RefPoint   : Inertia reference point for Report values
WBBatchProcessor      | | HELP: (optional,default = 0)
WBBatchProcessor      | | HELP: Possible values: Center of gravity = 0
WBBatchProcessor      | | HELP:                  Origin = 1
WBBatchProcessor      | | HELP
WBBatchProcessor      | | HELP: ENOWBComputeAssembly [-h || -help]
WBBatchProcessor      | | HELP: -h           : This help
WBBatchProcessor      | | HELP: -help        : This help
WBBatchProcessor      | | HELP
WBBatchProcessor      | )
WBBatchProcessor      )
  
```

Path or ALL option are mandatory.

Using the Path option followed by the path of a file in the file system, the batch will open it and extract every single PRC V_ID found in this file following the rule that it will take only 1 PRC V_ID per line.

Example:

```
>ENOWBComputeAssembly -Path C:\PRC_VIDs.txt
```

With PRC_VIDs.txt containing following lines:

```
WBPRC01
```

```
WBPRC02
```

```
Etc...
```

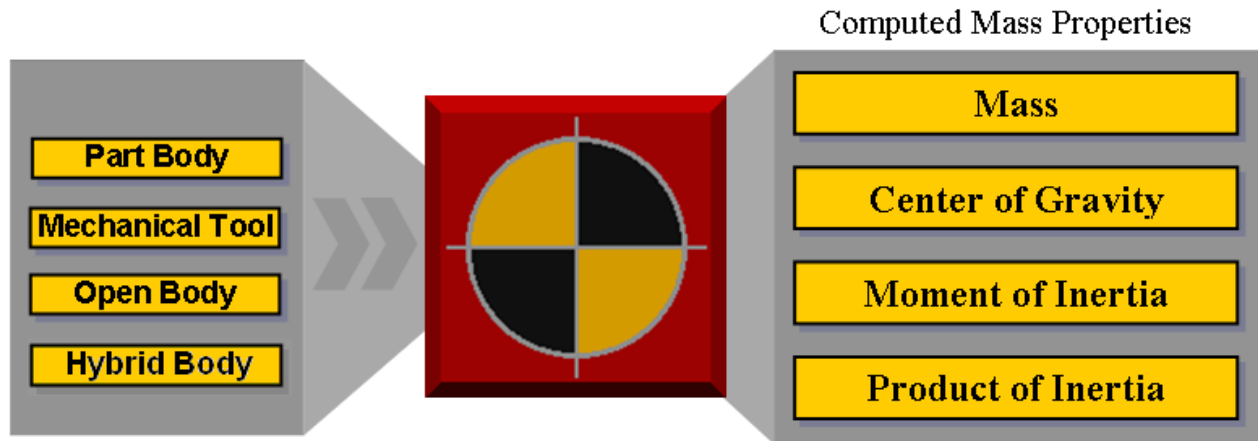
If ALL option is selected then all PRCs in the database will be updated.

Several other non mandatory options are available as explained in the screenshot above.

The Model Processors

The CATIA V5 processor computes the mass properties of selected CATPart, CATShape and CATProduct documents. The elements that can be processed and properties that can be computed are illustrated below.

Processed V5 Elements



The CATIA V5 processor also processes CGR and V4 Model files. However, the results do not offer the same level of granularity than for the CATPart (show / noshow, pick / nopick, element type) they are returned by a service provided by DMU-SpaceAnalysis corresponding to the Measure inertia command.

Processing parameters

The input parameters of the Model Processor are the following:

CATIA V5 CATPart, CATShape or CATProduct.Assigned Density

Processing the CATIA geometry

The CATIA V5 geometry is processed using standard CATIA methods.

Processing the assigned Density (Density Priority)

The Weight & Balance V5 Processor uses the density assigned to V5 CATDocuments unless it finds a density assigned (using W&B for CATIA). If no density is found either in the Document or on a W&B attribute, a default density defined by the Administrator through the W&B Settings is used.

The density priority is set through the Material tab of the WB Part Command.

CATProduct BlackBox Processing

The BlackBox are processed either in exposed mode or in summary mode depending on the WB admin settings.

Appendix:

Description of report basic attributes

The following attributes are returned by the application.

- Report

- Title
- MassUnit
- LengthUnit
- DensityUnit
- InertiaMomentUnit
- SurfacicDensityUnit
- InertiaReferenceAxis
- InertiaReferencePoint

- PRC

- COGx
- COGy
- COGz
- MOIxx
- MOIyy
- MOIzz
- POIxy
- POIxz
- POIyz
- WB_Mass
- WB_Lower_deviation
- WB_Upper_deviation

- PartInstance

- COGx
- COGy
- COGz
- V_ID
- MOIxx
- MOIyy
- MOIzz
- POIxy
- POIxz
- POIyz
- Density
- WB_Mass
- Material
- WB_Density
- V_instance_ID
- WBMaterialName
- Density_dimension
- WBActiveMassTypeID
- WB_Lower_deviation
- WB_Upper_deviation
- WBLastCalculationDate
- WBLastImposedMassTypeID

Note that the *V_ID* of the part and the *V_instance_ID* of the instance will be replaced by the name corresponding to the mask.

When the “Use Documents” mode is enabled, three new attributes will be visible in the report under the Part Instance:

- WBActiveDocumentID
- WB_Latest_doc_revision
- WB_Currently_attached_doc_revision

Other attributes on the Part or the Item Instance may be also reported if they have been declared the W&B setting by the Administrator.