



Altair

HyperWorks

Altair HVVH Tutorials 2019

HVVH-7000: Result Tab

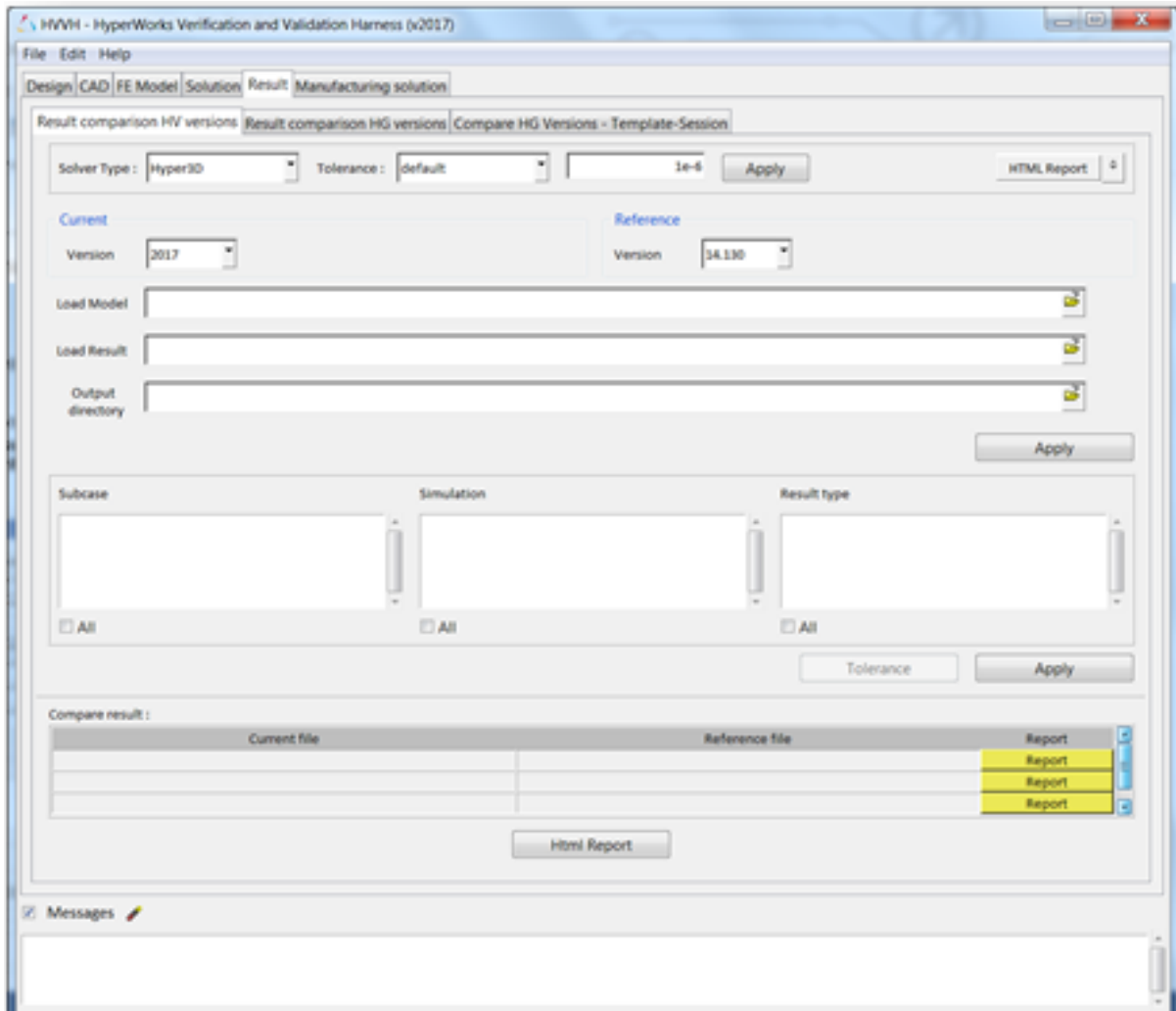
altairhyperworks.com


In this tutorial you will learn how to:



- Compare results from a single solver across two Altair HyperView versions.

Step 1: Compare result from a Solver across different HV versions

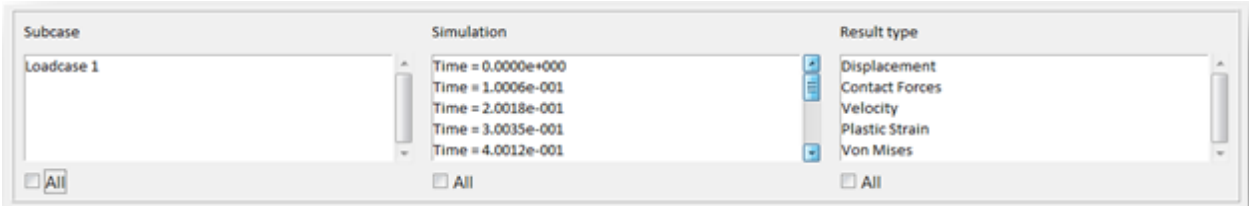
1. From the **Result** tab, select the **Result comparison HV versions** tab.



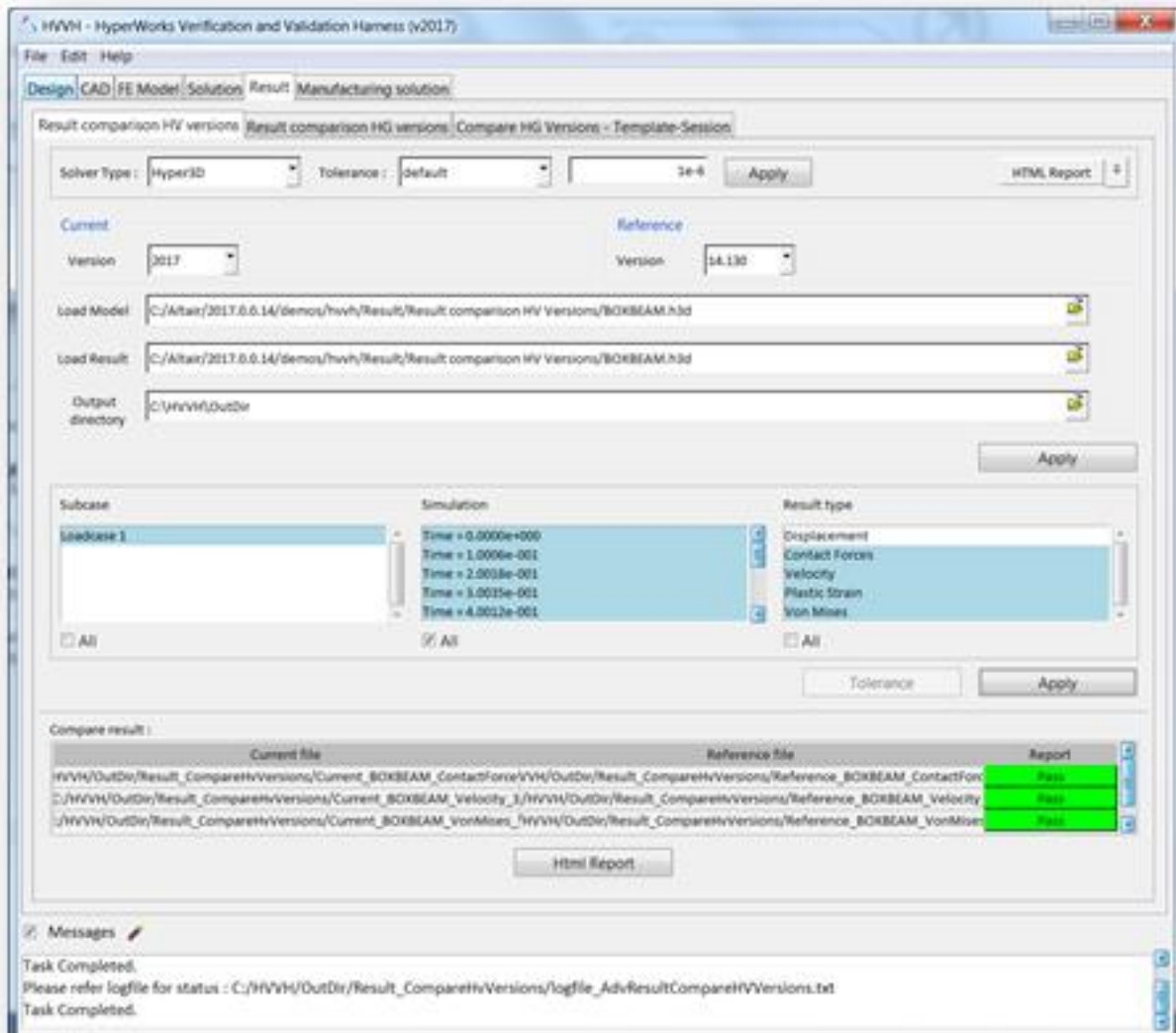
2. For **Solver type**, select Hyper3D.
3. Leave **Tolerance** as default (1e-06).
4. Click **HTML Report**.
5. Under **Current**, set **Version** to **2017**.
6. Under **Reference**, set **Version** to **14.130**.
7. For **Load Model**, click the open file icon, , to load the BOXBEAM.h3d, located in `..\tutorials\hvvh\Result\ResultcomparisonHVversions`.

8. For **Load Result** click the open file icon, , to load the BOXBEAM.h3d, located in ..\tutorials\hvvh\Result\ResultcomparisonHVVersions.
9. For the **Output directory** field, use the open file icon, , to select an output directory.
10. Click **Apply**.

The results available (Subcase, Simulation, and Result type) in the result file are loaded in their respective windows.



11. Select **All** under each window and click **Apply**.
Results comparison of the current results and reference results are generated.
12. In the **Messages** window, the run details are displayed along with the log file location.
13. In case the difference > tolerance, it is indicated as **Fail**, otherwise, they are shown to **Pass**.



14. Click **HTML Report** to open the report. Across two Altair HyperView versions, the solver results are compared. Comparison of different data types are available. For example, for a vector (Displacement) all components Magnitude, X-displacement, Y-displacement, and Z-displacement are compared for the entire model and the results are shown.

HyperWorks Verification and Validation Harness

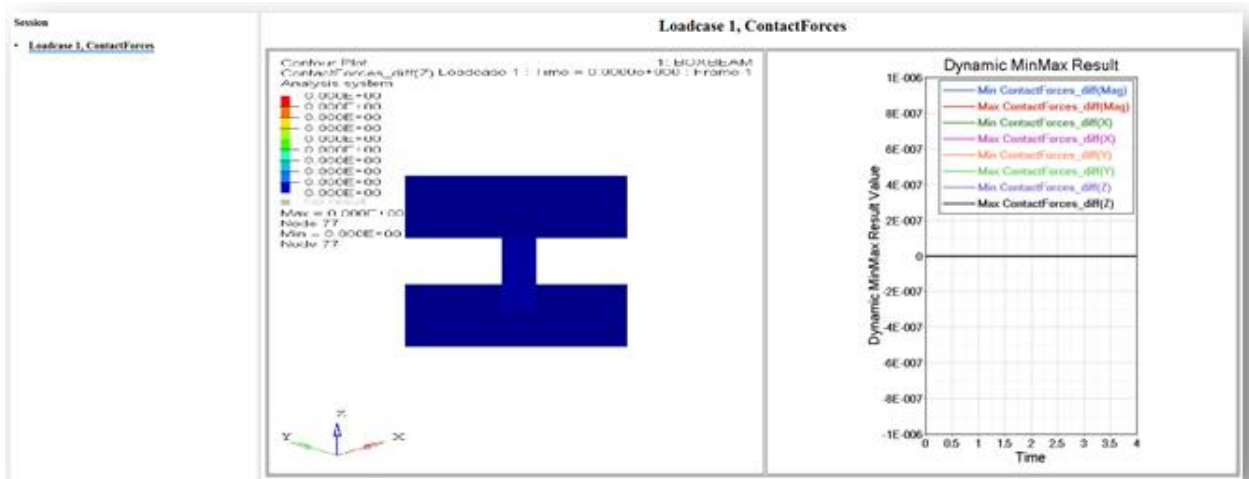
Result - Result Comparison HV Versions Report

Solver Type : **Hyper3D** Current Version : 2017 Reference Version : 14.130

Current file	Reference file	Report	Launch HV
C:/HVVH/OutDir/Result_CompareHvVersions/Current_BOXBEAM_ContactForces_1	C:/HVVH/OutDir/Result_CompareHvVersions/Reference_BOXBEAM_ContactForces_1	Pass	NA
C:/HVVH/OutDir/Result_CompareHvVersions/Current_BOXBEAM_Velocity_1	C:/HVVH/OutDir/Result_CompareHvVersions/Reference_BOXBEAM_Velocity_1	Pass	NA
C:/HVVH/OutDir/Result_CompareHvVersions/Current_BOXBEAM_VonMises_1	C:/HVVH/OutDir/Result_CompareHvVersions/Reference_BOXBEAM_VonMises_1	Pass	NA
C:/HVVH/OutDir/Result_CompareHvVersions/Current_BOXBEAM_PlasticStrain_1	C:/HVVH/OutDir/Result_CompareHvVersions/Reference_BOXBEAM_PlasticStrain_1	Pass	NA

15. Click **Pass/Fail** in the HTML report to open a detailed comparison report.
16. In the report above, the left window displays the diff contour (Current-Reference) and right window displays the diff plot in Altair HyperGraph (see image below).

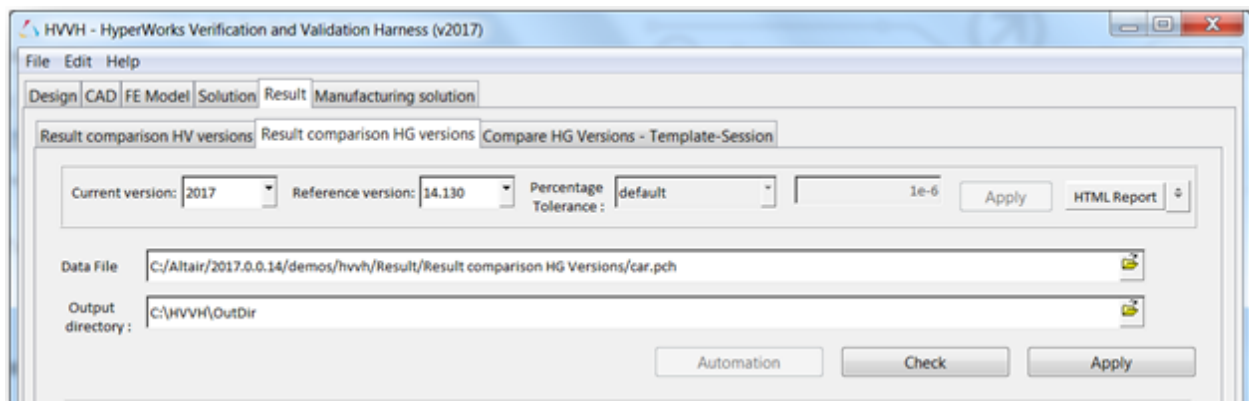
17. Click the left window to open the diff-values H3D in HyperView Player.
18. Click the right window to maximize/minimize the plot.
19. If there is any case of difference > tolerance, it is indicated as **Fail**, otherwise **Pass**.





Step 2: Result comparison for different solver results across two Altair HyperGraph versions.

Result comparison for different solver results across two Altair HyperGraph versions.

1. From the **Result** tab, select the **Result comparison HG versions** tab.



2. For **Current version**, select **2017**.
3. For **Reference version**, select **14.130**.
4. Click **HTML Report**.
5. For **Data File**, click the open file icon, , to load the `car.pch` file, located in `..\tutorials\hvvh\Result\ResultcomparisonHGVersions`.
6. For the **Output directory** field, use the open file icon, , to select an output directory.
7. Activate the **Plot only failed** option.

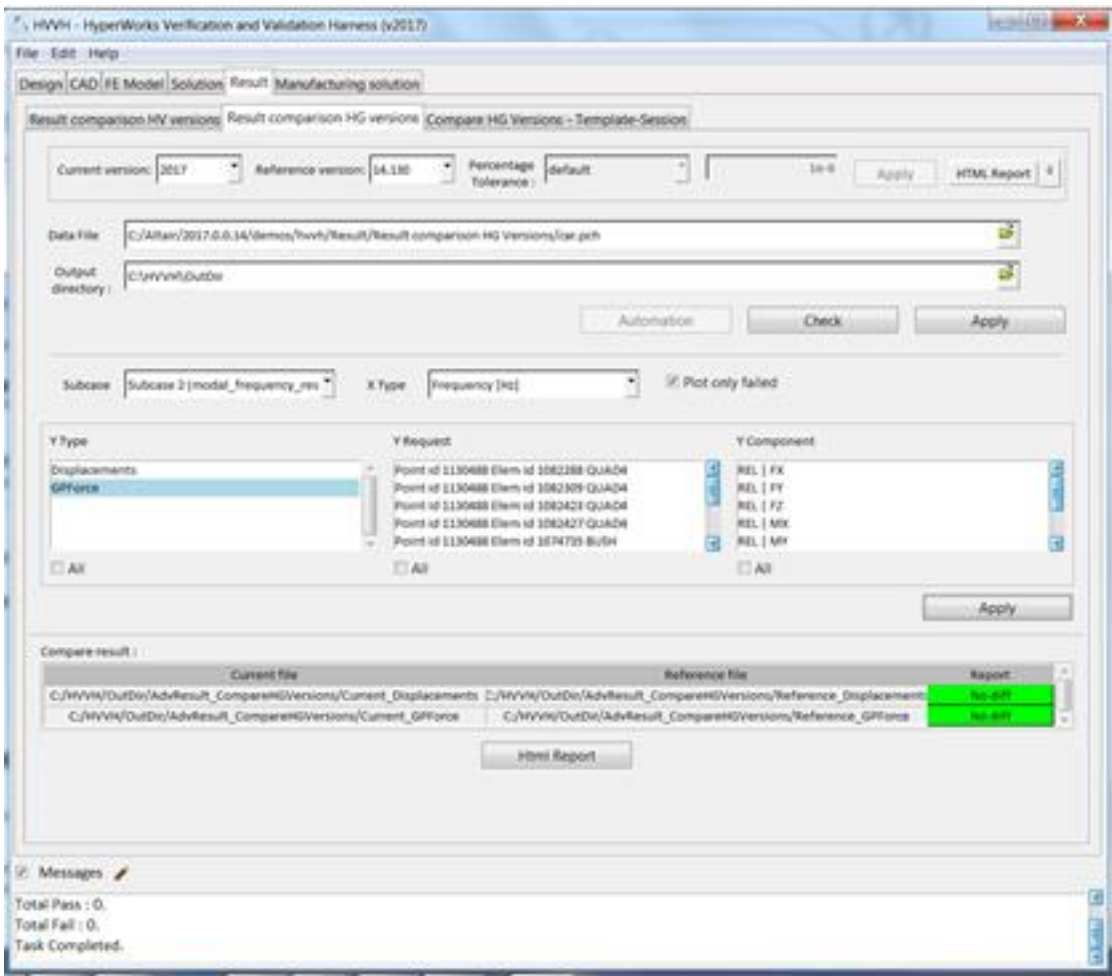
8. Click **Apply**.



9. Select each **All** under the Type/Request/Component columns, and click the second **Apply** button.

A results comparison of the current results and reference results are generated.

10. In the **Messages** window, the run details are displayed along with the log file location.



11. Click **HTML Report** to open the report. A comparison of different type, request, and component (TRC) is available for the same result file across two Altair HyperGraph versions.

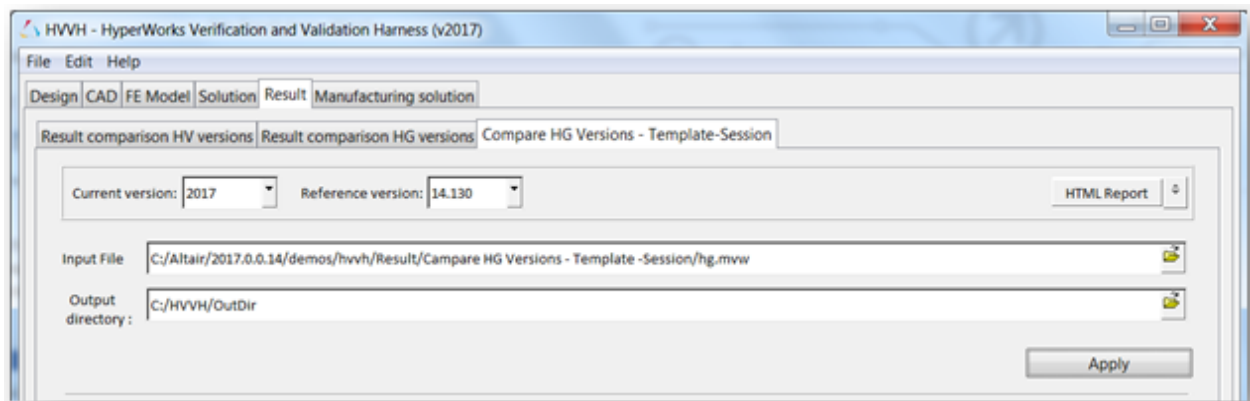
<u>HyperWorks Verification and Validation Harness</u>		
<u>Result - Result Comparison HG Versions Report</u>		
Current HW Version : 2017 Reference HW Version : 14.130 Solver Version : 14.0.230)		
Current file	Reference file	Report
C:/HVVH/OutDir/AdvResult_CompareHGVersions/Current_Displacements	C:/HVVH/OutDir/AdvResult_CompareHGVersions/Reference_Displacements	No diff
C:/HVVH/OutDir/AdvResult_CompareHGVersions/Current_GPForce	C:/HVVH/OutDir/AdvResult_CompareHGVersions/Reference_GPForce	No diff



As the results match, the plots coincide and a difference curve will be a straight line along the X-axis, or points very close to it.

Step 3: Altair HyperGraph Versions - Template-Session

In this step, results comparison for different solver results across two Altair HyperGraph versions using template and session files.

1. From the **Result** tab, select the **Compare HG Versions - Template-Session** tab.



2. For **Current version**, select **2017**.
3. For **Reference version**, select **14.130**.
4. Click **HTML Report**.
5. For **Data File**, click the open file icon, , to load the hg.mvw file, located in ..\tutorials\hvvh\Result\CompareHGVersions-Template-Session.
6. For the **Output directory** field, use the open file icon, , to select an output directory.
7. Activate the **Plot only failed** option.
8. Activate the **Visible Only** option.
9. Click **Apply**.

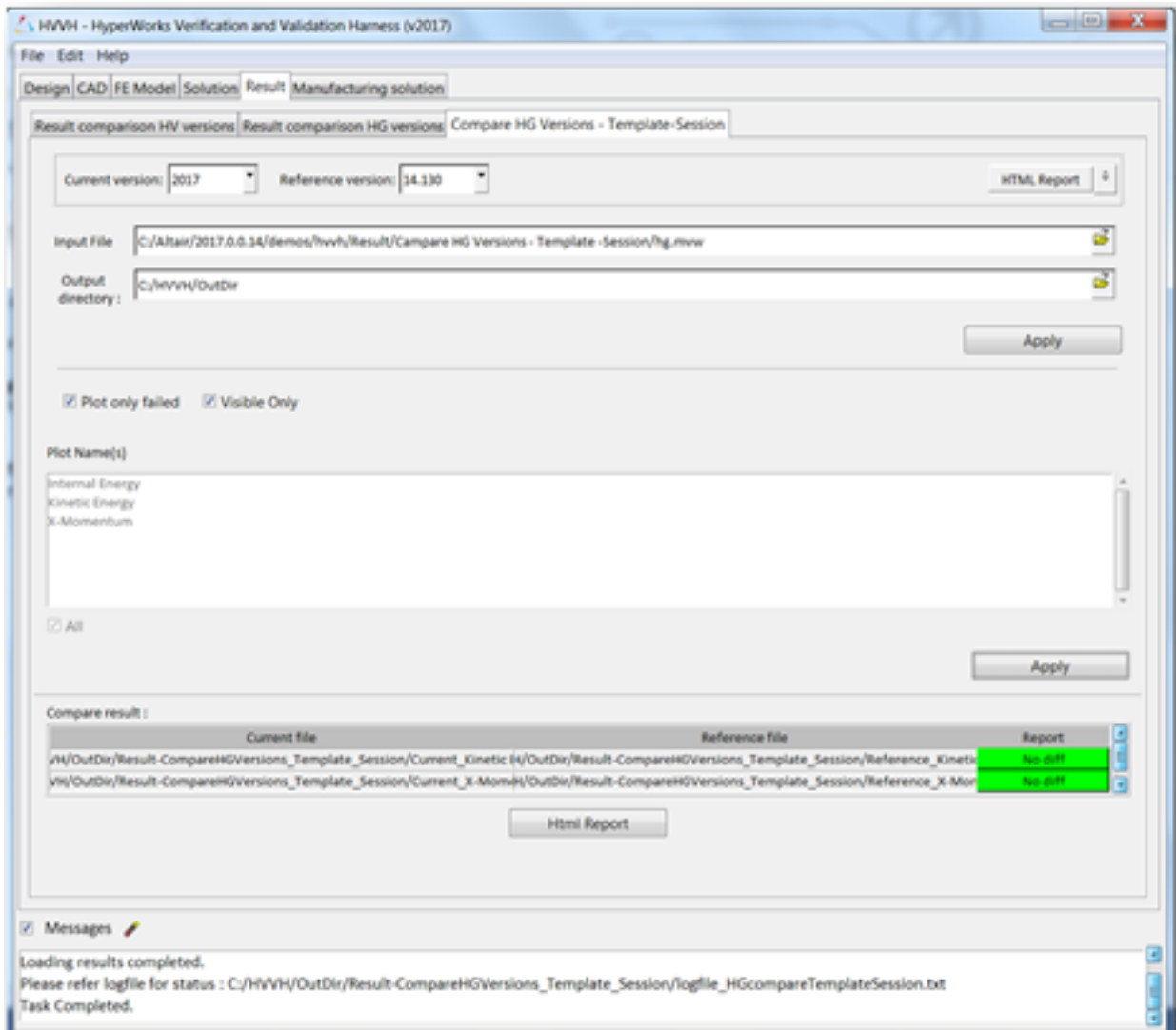


Plots that are available in the result file are listed.

10. Click **Apply**.

Results comparison of the current results and the reference results are generated.

11. In the **Messages** window, the run details are displayed along with the log file location.



- Click **HTML Report** to open the report. Comparisons of different type, request, and components (TRC) are available.

HyperWorks Verification and Validation Harness		
Result - Compare HG Versions - Template-Session		
Current Version : 2017		Reference Version : 14.130
Current file	Reference file	Report
C:\HVVH\OutDir\Result-CompareHGVersions_Template_Session\Current_Kinetic Energy	C:\HVVH\OutDir\Result-CompareHGVersions_Template_Session\Reference_Kinetic Energy	No diff
C:\HVVH\OutDir\Result-CompareHGVersions_Template_Session\Current_X-Momentum	C:\HVVH\OutDir\Result-CompareHGVersions_Template_Session\Reference_X-Momentum	No diff
C:\HVVH\OutDir\Result-CompareHGVersions_Template_Session\Current_Internal Energy	C:\HVVH\OutDir\Result-CompareHGVersions_Template_Session\Reference_Internal Energy	No diff

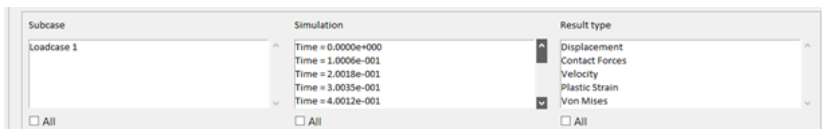
As the results match, the plots coincide and a difference curve will be a straight line along the X-axis, or points very close to it.

Step 4: Altair HyperView Versions - Template-Session

Here, results are compared for different solver results across two Altair HyperView versions using template and session files.

- From the **Result** tab, select the **HV Versions - Template-Session** tab.
- For **Current version**, select **2017.3**.
- For **Reference version**, select **2017**.
- For **Input File**, click the open file icon to load the hv.mvw file, located in:
`..\tutorials\hvvh\Result\HVVersion-Template-Session`
- For the **Output directory** field, use the open file icon to select an output directory.
- Click **Apply**.

The results available (subcase, simulation, and result type) in the result file are loaded in their respective windows.

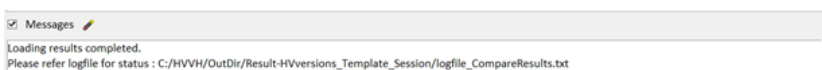


- Select **All** under each window and click **Apply**.
Results comparison of the current results and reference results are generated.
- In case the difference is greater than the tolerance, **Fail** is indicated; otherwise, they are shown to **Pass**.

Compare result :	Current file	Reference file	Report
	I:\OutDir\Result-HVVersions_Template_Session\Current_BOXBEAM_Contact\OutDir\Result-HVVersions_Template_Session\Reference_BOXBEAM_Contac		Pass
	VH\OutDir\Result-HVVersions_Template_Session\Current_BOXBEAM_VeloiH\OutDir\Result-HVVersions_Template_Session\Reference_BOXBEAM_Vel		Pass
	VH\OutDir\Result-HVVersions_Template_Session\Current_BOXBEAM_VonMH\OutDir\Result-HVVersions_Template_Session\Reference_BOXBEAM_Von		Pass

Html Report

- In the **Messages** window, the run details are displayed along with the log file location.



- Click **HTML Report** to open the report. Across two Altair HyperView versions, the solver results are compared. Comparisons of different data types are available. For example,

for a vector (displacement) all components (magnitude, X-displacement, Y-displacement, and Z-displacement) are compared for the entire model and the results are shown.

HyperWorks Verification and Validation Harness

Result - Comparison HV Template-Session Report

Current file	Reference file	Report
C:\HV\H\OutDir\Result-HV\versions_Template_Session\Current_BOXBEAM_ContactForces_1	C:\HV\H\OutDir\Result-HV\versions_Template_Session\Reference_BOXBEAM_ContactForces_1	
C:\HV\H\OutDir\Result-HV\versions_Template_Session\Current_BOXBEAM_Velocity_1	C:\HV\H\OutDir\Result-HV\versions_Template_Session\Reference_BOXBEAM_Velocity_1	
C:\HV\H\OutDir\Result-HV\versions_Template_Session\Current_BOXBEAM_VonMises_1	C:\HV\H\OutDir\Result-HV\versions_Template_Session\Reference_BOXBEAM_VonMises_1	
C:\HV\H\OutDir\Result-HV\versions_Template_Session\Current_BOXBEAM_PlasticStrain_1	C:\HV\H\OutDir\Result-HV\versions_Template_Session\Reference_BOXBEAM_PlasticStrain_1	
C:\HV\H\OutDir\Result-HV\versions_Template_Session\Current_BOXBEAM_Displacement_1	C:\HV\H\OutDir\Result-HV\versions_Template_Session\Reference_BOXBEAM_Displacement_1	

11. Click **Pass/Fail** in the HTML report to open a detailed comparison report.
12. In the report above, the left window displays the diff contour (Current-Reference) and right window displays the diff plot in Altair HyperGraph (see image below).
13. Click the left window to open the diff-values for H3D in HyperView Player.
14. Click the right window to maximize/minimize the plot.
15. If there is any case of difference greater than tolerance, it is indicated as a **Fail**; otherwise, **Pass**.

