

Altair HVVH Tutorials 2019

HVVH-5000: FE Model Tab

altairhyperworks.com

In this tutorial, you will learn how to:

 Perform model setup in Altair HyperMesh and identify any problems during the interactive Altair HyperMesh operation.

Step 1: FE-Model setup, first use case.

1. From **FE Model** tab, select the **Model Setup** tab.

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fodel Setup Keywords coverage Basic IO Compare HM Versions Special case HC Session HC Basic IO Compare HC Versi	ions
Solver Type : OptiStruct • HW Version : 2017 • Modify script / cmf Config	file
Models (Solver Deck / HM File)	<u>^</u>
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Config file :	d
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- 2. For **Solver Type**, select **OptiStruct**.
- 3. For **HW Version**, select **2017**.
- Activate the *Modify script/cmf* check box.
- 5. Do not select the **Config file** or **Models** option.
- 6. Under **Scripts/cmf files**, use the file browser icon, $\stackrel{\blacktriangleright}{\rightarrowtail}$, or the add file icon, $\stackrel{1}{\square}$, to select and open the Plate.tcl file, located in ..\tutorials\hvvh\FEModel\ModelSetup.
- 7. For the **Output directory** field, use the open file icon, $\stackrel{\frown}{\rightarrowtail}$, to select an output directory.



8. Click *Run*.

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Model Setup Info Output File Path C/HVM;OutDr/PE_Model_Setup	Status Pass
Model Setup Info Output File Path C;/HVM;/OutDir/PE_Model_Setup Html Report	Status Pess
Model Setup Info Output File Path C/MVM/OutDir/PE_Model_Setup Html Report	Status Pass
Model Setup Info Output File Path C/HWM9/OutDir/PE_Model_Setup Html Report Vessages	Status A Pass
Model Setup Info Output File Path C./WWH/OutDir/FE_Model_Setup Html Report Messages	Status Pass v

The model file with the script is imported and a set of operations in Altair HyperMesh are executed. The status is displayed under **Model Setup info.**

- 9. If the selected Tcl file is executed correctly and there are no problems with the Altair HyperMesh operations, the status shows **Pass**.
- 10. In the **Messages** window, the run details are displayed along with the log file location.
- 11. Click *HTML Report* to open an HTML report, which contains details of the script executed Altair HyperMesh.

Step 2: FE-Model setup, second use case.

- 1. From **FE Model** tab, select the *Model Setup* tab.
- 2. For Solver Type, select OptiStruct.
- 3. For HW Version, select 2017.
- 4. Activate the *Modify script/cmf* and *Config file* check boxes.
- 5. Do not select the **Models** option.



- 6. Under Scripts/cmf files, use the file browser icon, if, or the add file icon, it is select and open the Plate.tcl file, located in ...\tutorials\hvvh\FEModel\ModelSetup.
- 7. For Config file, use the file browser icon, $\stackrel{\frown}{\vdash}$, to open the Model_setup_cfg.txt file, located in ..\tutorials\hvvh\FEModel\ModelSetup.
- 8. For the **Output directory** field, use the open file icon, it is select an output directory.
- 9. Click *Run*.

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Solver Type :	OptiStruct • HW Version : 2017 • 2017 • Config file	
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Config file :	C:/Altair/2017.0.0.14/demos/hwwh/FEModel/ModelSetup/Model_setup_cfg.txt	 3
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Config file : Output directory : Model Setup Ir	C:/Altair/2017.0.0.14/demos/hvvh/FEModel/ModelSetup/Model_setup_cfg.txt C:/HVVH/OutDir Ifo Output File Path C:/HVVH/OutDir/Iff_Model_Setup_1 Html Report	Run Status Pass
Config file : Output directory : Model Setup Ir	C:/Altair/2017.0.0.14/demos/hwwh/FEModel/ModelSetup/Model_setup_cfg.txt C:/HVVH/OutDir Info Output File Path C:/HVVH/OutDir/FE_Model_Setup_1 Html Report	Carlos Pun Status Pass
Config file : Output directory : Model Setup Ir Model Setup Ir Vessages vessages use refer logfil cuting modific	C:/Altair/2017.0.0.14/demos/hvvh/FEModel/ModelSetup/Model_setup_cfg.txt C:/HVVH/OutDir Info Output File Path C:/HVVH/OutDir/FE_Model_Setup_1 Html Piepon e for status : C:/HVVH/OutDir/FE_Model_Setup_1/logfile_ModelSetup.txt ed "C:/Altair/2017.0.0.14/demos/hvvh/FEModel/ModelSetup/plate_2.tcl" file.	Pun Status Pass

The model file with the script is imported and a set of operations in Altair HyperMesh are executed. The status is displayed under **Model Setup Info.**

When you select the config file, the operation is interactive and Altair HyperMesh starts, allowing you to see the model's interactive operations.



- 10. If the selected Tcl file is executed correctly and there are no problems with the Altair HyperMesh operations, the status displays **Pass**. If there are additional lines at the end of the command.tcl file that are generated compared to the original script, it is highlighted in orange as a warning.
- 11. In the **Messages** window, the run details are displayed along with the log file location.
- 12. Click *HTML Report* to open an HTML report, which contains details of the script executed Altair HyperMesh.

Step 3: FE-Model setup, third use case (comparison across Altair HyperMesh versions).

- 1. From **FE Model** tab, select the *Model Setup* tab.
- 2. For Solver Type, select OptiStruct.
- 3. For Curr Version, select 2017.3 and for Ref version select 2017.0.
- 4. Activate the *Modify script/cmf*, *Config file* and *Ref Version* check boxes.
- 5. Do not select the **Models** option.
- 6. Under Scripts/cmf files, use the file browser icon or the add file icon, in the select and open the Plate.tcl file, located in: ...\tutorials\hvvh\FEModel\ModelSetup
- 7. For **Config file**, use the file browser icon to open the <code>Model_setup_cfg.txt</code> file, located in

..\tutorials\hvvh\FEModel\ModelSetup

- 8. For the *Output directory* field, use the open file icon to select an output directory.
- 9. Click *Run*.

The model file with the script is imported and a set of operations are executed in **Current HM version** and **Reference HM version**. The status is displayed under **Model Setup Info.**

When you select the config file, the operation is interactive and Altair HyperMesh starts, allowing you to see the model's interactive operations

- 10. If the selected Tcl file is executed correctly and there are no problems with the Altair HyperMesh operations, the status displays **Pass**. If there are additional lines at the end of the command.tclfile that are generated compared to the original script, it is highlighted in orange as a warning.
- 11. In the **Messages** window, the run details are displayed along with the log file location.
- 12. Click *HTML Report* to open an HTML report, which contains details of the script executed Altair HyperMesh.

Step 4: FE-Model - model setup (Process Manager template in work flow).

- 1. From **FE Model** tab, select the *Model Setup* tab.
- 2. For Solver Type, select OptiStruct.
- 3. For HW Version, select 2017.
- 4. Activate the *Modify script/cmf* and *Config file* check boxes.



- 5. Do not select the **Models** option.
- 6. Under Scripts/cmf files, use the file browser icon or the add file icon, in , to select and open the Launch.tcl file, located in:

..\tutorials\hvvh\FEModel\ModelSetup\pmt

Note Edit the process template path in Launch.tcl.

For Config file, use the file browser icon to open the ${\tt Model_setup_cfg.txt}$ file, located in

..\tutorials\hvvh\FEModel\ModelSetup\pmt\ModelSetup.txt

- 7. For the *Output directory* field, use the open file icon, is viewed and output directory.
- 8. Click *Run*.

The PMT will be loaded in selected HyperMesh version. Now, you can execute the process template. The status is displayed under the **Model Setup Info**.

Note The Config file option should always be ON to execute the Process Manager template, with quit = 1 in ModelSetup1.txt. The default of quit = 0 or no entry will continue without waiting for user input.

9. If the selected Tcl file is executed correctly and there are no problems with the Altair HyperMesh operations, the status displays **Pass**. If there are additional lines at the end of the command.tcl file that are generated compared to the original script, it is highlighted in orange as a warning.

Step 5: Generate keyword coverage summary.

Extract the details of supported, unsupported, and partially supported keywords from the solver analysis decks

1. From **FE Model** tab, select the *Keywords coverage* tab.

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Edit Help	
sign CAD FE Model Solution Result Manufacturing solution	
todel Setup Keywords coverage Basic IO Compare HM Versions Special case HC Session HC Basic IO Compare H	IC Versions
File type : L3Dyna • HW/ Version : 2017 •	
Input deck(s)	
C:/Altair/2017.0.0.54/demos/hvvh/FEModel/Keywordcoverage/wheels.key C:/Altair/2017.0.0.54/demos/hvvh/FEModel/Keywordcoverage/barrier.dyn C:/Altair/2017.0.0.14/demos/hvvh/FEModel/Keywordcoverage/master.k C:/Altair/2017.0.0.34/demos/hvvh/FEModel/Keywordcoverage/engine.key	Ĵ
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TE Contract directory	-
C/HVVHQutbr	6
Results and Files (
I Unsupported keyword occurrence	
IV Coverage map	
Generate a modified reference file	
Supported keyword occurrence	
	Generate
Messages 🥖	
k Completed.	
ise refer logfile for status : C:/HVVH/OutDir/FE_KeywordCoverage_1/logfile_Keywords.txt	

- 2. For File Type, select LsDyna.
- 3. For HW Version, select 2017.
- 4. Under **Input deck(s)**, use the file browser icon, $\stackrel{\fbox}{\rightarrow}$, or the add file icon, $\stackrel{\blacksquare}{}$, to select and open the following files:
 - ../tutorials/hvvh/FEModel/Keywordcoverage/barrier.dyn
 - ..\tutorials\hvvh\FEModel\Keywordcoverage\engine.key
 - ..\tutorials\hvvh\FEModel\Keywordcoverage\master.k
 - .. \tutorials \hvvh \FEModel \Keywordcoverage \wheels.key
- 5. For the **Output directory** field, use the open file icon, $\stackrel{\blacktriangleright}{\longrightarrow}$, to select an output directory.
- 6. Click Generate.

From the imported solver decks, supported, unsupported, and partially supported keywords are generated.



- 7. In the **Messages** window, the run details are displayed along with the log file location.
- 8. Click the pie chart to view details regarding the published files, as well as to see details in a document of supported, unsupported, and partially supported keywords based on the analysis decks. All individual and combined files are listed in the document.



Step 6: Basic import and export.

Identify any loss of data during solver import and export.

1. From **FE Model** tab, select the **Basic IO** tab.



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File Edit Help						
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Model Setup, Keywords coverage, Basic IO, Compare HM Versions, Special	I case HC Session	HC Basic IO	Compare HC V	ensions		
File type : RADIOSS(Block) HW Version : 2017	Model check	ker/ Entity cou	nt Expor	t profile :	Block140 •	
Input deck(s)						
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48						- Bi
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Step 1 Beference Model file	Time to import	Import Status	Time to Export	Export Status	Import-Export	
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- 2. For File Type, select OptiStruct.
- 3. For HW Version, select 2017.
- 4. Activate the *Model Checker/Entity count* option.
- 5. Use the default **Export profile**.
- 6. Under **Input deck(s)**, use the file browser icon, $\stackrel{\smile}{\blacktriangleright}$, or the add file icon, $\stackrel{\square}{=}$, to select and open the following files:

```
..\tutorials\hvvh\FEModel\BasicIO\buckling1.fem
```

- ..\tutorials\hvvh\FEModel\BasicIO\car1.fem
- 7. For the **Output directory** field, use the open file icon, it is select an output directory.
- 8. Click *Import/Export*.

Under **Step 1**, the import and export time and status (pass or fail) of the reference model file (selected above) are displayed.

The last column gives information on the ASCII difference between the imported file and Altair HyperMesh exported file. If there are no differences, it is displayed as **Pass**, otherwise, it's shown as **Fail**.

Step 2 displays the import and export time and status (pass or fail) of the exported model file that is re-imported back into Altair HyperMesh (along with the import and export status and time).



The last column displays information on the ASCII difference between the model checker summary of the file in steps 1 and 2. Any loss of data is identified.

- 9. Click *Check run*.
- 10. The original model and the Altair HyperMesh exported models are run with the Altair Radioss solver. The OUT file blocks are compared as shown in the status.
- 11. In the **Messages** window, the run details are displayed along with the log file location.
- 12. Click *HTML Report* to open an HTML report.

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del Setup Keywords coverage Basic IO Compare HM Versions Special case	e HC Session HC Ba	sic IO Compar	e HC Versions			
ile type : OptiStruct • HW/Version : 2017 • 📝	Model checker/ Entit	ty count				
nout deck(s)						
:/Altair/2017.0.0.14/demos/hvvh/FEModel/BasiciC/car1.fem						1
:/Altair/2017.0.0.14/demos/hvvh/FEModel/BasicIO/buckling1.fem						
						12
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Reference Model Ne	Time to Import	Innovat Status	Time to Export	Famout Status	Import Export	Ē
C/Altair/2017.0.0.34/demos/hw//FEModel/BasicIO/car3.fem	600	Pass	2013	Paul	inport ciport	1
C/Altair/2017.0.0.34/demos/hwyh/IEModel/BasictO/buckling1.fem	91	Pats	1216	Parts	Pasts	Ч
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Modified Model file	Time to import	Import Status	Time to Export	Export Status	fod Checker/Ent Cou	l.
C:/HVVH/OutDir/FE_BasikIO/car1/Modified/car1.fem	482	Pats	1712	Pats	Pass	
C:/HVVH/OutDir/FE_BasicIO/buckling1/Modified/buckling1.fem	59	Pass	1184	Pass	Pass	
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Reference Model file	Modified model	file 2		d3hsp	output	Ŀ
C:/Altais/2017.0.0.14/demos/hosh/VEModel/BasiciO/carl.fem C:/A0A04/O	wtDir/FE_BasicIO/car3/	/Modified2/car)	Lfem	NA	Fail	
characteristic and a second se	/FE_BasicIO/buckling1/	/Modified2/bud	kling1.fem	NA	Fail	1
/Altair/2017.0.0.14/demos/hvvh/FEModel/BasictO/buckling1.ferC:/HVVH/OutDir/				1		-
/Altain/2017.0.0.14/demos/hvvh/ITIModel/BasicIO/buckling1.fer(c./HVVH/OutDin/					Check Run	
/Altair/2017.0.0.34/demos/hvvh/FEModel/BasiciO/buckling1.fer/C/HVVH/OutDir/				l		
/Altair/2017.0.0.34/demos/hvvh/FEModel/BasiciO/buckling1.fer/C/HVVH/OutDir/				l		
/Altair/2017.0.0.34/demos/hvvh/FEModel/BasiciO/buckling1.fer/C:/HVVH/OutDir/	Html Report			l		
/Altair/2017.0.0.34/demos/hvvh/FEModel/BasicIO/buckling1.fer/C:/WVVH/OutDir/	Hitmi Report			l		
/Altair/2017.0.0.3A/demos/hvvh/FEModel/BasicHO/buckling1.fer/C:/HVVH/OutDir/	Hitmi Report			l		
/Altair/2017.0.0.34/demos/hwh/FEModel/BasiciO/buckling1.fer/c./HVVH/OutDir/	Html Report					
/Altair/2017.0.0.34/demos/hvvh/FEModel/BasiciO/buckling1.fer(c./HVVH/OutDir/	Html Report					



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HyperWorks Verification and Validation Harness							
FE Model - Basic IO Report							
File Type : OptiStruct	HW Version	: 2017	Export profile :				
	Step 1 :						
Reference Model file	Time to Imp	ort Import S	Status Time to E	port Export Status	Import-Export		
C:/Altair/2017.0.0.14/demos/hvvh/FEModel/BasicIO/car1.fem	680	Pas	2011	Pass	Fail		
C:/Altair/2017.0.0.14/demos/hvvh/FEModel/BasicIO/buckling1.f	em 91	Pas	1216	Pass	Pass		
	Step 2 :						
Modified Model file	ime to Import I	mport Status	Time to Export	Export Status Mod	Checker/Ent Co		
C:/HVVH/OutDir/FE_BasicIO/car1/Modified/car1.fem	482	Pass	1712	Pass	Pass		
/HVVH/OutDir/FE_BasicIO/buckling1/Modified/buckling1.fem	59	Pass	1184	Pass	Pass		
	Check Run						
Reference Model file		Mo	dified model file 2		d3hsp output		
C:/Altair/2017.0.0.14/demos/hvvh/FEModel/BasicIO/car1.fem	C:/HV	/H/OutDir/FE	BasicIO/car1/M	dified2/car1.fem	NA Fail		
C:/Altair/2017.0.0.14/demos/hyph/FEModel/BasicIO/huckline1.6	mC/HVVH/O	Dir FE Bas	ielO/buckline1/M	dified2/backling1.fr	m NA lini		

Step 7: Compare Altair HyperMesh versions.

Compare the analysis decks exported using different versions of Altair HyperMesh.

- 1. From FE Model tab, select the Compare HM Versions tab.
- 2. For File Type, select OptiStruct.
- 3. For Current Version, select 2017.
- 4. For Reference version, select 14.0.0.130 (should also be installed).
- 5. Under **Input deck(s)**, use the file browser icon, $\stackrel{\fbox}{\rightarrowtail}$, or the add file icon, $\stackrel{\textcircled}{\parallel}$, to select and open the following files:

```
.. \tutorials \hvvh \FEModel \CompareHMVersions \buckling1.fem
```

..\tutorials\hvvh\FEModel\CompareHMVersions\car1.fem

- 6. For the **Output directory** field, use the open file icon, it is select an output directory.
- 7. Click *Import/Export*.
- 8. The first table details the import and export time and status (pass or fail) of the model file selected in the current version.

The second table details the import and export time and status (pass or fail) of the model file selected in the reference version.

The last column displays information on the ASCII difference between the exported files in the current and reference versions of Altair HyperMesh. If there are no differences, it is displayed as **Pass**, otherwise, it's shown as **Fail**.

- 9. In the **Messages** window, the run details are displayed along with the log file location.
- 10. Click *HTML Report* to open an HTML report.



HyperWorks Verification and Validation Harness								
FE - Compare HM Versions Report								
File Type : OptiStruct Current Version : 2017 Current Export profile :	Reference V	'ersion : 14.130	Reference	Export profile :				
Current Version :								
Current Version	Import Time	Import Status	Export Time	Export Status				
C:/Altair/2017.0.0.14/demos/hvvh/FEModel/CompareHMVersions/car1.fem	444	Pass	1629	Pass				
C:/Altair/2017.0.0.14/demos/hvvh/FEModel/CompareHMVersions/buckling1.fer	69	Pass	1184	Pass				
Reference File :								
Reference Version	Import Time	Import Status	Export Time	Export Status				
C:/Altair/2017.0.0.14/demos/hvvh/FEModel/CompareHMVersions/car1.fem	671	Pass	1550	Pass				
C:/Altair/2017.0.0.14/demos/hvvh/FEModel/CompareHMVersions/buckling1.fer	a 115	Pass	1158	Pass				
Compare Versions	:							
Current Version		Reference Ve	ersion		Diff			
C:/HVVH/OutDir/FE_CompareHmVersions/Current_car1/car1.fem C:/HV	H/OutDir/FE_C	CompareHmVer	rsions/Referenc	e_car1/car1.fem	Pass			
C:/HVVH/OutDir/FE_CompareHmVersions/Current_buckling1/buckling1.fem C:/HVVH/O	tDir/FE_Comp	areHmVersions	Reference_buc	kling1/buckling1	fem Pass			

Step 8: Special case: compare Altair HyperMesh exported decks based on FE entities.

Compare the data of solver deck in a non-Altair HyperMesh format after import and export with different options for any loss of data.

1. From **FE Model** tab, select the **Special case** tab.





File Edit Help

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Model Setup Keywords coverage Basic IO Compare HM Versions Special care HC Sessi

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Output directory :								
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Input file (not H	M format)	Import time	Import status	Export time	Export status	Re-Import time	le-import statur	FE entities
pir/2017.0.0.14/demos/hwh/VE Mo	del/Special case/bumpe	r_de 2758	Pata	1591	Pats	343	Pata	Pats
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			Html Report					
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se refer logfile for status : C:/H	WH/OutDir/FE Speci	alCase/logfile_Spe	cia/Case.txt					

- 2. For File Type, select LsDyna.
- 3. For **HW Version**, select **2017**.
- 4. Do not select the **IO Merge** and **Export Merge** options.
- 5. Under **Input deck(s)**, use the file browser icon, $\stackrel{\frown}{\rightarrowtail}$, or the add file icon, $\stackrel{\frown}{=}$, to select and open the following file:

..\FE Model\Special case\bumper_deck.key.

- 6. For the **Output directory** field, use the open file icon, $\stackrel{\frown}{\rightarrowtail}$, to select an output directory.
- 7. Click *Import/Export*.

The first table details the import and export times and status (pass or fail) of the model file in the HyperMesh version selected.

The file is re-imported and the status is displayed under **Re-import status**.

FE entities are compared with the original solver deck. Any changes in data shows any loss of data, otherwise it is shown to pass.

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



9. Click *HTML Report* to open an HTML report.

HyperWorks Verification and Validation Harness							
FE Model - Special Case Report							
File Type : LsDyn	a HW Version : 2017						
Import-Export-Import :							
Input file (not HM format) Import ti	ne Import status Export time Export status Re-Import time Re-Import status FE entities						
C:/Altair/2017.0.0.14/demos/hvvh/FE Model/Special case/bumper_deck.key] 2758	Poss 143 Pass Pass						

Step 9: Check interactive operations in Altair HyperCrash and compare the exported files.

Use the session recording option in Altair HyperCrash to check interactive operations.

1. From **FE Model** tab, select the *HC Session* tab.

di HVVH - H	yperWorks Verification and Validation Harne	ss (v2017)	_ 🗆 🗙
File Edit Help			
Design CAD FE Model Solution Result Manufacturing solution	n		
Model Setup Keywords coverage Basic IO Compare HM Ve	sions Special case HC Settion HC Basic ID Compare H	C Versions	
File type : #ADIO15 V34 Current Version : 2017	Reference Version : 34.130 * Unit system :	N m s kg · · · · · · · · · · · · · · · · · ·	
Input deckful :		Reference Version	
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- 2. For File Type, select RADIOSS v2017.
- 3. For Current Version, select 2017.
- 4. Activate the **Reference file** option.





- 5. Under Input File, use the add file icon, into select and open the following file: ...\tutorials\hvvh\FEModel\HCSession\FOAMD00_v14_0000.rad file
- 6. Under Session File, use the add file icon, in to select and open the following file: ...\tutorials\hvvh\FEModel\HCSession\Position.xml
- 7. Under **Reference File**, use the add file icon, in to select and open the following file: ...\tutorials\hvvh\FEModel\HCSession\FOAM Dummy Reference 0000.rad
- 8. For the **Output directory** field, use the open file icon, $\stackrel{\scriptsize{\blacktriangleright}}{\rightarrowtail}$, to select an output directory.
- 9. Click *Execute*.

The input file is imported in Altair HyperCrash. Using the session file, a set of interactive operations are executed inside Altair HyperCrash and the file is exported.

In the **Compare** table, the **Diff** column displays information on the ASCII difference between this exported file and the current and reference files selected above. If there are no differences, it is shown as **Pass**, otherwise, **Fail**.



p.14



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File type : RADIOSS V2017 • Current Version :	2017 • Reference	Version : 2017 *	Unit system : N #	iskg • C Refer	ence File ence Version
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Output directory : [C:/HVVH/OutDir					Execute
Output directory : C:/HVVH/OutDir Compare : Current File			Reference File		Execute
Output directory : C:/HVVH/OutDir Compare : Current File ir/2017.0.0.34/butorials/hvvh/FEModel/HCSession/	current_FOAM000_v14_0/201	7.0.0.34/bitionals/hwwh/FEA	Reference File Model/HCSession/FOAN	Dummy_Reference.	Execute Dett
Output directory : C:/HVVH/OutDir Compare : Current File ir/2017.0.0.14/butorials/hvvH/FEModel/HCSession/	current_FOAM000_v14_0/201	7.0.0.34/tutorials/hwh/FEA	Reference File Model/HCSession/FOAM	t_Dummy_Reference,	Execute
Output directory : C:/HVVH/OutDir Compare : Current File #/2017.0.0.14/butorials/hvvh/FEModel/HCSession/r	current_FOAM000_v34_0/201	7.0.0.34/tutorials/hvvh/FEX Html Report	Reference File Model/HCSession/FOAM	LDummy_Reference.	Execute
Output directory : C:/HVVH/OutDir Compare : Current File ir/2017.0.0.34/butorials/hvvh/FEModel/HCSession/	current_FOAM000_v34_0/203	7.0.0.34/tutorials/hvvh/FEA Html Report	Reference File Model/HCSession/FOAN	_Dummy_Reference,	Execute
Output directory : C:/HVVH/OutDir Compare : Current File ir/2017.0.0.14/butorials/hvvh/FEModel/HCSession/	current_FOAM000_v14_0/201	7.0.0.34/tutorials/hvvh/FEA Html Report	Reference File Model/HCSession/FOAM	LDummy_Reference	Execute
Output directory : C:/HVVH/OutDir Compare : Current File ir/2017.0.0.14/butorials/hvvh/FEModel/HCSession/	current_FOAM000_v54_0/201	7.0.0.34/tutorials/hvvh/FEA	Reference File Model/HCSession/FOAM	t_Dummy_Reference	Execute
Output directory : C:/HVVH/OutDir Compare : Current File #/2017.0.0.14/butorials/hvvH/FEModel/HCSession/r	current_FOAM006_v14_0/201	7.0.0.34/tutorials/hvvh/FEX Html Report	Reference File Model/HCSession/FOAM	LDummy_Reference	Execute
Output directory : C:/HVVH/OutDir Compare : Current File ir/2017.0.0.34/butorials/hvvh/FEModel/HCSession/v	current_FOAM000_v34_0/203	7.0.0.34/tutorials/hvvh/FEA	Reference File Model/HCSession/FCAb	LDummy_Reference.	Execute
Output directory : C:/HVVH/OutDir Compare : Current File Ir/2017.0.0.14/butorials/hvvh/FEModel/HCSession/	current_FOAMOO0_v34_0/203	7.0.0.34/tutorials/hvvh/FEA Html Report	Reference File Model/HCSession/FOAM	LDummy_Reference.	Execute
Output directory : C:/HVVH/OutDir Compare : Current File #/2017.0.0.14/butorials/hvvh/FEModel/HCSession/	current_FOAM000_v34_0/303	7.0.0.34/tutorials/hwwi/FEA	Reference File : Model/HCSession/FGAN	_Dummy_Reference.	Execute
Output directory : C:/HVVH/OutDir Compare : Current File #/2017.0.0.14/butorials/hvvh/FEModel/HCSession/	current_FOAM000_v14_0/201	7.0.0.34/tutorials/hwwh/FEA	Reference File Model/HCSession/FOAM	t_Dummy_Reference	Execute
Output directory : C:/HVVH/OutDir Compare : Current File Ir/2017.0.0.14/butorials/hvvh/FEModel/HCSession/	current_FOAM000_v34_0/201	7.0.0.14/tutorials/hvvh/FEA	Reference File Model/HCSession/FOAM	t_Dummy_Reference	Execute

10. In the **Messages** window, the run details are displayed along with the log file location.11. Click *HTML Report* to open an HTML report.

HyperWorks Verification and Validation Harness					
FE Model - HC Session Report					
File Type : RADIOSS V2017 Curr	rent Version : 2017 Unit system : N m 5 kg				
Current File C:/Altair/2017.0.0.14/tutorials/hvvh/FEModel/HCSession/current_FOAMD00_v14_0000 rad	Reference File [Diff C:/Altair/2017.0.0.14/tutorials/hvvh FEModel/HCSession/FOAM_Dummy_Reference_0000.rad				

The difference between the exported files are not major.

Step 10: Altair HyperCrash basic import and export.

Identify any loss of data during Altair HyperCrash basic import and export.

1. From **FE Model** tab, select the *HC Basic IO* tab.



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							Check Pain
		Html Report					

- 2. For File type, select RADIOSS v2017.
- 3. For HW Version, select 2017.
- 4. For Unit system, select kN-mm-ms-kg.
- 5. Activate the *Model checker* option.
- 6. Under **Input deck(s)**, use the file browser icon, $\stackrel{\blacktriangleright}{\rightarrow}$, or the add file icon, $\stackrel{le}{\rightarrow}$, to select and open the following file:

..\tutorials\hvvh\FEModel\HCBasic IO\model01_0000.rad

- 7. For the **Output directory** field, use the open file icon, $\stackrel{\frown}{\rightarrowtail}$, to select an output directory.
- 8. Click *Import/Export*.

Under **Step 1**, the import and export time and status details (**pass or fail**) of the reference model file (selected above) are displayed.

The last column displays information on the ASCII difference between the imported file and Altair HyperCrash exported file. If there are no differences, it is displayed as **Pass**, otherwise, it's show as **Fail**.

Step 2 displays the import and export time and status (pass or fail) of the exported model file that is re-imported back into Altair HyperCrash (along with the import and export status and time).

The last column displays information on the ASCII difference between the model checker summary file in steps 1 and 2. Any loss of data is identified

9. Click Check run.



The original model and the Altair HyperCrash exported models are run with the Altair Radioss solver. The Altair Radioss starter OUT file blocks are compared as shown in the status.

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

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sign CAD FE Model Solution Result Manufacturing solution		
Andel Setup Keywords coverage Basic IO Compare HM Versions Special case HC Session HC Balic IO Compare HC Version		
Nie type : AADIOSS V2007 • HW Yversion : 2007 • Unit system : Nimm make • * Gustom Checker * Custom Check	C Penetro	ition Check
C-/Altar/2017.0.0.14/demos/hw/t/FE Model/HC Basic (C/model/01.0000.rad		
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d		u 10
Custom Check :		ن ن
Output directory : C/HVVH/Dutby		2
Step 1		
Reference Model File Time to Import Import Status Time to Export C/Altair/2017.0.6.14/demos/hvvh/HE Model/HC Basic 10/model01_0000.rad 275.00 Rem 146.00	1 Deport Status	Import-Export
Step 2		
Modified Model file Time to Import Status Time to Export	t ExportStatus	Model Diecker
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		Import/Export
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Check run Reference Model file Sair/2012.0.0.34/demos/hvvh/TE Model/HC Basic KO/model01_000C/bir/Hc_BasicIO_4/model01_0000/Modified/model01_0000_Modifi	dihip NA	Overk Run
Check run Reference Model file bal/2017.0.0.14/demos/hwh/11E Model/HC Basic KO/model01_00C/br/Hc_BasicIO_4/model01_0000/Modified/model01_0000_Model Httrif Report	dihap NA	Import/Export
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Check run Reference Model file Model/HC Basic K0/model03_00C/bir/Hc_Basic0_4/model03_0000/Modified/model03_0000_Model Html Report Messages K completed. see refer logfile for status : C:/HVVH/OutDir/Hc_BasicIO_4/logfile_HCBasicIO_DreckRun.txt	63hap NA	Import/Export

11. Click *HTML Report* to open an HTML report.



HyperWorks Verification and Validation Harness					
FE Model - HC Basic IO Report					
File Type : RADIOSS V2017	HW Version : 2017 Unit system : kN mm ms kg				
	Step 1 :				
Reference Model file	Time to Import Import Status Time to Export Export Status Import-Export				
C/Altair/2017.0.0.14/demos/hvvh FE Model/HC Basic IO model01_	0000 rad 278.00 Pass 145.00 Pass End				
Step 2 :					
Modified Model file	Time to Import Import Status Time to Export Export Status Model Checker				
C.HVVH OutDir Hc_BasiclO_4 model01_0000 Modified model01_0000_M	Modafied_0000.rad 258.00 Pass 107.00 Pass Pass				
Check Run :					
Reference Model file	Modified model file d3hsp output				
C/Altair 2017.0.0.14/demos hvvh FE Model HC Basic 10/model01_0000.rad C:HVVH/OutDir Hc_Basic10_4/model01_0000/Modified/model01_0000_Modified_0000.rad NA					

Step 11: Compare Altair HyperCrash versions.

Compare the analysis decks exported in different versions of Altair HyperCrash.

1. From **FE Model** tab, select the *Compare HC versions* tab.

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file Edit Help		
Design CAD FE Model Solution Result Manufacturing solution		
Model Setup Keywords coverage Basic ID Compare HM Versions Special case HC Sessi	on HC Basic ID Compare HC Versions	
File type : AADIOSS V14 Current Version : 2017 Keference V C Reference Fil	ersion: 54.330 Unit system:	kN mm ms kg
Input file(h) :		
C/Altan/2017.6.0.14/demos/hvvh/HEModel/Compare HC Vesions/model01_0006.rad		į
đ		
Output directory : CI/MVVM/DutDir		2
Current Version :	import Time Import Optus	Facest Time - Facest Status -
C/Altain/2017.0.0.34/demos/hwh/YE Model/Compare HC Vesions/model01_0000	rad 242.00 Pass	115.00 Pass
Reference Version :		
Reference Version	Import Time Import Status	Export Time Export Status
C/Altair/2017.0.0.34/demos/hwh/YE Model/Compare INC Visions/model01_0000	rad 246.00 Pers	118.00
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Current Version	Reference Version	p.m.
ptbs/H_Comparencyersions_2/current_model01_0000/model01_0000_Modifietbs/HL_Compa	renoversions_2/reference_model01_0000/model0	L BOOD_MIGHT
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Neuropen		
lease refer logfile for status : C:/htViHU/OutDix/YE_CompareHitVersions_2/logfile_FE_Co ask completed.	ompareHcViersions.5xt	



- 2. For File type, select RADIOSS v14.
- 3. For Current Version, select 2017.
- 4. For Reference Version, select 14.0.0.130.
- 5. For Select Unit System, select kN-mm-ms-kg.
- 6. Under **Input deck(s)**, use the file browser icon, $\stackrel{\smile}{\rightarrowtail}$, or the add file icon, $\stackrel{\frown}{\Longrightarrow}$, to select and open the following file:

..\tutorials\hvvh\FEModel\CompareHCVersions\model01 0000.rad

- 7. For the **Output directory** field, use the open file icon, $\stackrel{\frown}{\rightarrow}$, to select an output directory.
- 8. Click *Import/Export*.

The first table details the import and export time and status (pass or fail) of the model file selected in the current version.

The second table details the import and export time and status (pass or fail) of the model file selected in the reference version.

The last column displays information on the ASCII difference between the exported files in the current and reference versions of Altair HyperCrash. If there are no differences, it is displayed as **Pass**, otherwise, it's shown as **Fail**.

- 9. In the **Messages** window, the run details are displayed along with the log file location.
- 10. Click HTML Report to open an HTML report.

HyperWorks Verification and Validation Harness

FE - Compare HC Versions Report



