

CAESAR II®

Product: CAESAR II

Number: SQBY001AA-0900A (purchase); SQBY034AA-0900A (lease)

Version: 2017 (9.00.00)

Date: 30-JULY-2016

Description: Intergraph® CAESAR II is the industry leading pipe stress analysis program that evaluates the structural responses and stresses of piping systems to international codes and standards.

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System Requirements

Important: Beginning with Windows 10, Microsoft will enforce the Internet Host Table Specification RFC 952 which mandates that component hostname labels can contain only alphanumeric characters. Hostnames using underscores ('_') are not allowed. Refer to Microsoft KB 101785.

Intergraph® CAESAR II® is compatible with Windows desktop operating systems listed below.

Note: The operating system compatibility details that follow refer to the latest released version of this software. Previous versions of the software may not work with newer operating systems.

Operating System	Compatibility Information
Windows 7/8/8.1* Ultimate (32 & 64 bit) Windows 7/8/8.1* Business (32 & 64 bit) Windows 7/8/8.1*/10 Enterprise (32 & 64 bit) Windows 10 Pro (32 & 64 bit)	These operating systems are tested by Intergraph. CAESAR II does not support Windows 7/8/8.1 Starter, Home Basic, and Home Premium. The software does not support Windows XP, Windows Vista and Home versions of Windows 7/8/8.1/10 (i.e., Starter, Home Basic, Home Premium). *Windows 8/8.1 – Enable .Net 4.5.2 prior to installing CAESAR II.

Windows Server (all versions)	Only tested by Intergraph for the installation of network licensing systems (NetHASP License Manager).
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Intergraph Recommended System Requirements for CAESAR II:

Processor: 3.0 GHz Intel Pentium IV or higher AMD Athlon dual-core processor or higher

Memory: 4 GB RAM or higher (Windows 7/8/8.1)

Display: 1280X1024 or higher, with True Color

Video Card: 256 MB or greater video RAM, Open GL 1.1 or later, DirectX 9.0 or later, drivers updated with the latest manufacturer's drivers (Motherboard-integrated video cards not recommended for desktop systems.)

Remote Technologies: Citrix XenApp 6.0 required on Windows Server 2008 R2 Enterprise

Version Compatibility

For up-to-date information on the software compatibility of this product in a standalone or integrated environment, please refer to the Compatibility Matrix on the Intergraph PPM Support Web site at <https://smartsupport.intergraph.com/>.

Log on and perform the following steps:

1. Click the **View Downloads** tab.
2. Click the **Product Compatibility** link under **Useful Links** on the right side.
3. On the **PPM Compatibility Matrix - Product Report** page, from the Select Product list, select **CAESAR II**.
4. From the **Version** list, select the version of CAESAR II.

Special Instructions

CAESAR II 2017, Version 9.00.00, is a Windows (7/8/8.1/10)-based program. The input files created by Version 9.00.00 are not downward compatible with previous versions. However, Version 9.00.00 can read input files from any previous version.

Existing users should install this latest version in a different directory from any earlier existing version. CAESAR II displays the version number and build date in the lower right corner of the main menu for your reference.

For users on Windows 8/8.1/10 machines, [enable .NET Framework 4.5.2](#) from your Control Panel prior to installing CAESAR II.

Important:

If you are moving to Version 9.00.00 from a version of CAESAR II prior to Version 5.20, your existing ESL may require a Firmware update to permit Version 9.00.00 to run. You can find instructions on the program DVD in the \Info folder in the document, ICAS_Software_Licensing.doc.

If you are installing CAESAR II with SPLM licensing, make sure you have the 2012 SPLM server and Client installed.

This version of CAESAR II should be started by invoking the program, C2.EXE.

When you start the CAESAR II application, you should select or specify a job name (by selecting **File>New** or **File>Open**) before using any other module. Most of the modules function using the current working directory. If this information is not available, the module cannot run. You can select **File>Set Default Data Directory** to save this working directory in the registry.

Post Installation Considerations

CAESAR II installs the following batch file in the CAESAR II program directory:

NETUSERC2.BAT – If you install CAESAR II to a network drive, only the installing workstation has the proper DLLs installed and registered. Run this batch file on all other workstations that will run CAESAR II to ensure DLLs are current and registered.

CAESAR II installs the following three batch files in the CAESAR II System directory (ProgramData\Intergraph CAS\CAESAR II\version number):

- *ACCESS2007.BAT* – Use this batch file to copy the MS Access 2007 template onto the active template used by CAESAR II.
- *ACCESS2002-2003.BAT* – Use this batch file to copy the MS Access 2002-2003 template onto the active template used by CAESAR II. If you are using Access 2002/2003 already, you do not need to run this batch file.
- *ACCESS200.BAT* – Use this batch file to copy the MS Access 2000 template onto the active template used by CAESAR II. If you are running Access 2000, run this batch file to use the appropriate template and to avoid having to convert database files individually.

For more information on installing CAESAR II, refer to the CAESAR II Quick Reference Guide, located on the program DVD.

Documentation

General

Use the Help menu to access the Help files and Printable Guides for this product. For the latest support information for this product, use a World Wide Web browser to connect to <http://support.intergraph.com>. Also, you can submit any documentation comments or suggestions you might have on the Intergraph support site.

Printed documentation is not available for separate purchase.

PDF Files

The documentation is provided as .pdf files. You can use any PDF viewer to view the files.

Training

To register for training on Intergraph Process, Power & Marine products, call Training Registration at (800) 766-7701 in the U.S. Outside the U.S., call (256) 730-5400 or contact your local Intergraph office.

For current information on training, use a World Wide Web browser to connect to <http://www.intergraph.com/ppm/training/>.

Customer Support

For the latest Support Services information for this product, including solutions to known software issues, use a World Wide Web browser to connect to <http://support.intergraph.com/>.

To open service requests outside the U.S., please contact your local Intergraph office.

New Features in this Version

Technical Changes

Please be mindful of the following technical change for this release:

- Disabled the Search tab in the Online Help, due to an issue when your CAESAR II installation uses OpenGL drivers. You can change the **Graphics Settings > Miscellaneous Options > Video Driver** to **Direct 3D** in the **CAESAR II Configuration Editor**. If you use Direct 3D drivers, you can download a copy of the Help with the Search tab enabled from Smart Support.

Piping and Equipment Code Updates

- Updated the software to the latest ASME B31.4 code standards, which included the ASME B31.4 2009, B31.4 2012, and B31.4 2016 code.

The update included the following changes and improvements:

- Updated materials applicable to the B31.4 code in the **Material Database Editor**.
- Updated the **Allowable Stress** tab in the **Piping Input** module by including an **Allowable Stress Indicator** option for **B31.4** and **B31.4 Ch XI**, and **Design Factor** and **Hoop Stress** options for **B31.4 Ch IX**.
- Deprecated the B31.11 piping code, which is now included in the B31.4 main code standard.
- Provided options for CAESAR II to automatically determine the restrained/unrestrained state of the pipe elements, or for the user to specify the state. The software defaults to automatically determining the state.
- Added the evaluation of the creep condition using EN-13480 Creep code standards.

The update included the following improvements:

- Expanded the **Material Database Editor** to support EN-13480 Creep by adding material properties for 200k hours, in addition to existing properties for 100k hours. Refer to the Technical Discussion on evaluating creep conditions in the User's Guide for more information.
- Added a new **Creep (CRP)** stress type in the **Static Analysis – Load Case Editor**. The software does not include the CRP stress type when it recommends load cases.

- Updated the software to support the June 2015 edition of Canadian Z662 and Z662 Chapter 11, the Canadian code for oil and gas pipelines.
- Enhanced the software to support the 5th Edition of API-560, February 2016, the equipment code for fired heaters.

Piping Input

- Added an option to select a new user-defined **Custom** type for nozzle flexibilities, in addition to the existing **Nozzle Flex** types of **WRC 297**, **API 650**, and **PD 5500**. The **Custom** nozzle type includes user-defined nozzle stiffness values for **Axial** (radial force), **In-Plane Bending**, **Out-of-Plane Bending**, and **Torsional** (moment). Many improvements have also been made to the **Nozzles** auxiliary panel layouts to improve usability.
- Enhanced the existing right-click context menu options for restraints from within the graphics view. The **Restraint > Insert Restraint** option lets you right-click an element to break and insert restraints in one action, or you can insert restraints at existing nodes. From the new **Insert Restraint** dialog you can also define restraint options, such as distance from nodes.
- Improved the **Break at Element** dialog box (accessed by selecting **Model > Break** or right-clicking and selecting **Element > Break Element**). The software now automatically populates the **Insert Single Node** option to the halfway-point node number and distance. If there is not an available halfway-point node number, the software defaults to the next available node number.
- The **Displacements** grid displays free and fixed designations to eliminate confusion. The **Fix DOFs** option applies the fixed value of **0.0** to any undefined (free) degree of freedom.
- Enhanced the **Distance** dialog box for better usability. When you choose **Origin** and **Selected Element** as your **Measure Method**, the **Distance** dialog box retains the selected **Measure Method** option for the duration of your use of the **Distance** dialog box.

Load Case Editor

- Updated the **Static Analysis – Load Case Editor** by adding the ability to copy and paste complete load cases.
- Enhanced the editor to allow the selection of multiple load cases in the **List** view and retain the selection when you switch to **Group Edit** view.
- Added a new Creep (**CRP**) stress type in the **Static Analysis – Load Case Editor**.

3D Model/Graphics

- Node numbers display in front of piping elements when you use **Options > Node Numbers** and rotate the graphics. Previously, the node numbers rotated with the elements and were sometimes obscured by piping elements.
- Symbols for LIM restraints (axial limit stops) display on the outside of the pipe and remain visible when you use **Options > Restraints**.
- Added a symbol for zero-length expansion joints on the model.
- Displacements, rotations, forces, and moments display graphically as arrows (vectors) when you select **Options > Displacements** or **Options > Forces**. You can also change the default colors and arrow sizes in the **Graphics Settings** of the **Configuration Editor** or by using **Plot Properties**.
- Displacements on CNodes display graphically as arrows with **Options > Displacements**.

User Interface

- Added a news channel on the CAESAR II main window, where you can find out product version information, upcoming events, product training opportunities, and future webinars.

Integration

- Combined the individual flexible nozzle input export options into a single **Flexible Nozzles** option on the **Data Export Wizard** to improve usability.
- Improved integration with Smart 3D by adding a new **LCASE_NAME** column to files exported to Microsoft Access through the Data Export Wizard (ODBC). When you export to .mdb format, you can now see the Load Case Name (**LCASE_NAME** column) in applicable exported files for quick identification of your load cases.

Documentation/Help

- Updated **Restraints** in the *Piping Input Reference* section of the *CAESAR II User's Guide*. Each restraint type includes a graphic example to assist identification.
- Improved the *Global Coordinates* section of the *CAESAR II User's Guide*. The user's guide now references local coordinates as **a**, **b**, **c** to reduce confusion between local and global coordinates.
- Added navigation information, such as the location on ribbons and menus, to command topics to aid discovery when browsing the help.
- Updated the *Hinged Joint* section of the *CAESAR II Application Guide*. Updated the **Hinged Joint Model** graphic to include all of the necessary components to model a hinged joint.

- Updated portions of the user documentation to the latest Intergraph PP&M standards for formats, which included adding more white space and indentation for field property formats.
- Converted the CAESAR II 2017 readme document to .pdf format to comply with the latest Intergraph PP&M standards.
- Updated the software to call the main CAESAR II Help file (C2ug.chm) when you press **F1** in **Equipment and Auxiliary** modules. Previously, these modules displayed in a text-based help dialog box.

Fixes

Piping Input, Materials, & Analysis

- Fixed an issue regarding import data on the **EJMA Expansion Joint Rating** dialog box. Previously, when you clicked **Get Data From Input File** on the **Geometry** tab of the **EJMA Expansion Joint Rating** dialog box, data populated for all the fields except the **Effective Diameter** field. (TR-TX-15611)
- Fixed an issue where the software displayed an unnecessary warning regarding the yield stress for certain material listings in the WRC 107/297/PD5500 module. (TR-TX-15612)
- Fixed incorrect stress allowables for the A234 material for the B31.3 code. The revised allowables are at temperatures of 400°, 500°, 600°, 650°, and 700° F. Also updated the material name to A234WPC. (TR-TX-16876)
- Fixed an issue in which the software did not retain global coordinates when piping files and reset the global coordinates for **X**, **Y**, and **Z** to **0**. The software now retains the original coordinates piping models imported using the **Include Piping Files** option. (TR-TX-16544)
- Fixed an issue where the software displayed an incorrect prompt regarding running a version of CAESAR II that was released more than two years ago. (TR-TX-16812)
- Fixed an issue where the piping model could be potentially corrupted if you selected **Cancel** on the **Valve and Flange Database** dialog. (TR-TX-17505)
- Fixed an issue in the **Material Database Editor** by disabling the **Type** field for piping codes other than HPGSL and JPI. The material type input list is not applicable for codes besides HPGSL and JPI. (TR-TX-17505)
- Corrected an issue in the **Pipeline Remaining Strength Calculations (B31G)** module, where you could not analyze the same job twice in a particular folder. (TR-TX-17505)

3D Model/Graphics

- Fixed the node number display so that it adjusts with changes in line visibility on the **Line Numbers** dialog box of **Model > Line Numbers**. (TR-TX-15271)
- Fixed various inconsistencies in the functionality of certain graphics settings in the **Plot Settings** dialog of the **Piping Input** module or **Static Output Processor**, and in the **CAESAR II Configuration Editor**. (TR-TX-16961)
- Fixed an issue in which the **Distance** dialog box did not resize properly. (TR-TX-16157)
- Fixed an issue in which both the **Hide Selected** and **Show All** options in the **CADWorx Part** menu were selected by default. In addition, updated the **Hide Selected** and **Hide Current** options to function as expected. (TR-TX-8971)

- Fixed issues regarding a menu option that affect CADWorx models. You can now select **Show CWx Model** to affect the visibility of CADWorx models in CAESAR II. (TR-TX-15632)
- Corrected various issues affecting supports, boundary conditions, and other symbols in various 3D display modes. (TR-TX-17507)
- Fixed a crash that resulted after importing a CADWorx model (*.dwg) and pressing the **Delete** key. (TR-TX-17507)

Load Case Editor

- Fixed the wind pressure units that display on the **Wind Loads** tab of the **Static Analysis – Load Case Editor**. Previously, when you selected the **Wind Pressure vs Elevation** option in **Select Wind Code/Profile and Year**, the software displayed **Pressure** in internal pressure units, though the software used wind load pressure units in its calculations. For example, if you used English units, the software displayed **Pressure** as lb./sq.in, instead of lb./sq.ft. The software now correctly displays wind load pressure units in **Pressure**.

You can generate the **Miscellaneous Data** output report, and then select **Wind** in the **Miscellaneous Data Options** to verify the wind pressure values used in the calculation. (TR-TX-16196)

- Fixed an issue in which the software truncated load type multipliers in the **Static Analysis - Load Case Editor** to integer values in some situations. For example, in the load case 0.1W + 0.2T1 +P1, the software converted the load case to 0.1W + 0T1 + P1. This caused the results to vary greatly from user expectations. (DM-TX-16599)
- Fixed an issue in which the software did not display the correct default **OCC Load Factor** values in the **Static Analysis - Load Case Editor**. The software now displays the correct default **OCC Load Factor** values as they are listed in the Help file. In addition, the software correctly uses the **Occasional Load Factor** value from the **SIFs and Stresses** tab of the **CAESAR II Configuration Editor** to populate the **OCC Load Factor** column for all piping codes other than ISO-14692. (TR-TX-14471)
- Resolved a few issues related to regional settings for numeric separators. For example, in the German edition of Microsoft Windows, the period is used as a thousand separator, and a comma is used as a decimal separator. Issues with two CAESAR II modules were corrected:
 - Fixed a load multiplier issue in the **Static Analysis - Load Case Editor** when using the UK Time/date/number format. (TR-TX-17400)
 - Fixed an issue with the software incorrectly interpreting numeric values in the CAESAR II Configuration Editor. (TR-TX-13772, TR-TX-16329)

- Fixed various usability issues in the **Static Analysis – Load Case Editor**. (TR-TX-15355)

Fixes included:

- Previously, when adding multiple load cases, setting the stress type for a new load case also set the default options for the other load cases. Now, the software only sets default values for the load case that is currently being edited.
- Column sizing no longer breaks up individual words in heading text.
- The software limits **Stress Type** options to **SUS** and **OCC** when the **Alternate SUS/OCC** type is indicated.

Output Processor

- Fixed an issue in which summary report data did not display on the **Restraint Summary** report for Alternate Sustained (SUS) load cases in the **Harmonic Output Processor**. (TR-TX-15609)
- Fixed an issue in which the software did not properly convert units for force per length (F/L) uniform loads on output reports. The software properly converts units for uniform load types on all output reports. (TR-TX-10659)
- Fixed an issue in which too many parameters created during the creation of the **Miscellaneous Data Report** output report caused the report to crash. (TR-TX-13416)

Compatibility/Integration

- Focused improvements to PCF integration, including:
 - Fixed an issue with the PCF import process where the software ignored attributes for a specific component type. The software was overwriting the value in the **NAME** attribute with the **COMPONENT-ATTRIBUTE3** value, causing issues during the import process. CAESAR II now ignores all **COMPONENT-ATTRIBUTE** values for **PCF SUPPORT** components. (TR-TX-10521)
 - Fixed an issue in which the software incorrectly calculated the outside diameter (OD) of pipe with nominal sizes (diameters of 50mm or less) when importing PCF files. (TR-TX-1686)
 - Fixed an issue with APCF and PCF imports when there were multiple PCFs with lateral tees and you set the Combine PCF Files option to True (on the PCF Interface). The software incorrectly displayed branch ends on the lateral tee components on the piping input model as disconnected. (TR-TX-5619, TR-TX-13028)
 - Fixed an issue in which the software did not recognize certain supports and tees marked as MATERIAL-LIST EXCLUDE when importing PCFs. The piping model file now includes supports and tees marked as MATERIAL-LIST EXCLUDE as long as the component is not also marked as CONTINUATION. (TR-TX-13165)

- Fixed various load issues concerning reading API-560 files from CAESAR II versions 7.0 and prior. The software was updated and older versions of API-560 files now load without issue. (TR-TX-15649)
- Resolved a licensing issue when you launched NozzlePRO from the CAESAR II main menu. The software successfully opened, but later put the user into demo mode. (DM-TX-16825)

Data Export

- Fixed an issue in which the software failed to export data to Microsoft Access format (.accdb). (TR-TX-16816)
- Fixed an issue in which the **Data Export Wizard** became unresponsive during the export process when processing certain files with a large number of load cases. (TR-TX-16427)

Documentation/Help

- Updated the *Invert* section of the *CAESAR II User's Guide*. Updated the text and graphics of the of the **Invert** command documentation to provide clarification of its purpose. (TR-TX-10680)
- Renamed the **Renumber Boundary Nodes** check box on the **Block Renumber** dialog box to **Renumber Matching Nodes Outside the Block** to clarify its function. Also, the documentation was updated to provide more clarifying details of the purpose and function of the **Block Renumber** dialog box. (TR-TX-10684)

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