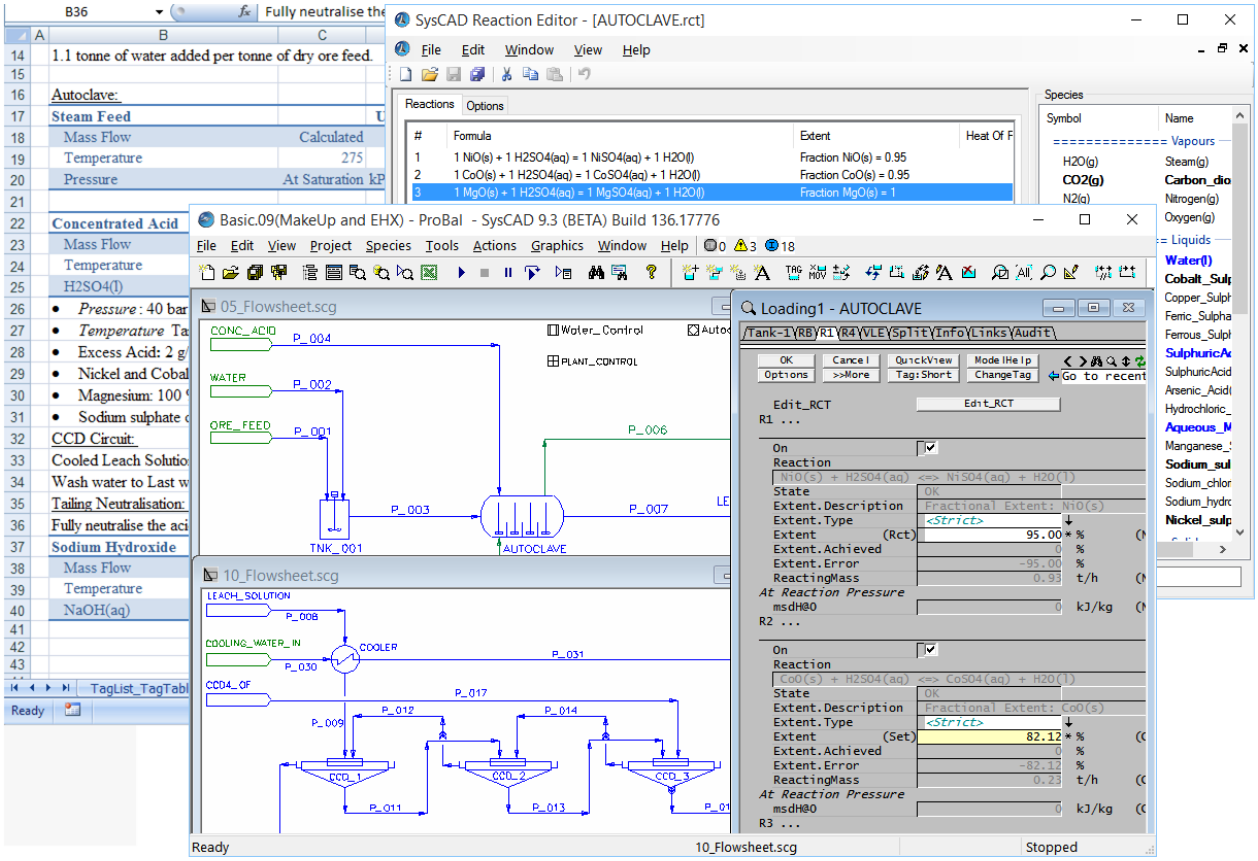
SysCAD

Innovative Software for Plant Simulation



Getting Started with SysCAD 9.3

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Table of Contents

1. INTRODUCTION 3
2. DOWNLOAD AND INSTALLATION 3
3. INITIAL START-UP AND TRIAL LICENCE 3
4. SYSCAD DOCUMENTATION 4
5. OPENING A SAMPLE PROJECT (CONFIGURED BY KENWALT) 4
6. SOLVING A CONFIGURED PROJECT 6
7. USING CONFIGURED EXCEL REPORTS 6
8. NEXT STEPS 8
9. CONTACT DETAILS 8

1. Introduction

The purpose of this document is to briefly introduce a new user to the SysCAD software and to demonstrate some features by loading a sample project, make some changes, solve and generate reports in Excel.

It is important to realise that a proper evaluation of feature rich technical software like SysCAD is normally only possible once a new user has completed a SysCAD training course or has received assistance from an experienced SysCAD user. The assistance would typically be given in person or using web based facilities to demonstrate the software.

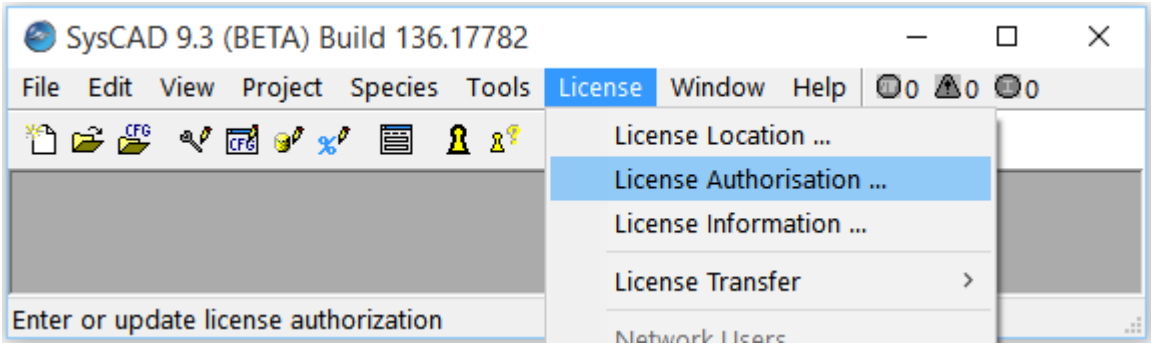
2. Download and Installation

The software can be provided via a web download (users will be provided with download information as part of the purchase/trial agreements). Once downloaded the SysCAD software can be installed on as many computer as required. SysCAD will run in 'Demo' mode unless the user has a SysCAD license.

1. You will require "local administrator privileges" to install the software correctly.
2. SysCAD operates on Windows XP, Windows Vista, Windows 7, Windows 8 or 8.1 and Windows 10.
3. SysCAD requires .Net Framework 2.0 or newer to be installed.
4. Please contact KWA Kenwalt or local agents if there are any difficulties with downloading or installation of the SysCAD software.

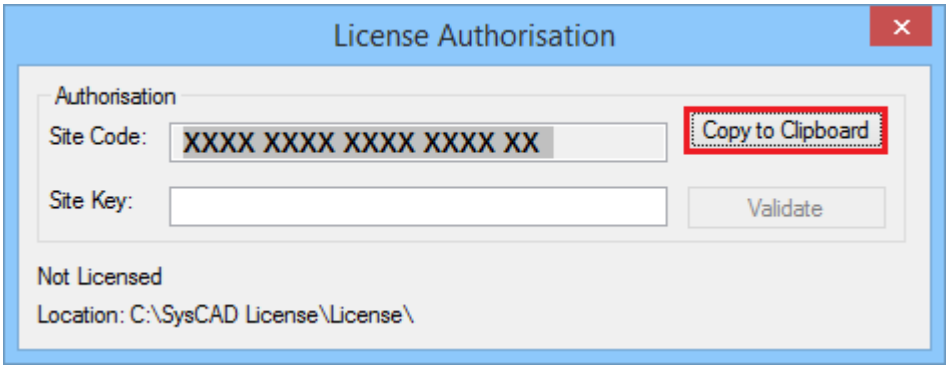
3. Initial Start-up and Trial Licence

1. Once SysCAD is installed you may start SysCAD by double clicking on the SysCAD icon,  available on the desktop. Alternatively, you may go to the Start button and then select SysCAD from the program list.
2. When SysCAD is installed for the first time, it will either operate in Demonstration (Demo) mode because the software is not licensed or immediately ask for a site key to license the software. In Demo mode you may test the SysCAD functionality and evaluate some software features, but you are restricted to running a model with a small number of unit operations.
3. To evaluate the software properly and to be able to load the example projects distributed with SysCAD you will require a license. To obtain a license, click on the 'License' menu command, and choose 'License Authorisation' as shown below:



This will open the License Authorisation box,

- Click the Copy to Clipboard button, this will copy the **Site Code** to the clipboard.
- Paste the information in an email and send it to KWA Kenwalt.



4. KWA Kenwalt will issue a corresponding **Site Key** (usually a short term license) and email this back to you.
5. Copy and paste this **Site Key** into the white box and press **Validate**.
6. When this is completed successfully, SysCAD license files are stored in the folder where the license is located. By default, this is normally the \SysCAD93\License folder.
7. Please contact Kenwalt with any questions and for assistance with a SysCAD project to help evaluate the software for your specific requirements.

4. SysCAD Documentation

Detailed documentation for SysCAD is available online at http://help.syscad.net

5. Opening a Sample Project (Configured by Kenwalt)

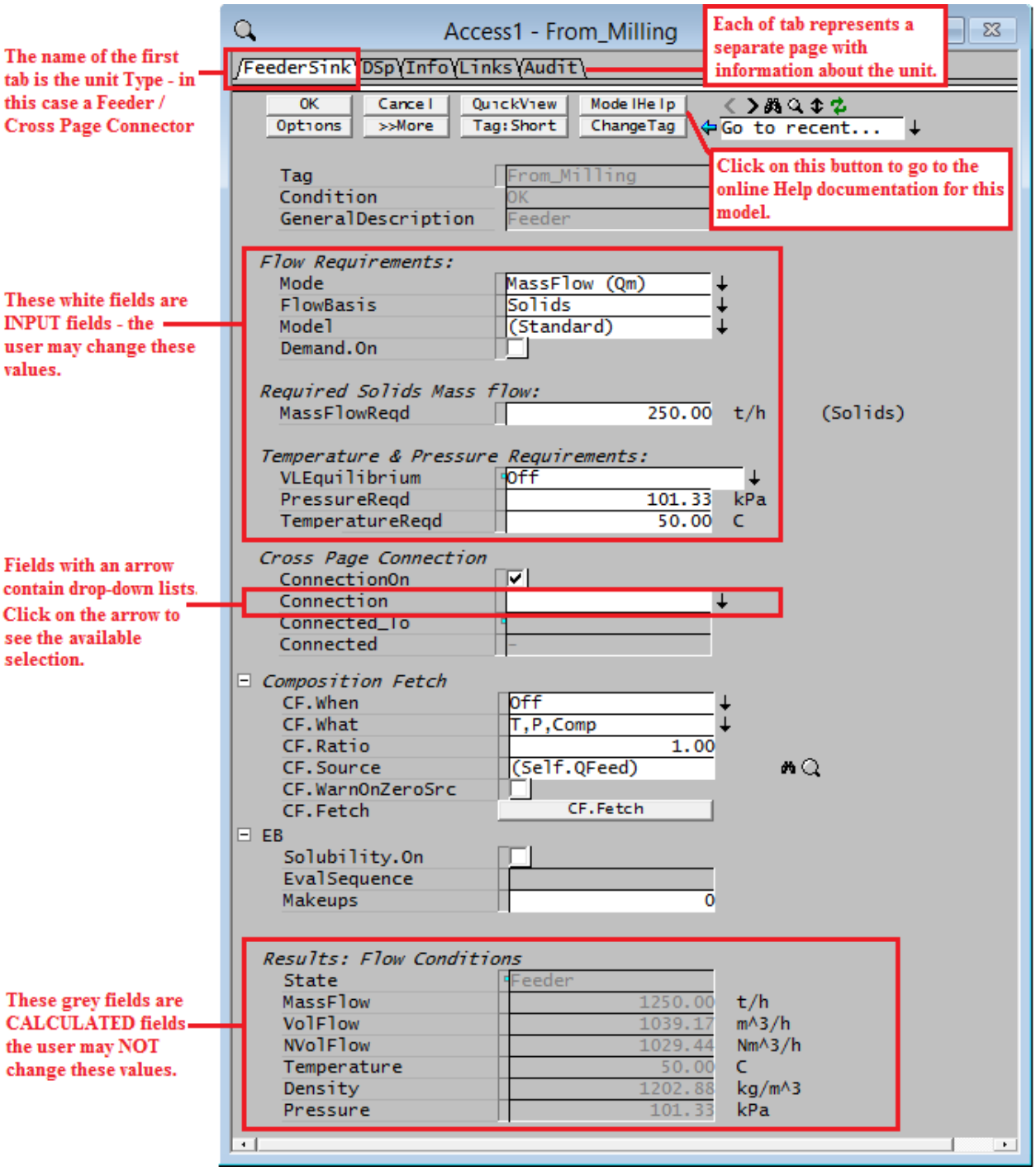
The standard install of SysCAD includes many example projects. Some example projects are described on SysCAD help which can be found on help.syscad.net/index.php/Example_Projects_9.3.

To demonstrate how to run a SysCAD project, an example workflow is outlined below:

1. From the **File** menu, choose **Open** and then find the appropriate project in the SysCAD **Examples** sub-folder.

   For example browse to the folder:

   C:\SysCAD93\Examples\03 UnitModels\High Pressure Autoclave Leach Example.spf
2. To open the project, click on the **project.spj** file located within the required project folder.
3. SysCAD will then load the project. You may run the project or change any of the appropriate parameters. NOTE: You must have received and entered a SysCAD license key before you can load the project.
4. Each unit operation in the project, including pipes, may be accessed via the **Graphics Window**. Positioning the cursor over the desired unit-operation's graphic symbol, and click on the Right Hand mouse button. When this action is performed, the **Access** properties **window** for that unit operation becomes visible, and you may change any parameter that is shown in a **White** edit box. Parameters in **Grey** boxes are calculated by the model and may not be changed by the user. An example of an access window for a feeder is shown below:



5. Access windows may consist of more than one page, as shown in the access window above. You can view any of the pages by clicking on the Tabs at the top of the window. Each page displays different information about the unit operation or pipe. Please refer to the Models Help documentation (http://help.syscad.net/index.php/Models) for further information on the individual unit operations and their parameters.

6. All of the SysCAD help documentation is available on-line and may be accessed from SysCAD by clicking on the 'Help' menu or from the SysCAD program Start list.

6. Solving a Configured Project

1. Use the 'Solve' toolbar  buttons to **Start | Stop | Pause | Step** the project. SysCAD will then attempt to achieve a Mass and Energy Balance for the project for the current settings and configuration.
2. A "solver" window is visible while SysCAD is solving a Steady State project, showing the number of iterations, solution time, number of units converged and maximum percentage error.
3. You may adjust any of the Access Window writable parameters (in the white field boxes) while the model is solving – you do not have to stop the model to make changes.
4. You may choose to stop the solver at any time by clicking on the Stop  button.

7. Using Configured Excel Reports

Excel is a useful environment for entering data into SysCAD before solving and for reporting and presenting SysCAD results. A brief description of this is shown here, followed by an example that uses Excel to solve the SysCAD model for different conditions and then generate reports for these different input conditions.

1. You may set variables in SysCAD from Excel, or write values to Excel using a configured report. The report is usually saved in the project folder.
2. To generate a report, or set SysCAD values, click on the 'Report' toolbar icon: . The "Excel Automation: Export Reports and Import Data" Dialog box will become visible.
3. To send values from SysCAD to an Excel report, click on '**Generate**' button on the '**Export Reports**' page.
4. To send values from Excel to SysCAD, click on the '**Process**' button on the '**Import Data**' page.
5. **Note**: The Excel report **must** be saved after any changes before using the reporting feature of SysCAD; otherwise the action is not completed. An error is reported in the message window.
6. You may also click on the 'Edit in Excel' button to open the required spreadsheet.
7. Once the reporting is complete, close the reporting dialog box.

Example: High Pressure Autoclave Leach Example project

Open the project **..\SysCAD93\Examples\03 UnitModels\High Pressure Autoclave Leach Example.spf** and click on the **Report** icon.

The project currently has been set up with the **Report.xlsx** Excel spreadsheet. Click on the **Edit in Excel** button to open the spreadsheet.

This spreadsheet has a "**Criteria**" worksheet that has been configured with a number of different variables. You may change any of these variables, such as feed rate, feed make-up etc.

NOTE: **Column I** in the spreadsheet is used to set values from Excel to SysCAD; while **Column F** in the spreadsheet is used to report values from SysCAD to Excel.

As an example, to change the Plant feed rate from 250t/h to 200 t/h and generate a new report, the following steps must be carried out:

1. Open the Excel report (by clicking on the 'Edit in Excel' button) and go to the '**Criteria**' worksheet. Change the **Solids Flow** from **250** to **200t/h** (Cell I19) and save the spreadsheet.
2. Switch back to SysCAD, on the Excel Automation: Export Reports and Import Data Dialog box, click on the '**Import Data**' tab page. Click on the '**Process**' button.
3. SysCAD will read the values from the Excel file into the appropriate unit operations. The software will change to Excel and you will see the 'SetTagErrs' worksheet displayed on the screen. SysCAD writes to this page each time a 'Set Tag' command is processed. Once all of the tags have been processed, the software will flag the user in the messages window that it is complete.
4. Return to SysCAD and **Solve** the model for the new Feed Rate.
5. Once the model is solved, click on the 'Reports' toolbar icon again and go to the '**Export Reports**' page. Click on the '**Generate**' button.
6. This time, SysCAD will set the values in the Excel file in the reporting section. The software will change to Excel and you will see the 'Tag Errs' worksheet displayed on the screen. SysCAD writes to this page each time a 'Report' command is processed. Once all of the tags have been processed, the software will flag the user that it is complete. You will be able to observe the results based on the new flowrate.

Note: You may of course set the flowrate in the Feeder directly in SysCAD, and skip steps 1 to 4. This is faster if you only wish to change one or two values directly in SysCAD. The Excel function is useful for changing many values, thus allowing limited access to the model by other personnel and for reading values into SysCAD from other packages.

8. Next Steps

This is a very brief introduction to SysCAD. This document is only meant to assist with starting the example projects. Please use the Basic Tutorial that is distributed with SysCAD for a more help on using the software. The Basic tutorial may be found at:

..\SysCAD93\Tutorial\SysCADBasicTutorial.pdf

This will provide detailed instructions on using SysCAD.

The Help documentation also contains detailed information that may be of further assistance. Please see on help.syscad.net

Please contact Kenwalt for further assistance or demonstrations.

9. Contact Details

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