[Plot Template Development -- July/August 2010 -- RiverWare 5.3](http://cadswes2.colorado.edu/%7Ephilw/2010/PlotTemplates/index.html) **Development Status Report / 8-4-2010**

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1. Overview

A usable "horizontal" subset of functionality has been virtually completed (with a minor exception: user-supplied names for Plot Page Template instances has not yet been provided). The user can save a Plot Page as a Plot Page Template, identifying which slot substitution tokens (components of slot references) are to be included in the template ([see image](http://cadswes2.colorado.edu/%7Ephilw/2010/PlotTemplates/2010jul14/SavePlotAsTemplate.gif)). The user can then pick (with use of GUS as a SimObj, Account, or Slot selector) token substitute selections for each of the substitution tokens using the Plot Template Dialog ([see image](http://cadswes2.colorado.edu/%7Ephilw/2010/PlotTemplates/2010aug04/PlotTemplDlg1.gif)), and generate a plot, applying all of the defined token substitutions to all of the *slots* in all of the *curves* in all of the *plots* in the template's reference plot page. Plot Page Templates are now saved in model files (as output devices) and can be exported and imported -- but support for this is currently limited to curves and slot substitution tokens. [See the latest screenshots](http://cadswes2.colorado.edu/%7Ephilw/2010/PlotTemplates/2010aug04/).

As of today, **88 hours** have been used for development, with an additional **9.5 hours** used for my design review and major status reporting (this document). Neil's original estimate for Plot Template development, including 6 hours for documentation, was **70 hours.** This time is summarized in the following two sections. [See the last section for Plot Template completion](http://cadswes2.colorado.edu/%7Ephilw/2010/PlotTemplates/status-2010aug04.html#completion).

The original "Plot Template Task - Conceptual Design" document / estimate also included **21 hours** (of the total **91 hours**) for a distinct enhancement: **"Save or Replace Single Plot in a Plot Page".** No work has been done on that. [A copy of the design document is linked from this page](http://cadswes2.colorado.edu/%7Ephilw/2010/PlotTemplates/index.html).

2. Work to date: Overview

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| ==========================  (1) Work to date: Overview  ==========================    6.5 Hours -- Design Review / Internal Design Work  9.0 Hours -- Internal Data Model / Plot Template Class, supporting classes  19.5 Hours -- "Save As" Template Dialog / Plot Template Creation  3.25 Hours -- Output Manager Work  9.0 Hours -- Plot Template Dialog / Editable Token List  27.75 Hours -- Plot Generation from Template  19.5 Hours -- Plot Page Template Persistence / Model Files & Import, Export  3.0 Hours -- Major Status Reporting  ===========  97.5 Hours -- Total Time to date.  88.0 Hours -- Development Time (excluding design/review and major status reporting)  -----------    (Average hours/day worked during this project as of 8-4-2010: 8.79). |

3. Work to date: Task/Date Breakdown

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| =====================================  (2) Work to date: Task/Date Breakdown  =====================================    Design Review / Internal Design Work  6.5 Hours (7-8)    Internal Data Model / Plot Template Class and supporting classes  9.0 Hours (7-9)    "Save As" Template Dialog / Plot Template Creation  8.5 Hours (7-12)  8.0 Hours (7-13)  3.0 Hours (7-14 a)    Output Manager Work  3.25 Hours (7-14 b)    Plot Template Dialog / Editable Token List  3.0 Hours (7-14 c)  6.0 Hours (7-15 a)    Plot Generation from Template  4.0 Hours (7-15 b)  7.0 Hours (7-28)  9.25 Hours (7-29)  7.5 Hours (7-30)    Plot Page Template Persistence / Model Files & Import, Export  ... Reference Plot Page and Substition Tokens only.  6.0 Hours (8-2)  8.5 Hours (8-3)  5.0 Hours (8-4)    Major Status Reporting  3.0 Hours (8-4) |

4. Plot Template Completion

Not yet completed:

1. Title substitutions, for Plot Titles, Axis Titles and Curve Titles. (However, token substitutions applied to any slots in a curve are currently also applied to the respective curve titles. This is intended to be provided as default behavior for curve titles not represented with an explicit Curve Title replacement).
2. The ability to provide a user-supplied name to a Template instance in the "Save as Template" dialog.
3. The display of the plot layout symbol (3x3 grid of icons) in the "Plot Template" dialog.
4. User-supplied Template Description.
5. Minor dialog box refinement (Save As Template, and Template Dialogs), e.g. adding user-controllable "splitters" between sections.

The first item -- **Title substitutions for Plot Titles, Axis Titles and Curve Titles** -- represents most of the work yet to be completed. This is all simpler, and parallel to what has already been completed for for curve slot substitutions. Existing support classes and iteration mechanisms will be extended to support the three levels of titles. Estimates:

* 4 Hours -- Data model enhancements
* 2 Hours -- Save As Template Dialog Enhancements
* 10 Hours -- Plot Template Dialog Enhacements (including an *editable column* in each of three new QTreeWidgets).
* 4 Hours -- Serialization enhacements. (This will go better than the previous serialization work, which had serious difficulties due to the need to "composite" a "PlotPageInfo" instance within each PlotTemplateDevice).
* 8 Hours -- Plot generation support (using conditional substitution for the three types of titles).

Estimates for the other items:

* 2 Hours -- The ability to provide a user-supplied name to a Template instance in the "Save as Template" dialog. This is a simplification from the original specification, which called for an additional dialog listing all previously created Templates.
* 4 Hours -- The display of the plot layout symbol (3x3 grid of icons) in the "Plot Template" dialog.
* 2 Hours -- User-supplied Template Description.
* 4 Hours -- Minor dialog box refinement (Save As Template, and Template Dialogs).

Total completion estimate: 40 Hours.

5. Other Notes

Major source files added or modified for this project:

* Q3GUI/OutputManager.cpp
* Q3GUI/OutputManager.hpp
* Q3GUI/PlotDialog.cpp
* Q3GUI/PlotTemplateDlg.cpp
* Q3GUI/PlotTemplateDlg.hpp
* Q3GUI/PlotTemplateWidgets.ui
* Q3GUI/SavePlotAsTemplateDlg.cpp
* Q3GUI/SavePlotAsTemplateDlg.hpp
* Q3GUI/SavePlotAsTemplateWidgets.ui
* Sim/PlotInfo.cpp
* Sim/PlotInfo.hpp
* Sim/PlotPageInfo.cpp
* Sim/PlotPageInfo.hpp
* Sim/PlotTemplateDevice.cpp
* Sim/PlotTemplateDevice.hpp
* Sim/SlotTemplateInfo.cpp
* Sim/SlotTemplateInfo.hpp
* Sim/cwOutputDevice.cpp
* Sim/cwOutputDevice.hpp

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