A Guide to Control Chart Warnings in JMP Live 16.0

Control charts, and control chart warnings, have been in JMP for a while. What's new in JMP Live 16.0 is that you can receive notifications onscreen, or through email, about JMP Live posts that have control chart warnings. This article explains this new feature from the perspective of a few different kinds of JMP Live users.

- Guide for Regular Users
- Guide for Group Administrators
- Guide for Content Publishers
- Guide for Content Publishers using JSL

Guide for Regular Users

This guide will explain some control chart warning indicators that you may see onscreen or in your email as a regular JMP Live user.

For example, if you are browsing through posts on the Home page, you may see a red warning icon on the bottom of a post. The hover tip says "There are control chart warnings in this post". This is a very brief way of telling you that your colleagues want to bring your attention to a potential problem. The longer version would be:

1. The post has control chart builder content.
2. The publisher cares about control chart warnings on this post - they have chosen to turn on some test(s) in JMP.
3. The post actually has control chart warnings - the data "fails" some of the test(s) that the publisher has turned on.
4. The publisher thinks that you might care about control chart warnings on this post - they have chosen to enable the JMP Live feature for this post.

You might also see this icon on a folder, if there is a post inside the folder that has control chart warnings.

If you click this icon, you will see the post details, automatically scrolled to the "Warnings" section.

In an open post, you may see a red warning icon near the top. The hover tip says "There are control chart warnings in this post". If you click this icon, you will see the post details, automatically scrolled to the "Warnings" section.

In an open post, you may see some data points circled in red to indicate control chart warnings. The hover tip provides more information about the data point and about the "failed" control chart warning test.
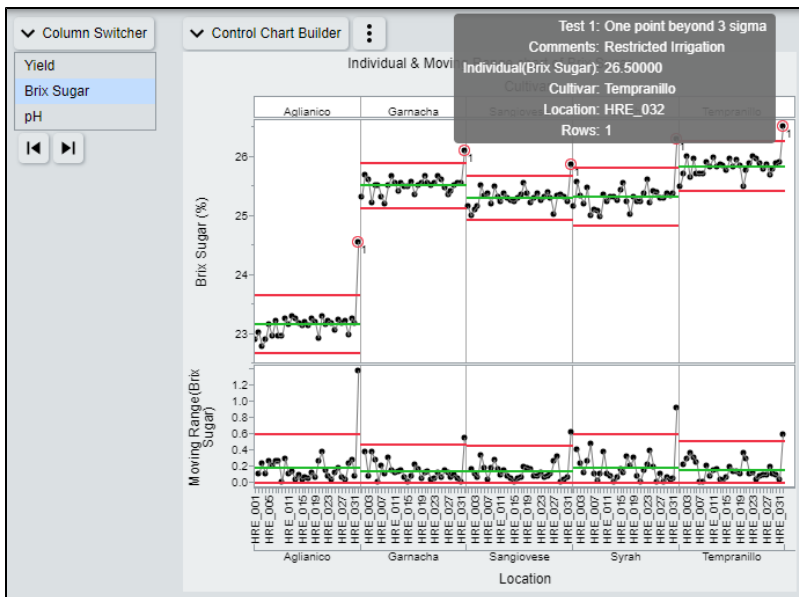
If you open a post's details, you may see a "Warnings" section. This means that:

1. The post has control chart builder content.
2. The publisher thinks that you might care about control chart warnings on this post - they have chosen to enable the JMP Live feature for this post.
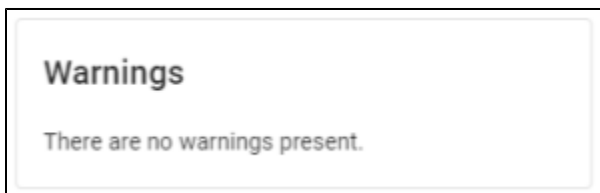
There may be no "failed" control chart warning test(s) in the post's latest data.

Or, there may be some "failed" control chart warning test(s) in the post's latest data. If so, you can "Expand" to show a bit more information, or "Open Log" to show a lot more information.
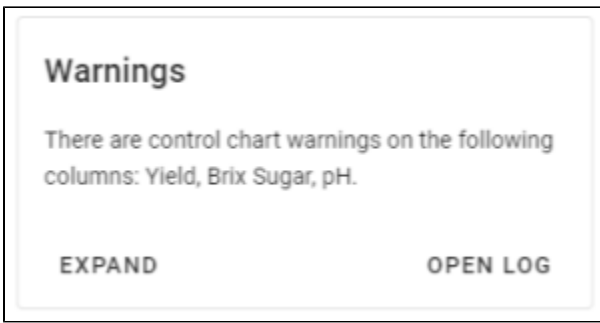
You may see a control chart warning notification for a post. This is a very brief way of telling you that your colleagues want to bring your attention to a potential problem. The longer version would be:

1. The post has control chart builder content.
2. The publisher cares about control chart warnings on this post - they have chosen to turn on some test(s) in JMP.
3. The post actually has control chart warnings - the data "fails" some of the test(s) that the publisher has turned on.
4. The publisher thinks that you might care about control chart warnings on this post - they have chosen to enable the JMP Live feature for this post.
5. The post has been shared with a group that you belong to.
6. The administrator of the group thinks that you might care about control chart warnings - they have chosen to enable JMP Live control chart warning notifications for the group.

If you click this notification, you will be taken to the post so that you can investigate.
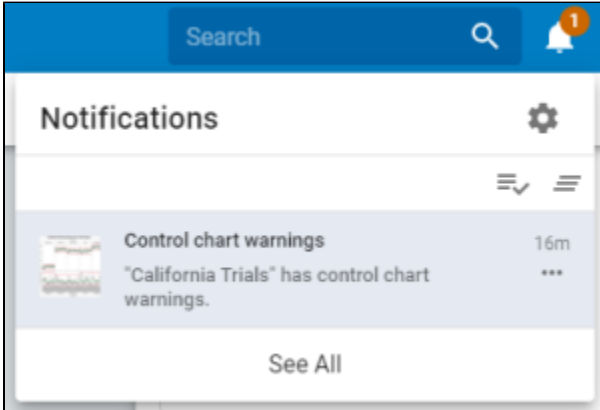
You may receive a control chart warning notification through email.

```
Aurora Tiffany-Davis,

The post titled "California Trials" has control chart warnings.

There are control chart warnings on the following columns: Yield, Brix Sugar, pH.

Column: Yield
        Chart: Individual
                Number of Warnings: 1
                Warning Rate: 0.625%
                Tests: Test 1, Test 5
        Chart: Moving Range
                Number of Warnings: 0
                Warning Rate: 0.000%
                Tests:
        Failed subgroup:
                160:    Test 1: One point beyond Zone A

Column: Brix Sugar
        Chart: Individual
                Number of Warnings: 5
                Warning Rate: 3.125%
                Tests: Test 1, Test 5
        Chart: Moving Range
                Number of Warnings: 0
                Warning Rate: 0.000%
                Tests:
        Failed subgroups:
                32:     Test 1: One point beyond Zone A
                64:     Test 1: One point beyond Zone A
                96:     Test 1: One point beyond Zone A
                128:    Test 1: One point beyond Zone A
                160:    Test 1: One point beyond Zone A

Column: pH
        Chart: Individual
                Number of Warnings: 1
                Warning Rate: 0.625%
                Tests: Test 1, Test 5
        Chart: Moving Range
                Number of Warnings: 0
                Warning Rate: 0.000%
                Tests:
        Failed subgroup:
                118:    Test 1: One point beyond Zone A
```
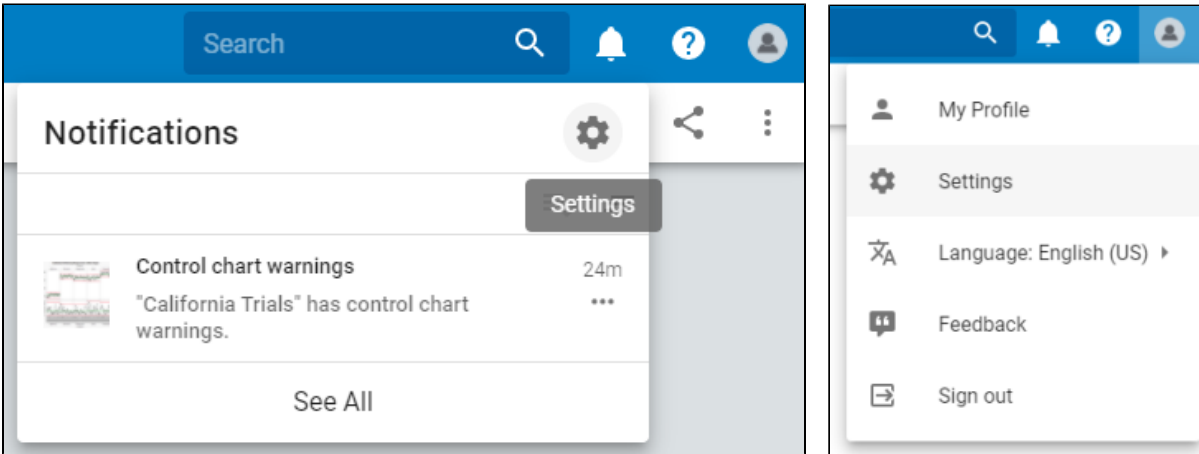
If you want to silence or reduce control chart warning notifications, you can change your settings, either by clicking the notification settings icon from the navigation bar, or by clicking the user settings icon from the navigation bar.

Scroll to "Control chart warnings" and toggle the setting off to silence all control chart warning notifications, or change the frequency with which you receive control chart warning notification emails.
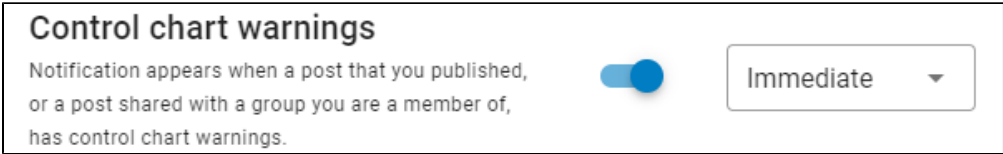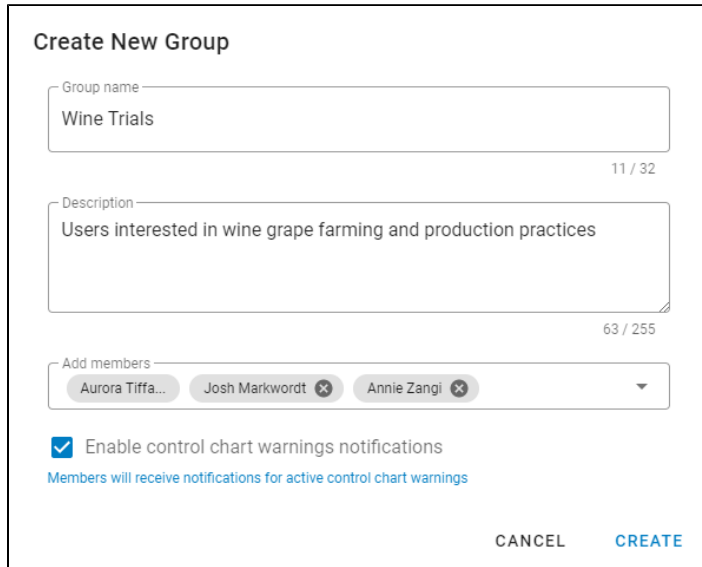
Guide for Group Administrators

This guide will explain your options regarding control chart warnings when creating and administering a JMP Live group.

When you create a new group, you may select the "Enable control chart warnings notifications" option.

If you select this option, you are saying the members of this group, in general, care about control chart warnings, and should receive control chart warning notifications about posts in this group.


These warnings will go out whenever:

1. The post has control chart builder content.
2. The publisher has chosen to turn on some control chart warning test(s) in JMP.
3. The post is updated (i.e. it is published, replaced, or has its data updated), and the new data "fails" some control chart warning test(s) that the publisher has turned on.
4. The publisher has chosen to enable JMP Live control chart warnings for this post.
5. The group member has not chosen to silence control chart warning notifications through the notification settings page.

This option does not impact the publisher of any post in the group. A publisher will always get control chart warning notifications about their post, assuming that they have not chosen to silence control chart warning notifications through the notification settings page.

You can also change this "Enable control chart warnings notifications" option later on.

Opening the "overflow" menu from the group itself.
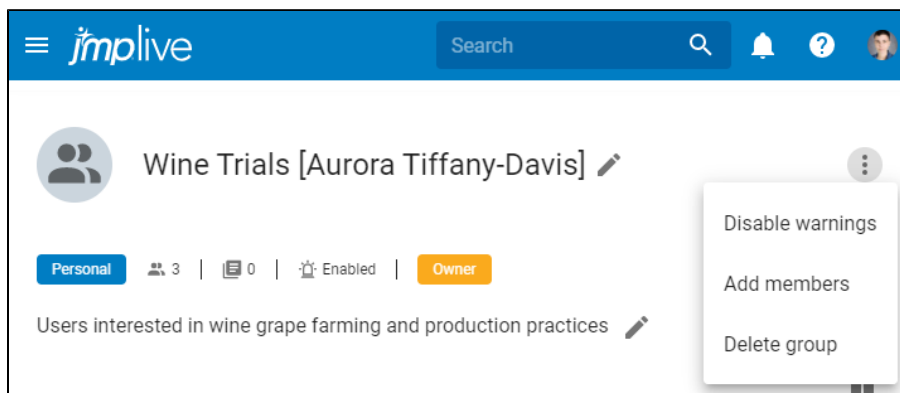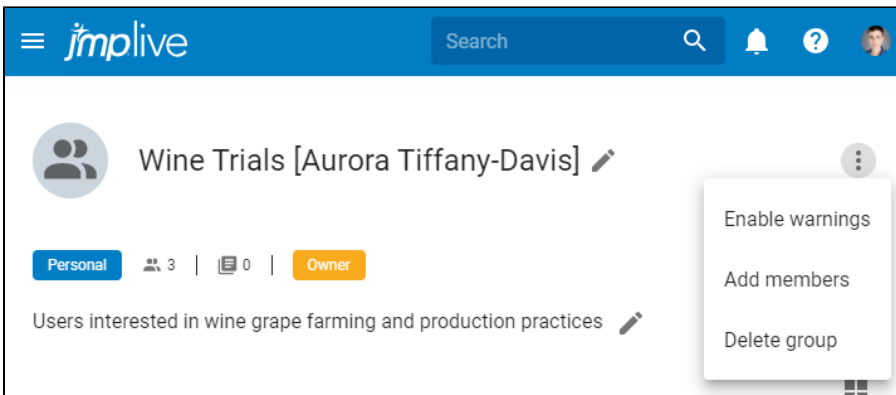
If you are enabling control chart warnings on a group where they were previously disabled, you will be prompted to make another decision. There may be control chart warnings on posts in this group that the members do not know about, since control chart warnings were disabled for the group until this change. You will be asked whether you want to "Send Notifications Now?" to let group members know about any control chart warnings on posts in this group.
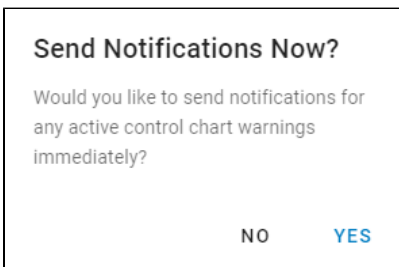
Guide for Content Publishers

This guide will walk you through publishing a control chart to JMP Live and explain your options regarding control chart warnings.

Open a JMP Data Table

In this example, we are working with a data table that tracks wine grape production (part of which is shown below).

	Location	Cultivar	Yield (Kg)	Brix Sugar (%)	pH	Comments
1	HRE_001	Aglianico	4.83	22.90	3.40	
2	HRE_001	Garnacha	6.30	25.30	3.54	
3	HRE_001	Sangiovese	7.15	25.15	3.41	
4	HRE_001	Syrah	5.80	25.15	3.68	
5	HRE_001	Tempranillo	6.10	25.49	4.00	
6	HRE_002	Aglianico	4.98	23.01	3.42	
7	HRE_002	Garnacha	6.13	25.68	3.55	
8	HRE_002	Sangiovese	7.25	24.99	3.45	
9	HRE_002	Syrah	6.05	25.56	3.55	

Use Control Chart Builder to create a control chart with enabled tests

Open the Control Chart Builder from the Analyze menu.

	Cultivar	Yield (Kg)	Brix Sugar (%)	pH	Comments
	anico	4.83	22.90	3.40	
	acha	6.30	25.30	3.54	
	giovese	7.15	25.15	3.41	
	h	5.80	25.15	3.68	
	pranillo	6.10	25.49	4.00	
	anico	4.98	23.01	3.42	
	acha	6.13	25.68	3.55	
	giovese	7.25	24.99	3.45	

Analyze menu:
- Distribution
- Fit Y by X
- Tabulate
- Text Explorer
- Fit Model
- Predictive Modeling
- Specialized Modeling
- Screening
- Multivariate Methods
- Clustering
- Quality and Process
  - Control Chart Builder — *Enables the user to interactively create control charts.*
  - Measurement Systems Analysis
  - Variability / Attribute Gauge Chart
  - Process Capability
  - Control Chart
  - Model Driven Multivariate Control Chart
  - Legacy Control Charts
  - Pareto Plot
  - Diagram
  - Manage Spec Limits
  - OC Curves
- Reliability and Survival
- Consumer Research

12	HRE_003	Gar
13	HRE_003	San
14	HRE_003	Syra
15	HRE_003	Ten
16	HRE_004	Agl
17	HRE_004	Gar
18	HRE_004	San
19	HRE_004	Syra
20	HRE_004	Ten
21	HRE_005	Agl

Set up your control chart, and then choose which control chart warning tests you want JMP to use. The available tests are the basic "Test Beyond" which checks to see if any data point is beyond the control limits, along with the 8 Nelson Rules, and the 6 Westgard Rules.
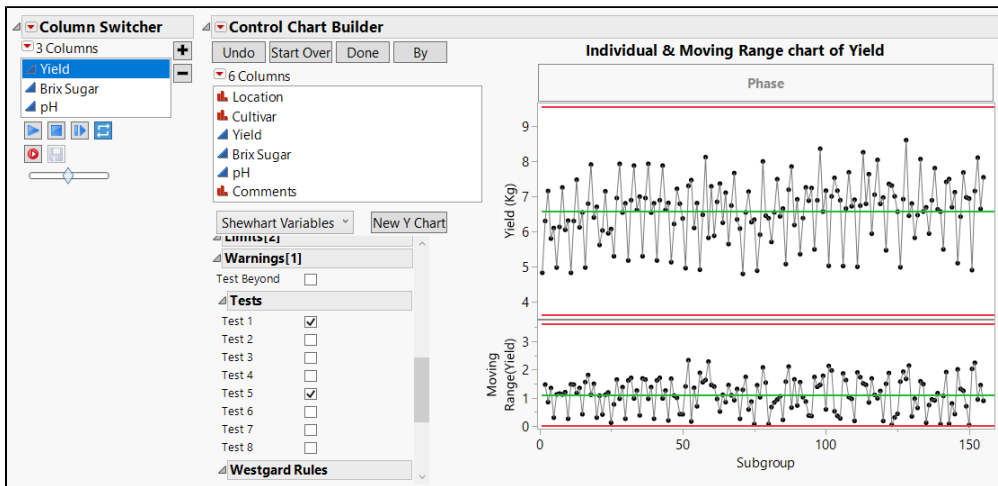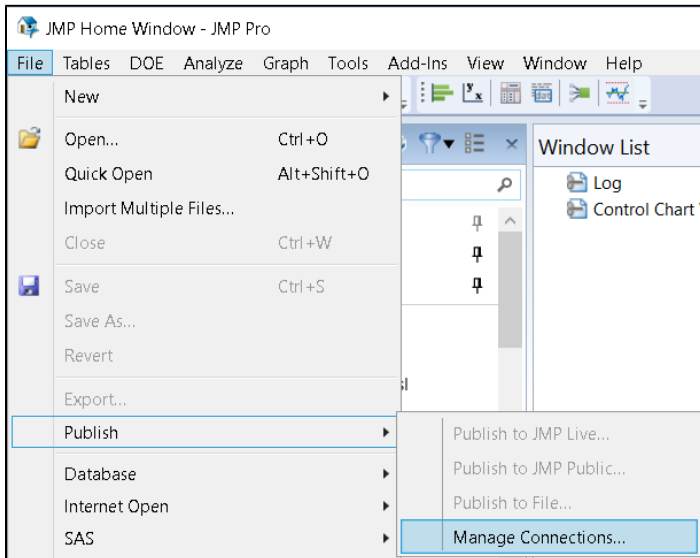

Now we have a control chart with warning tests in place.
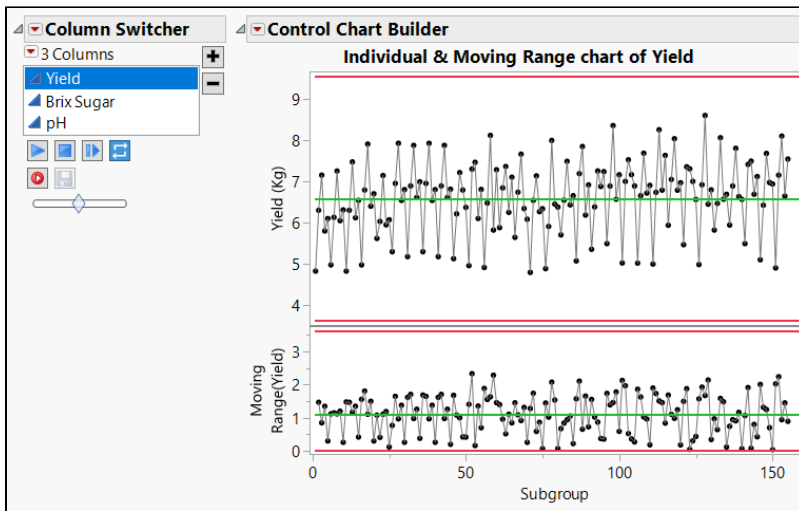
Creating a connection to JMP Live

When you have a report prepared that you would like to publish to JMP Live, the first thing you need to do is establish a connection to JMP Live. In JMP 16, the way you manage connections has been updated. To create a new JMP Live connection, go to **File > Publish > Manage Connections…**


The Manage Connections dialog will display any other connections you have established, and allow you to edit or delete them, as well as create a new one. To create a new connection, click the **Add New…** button, highlighted in the image below.
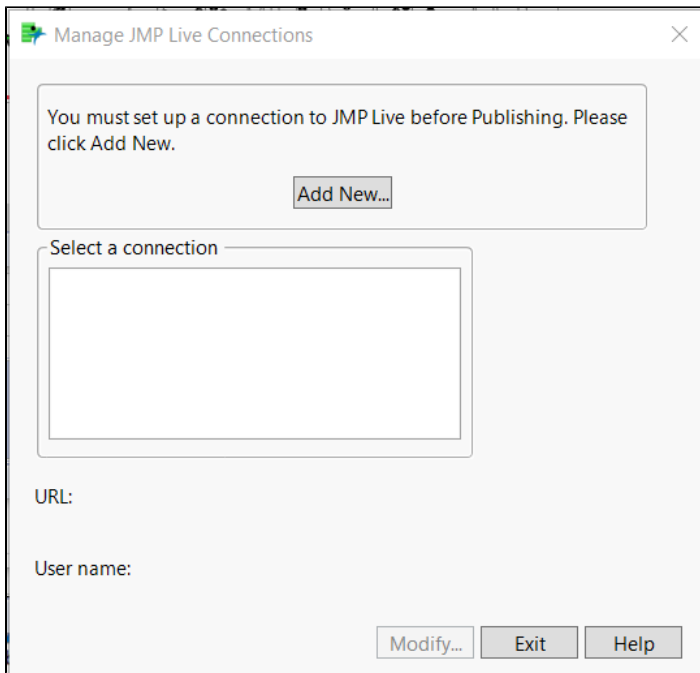
*Note: if you have other connections already established, the dialog will look slightly different. The warning message at the top will not be shown, existing connections will be displayed in a **Select a connection** box, and the **Add New...** button will be at the bottom of the dialog with the other buttons.*

To create a connection, first give it a **Connection Name** to help you distinguish it from other connections you may have saved in your system. Next, provide the address of the page complete with port number in the **URL** field. If you would like to be able to publish or update reports via JSL as we will show, you will need to provide an API key before proceeding by clicking Next. Here is the dialog, below I will show how to get the API key from JMP Live.
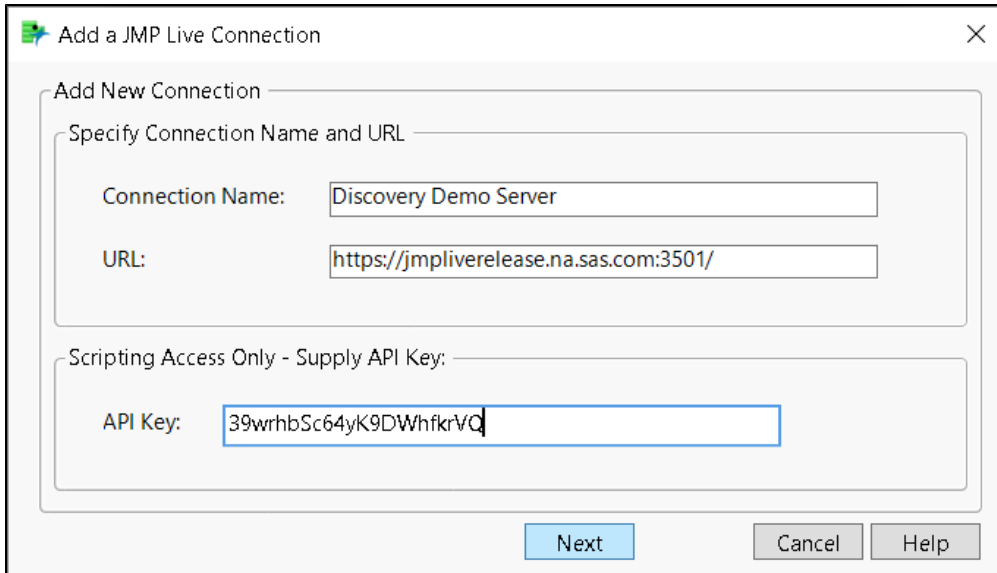

The API Key can be retrieved through the JMP Live client by logging on and clicking your avatar in the upper right-hand corner in order to show the following drop-down menu and select **Settings**.
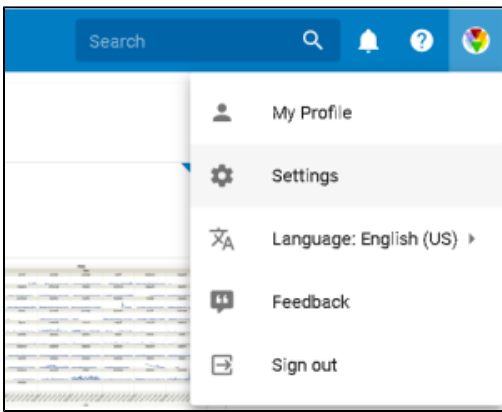
The following screen will display the user settings for your account. Towards the top below the information for the login name and email associated with your account is a section titled **API Key** which has a button **Generate New API Key** to the right-hand side. Click it, and a dialog will be presented with your API key. You can click **Copy** to copy this string to your clipboard, and paste it into the **API key** field in the JMP desktop dialog shown earlier.
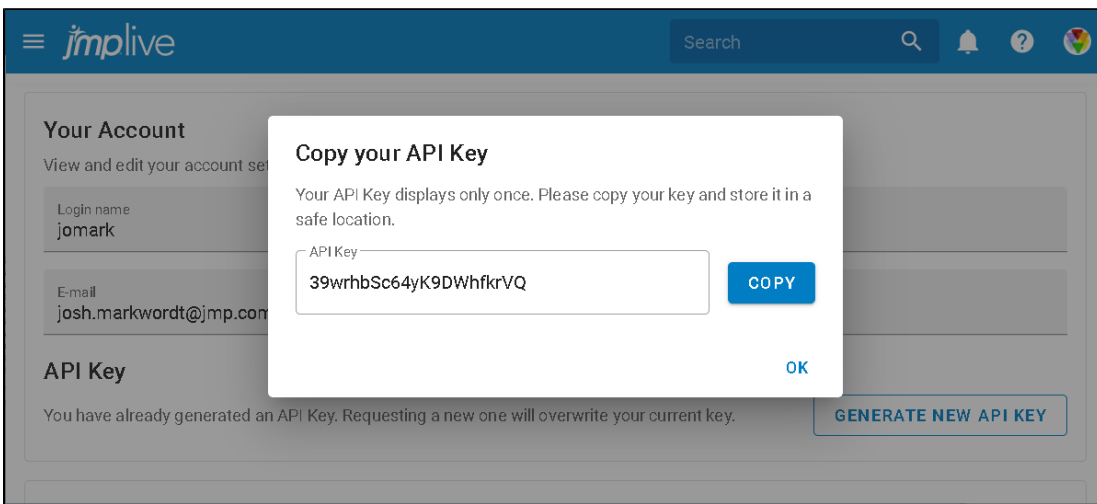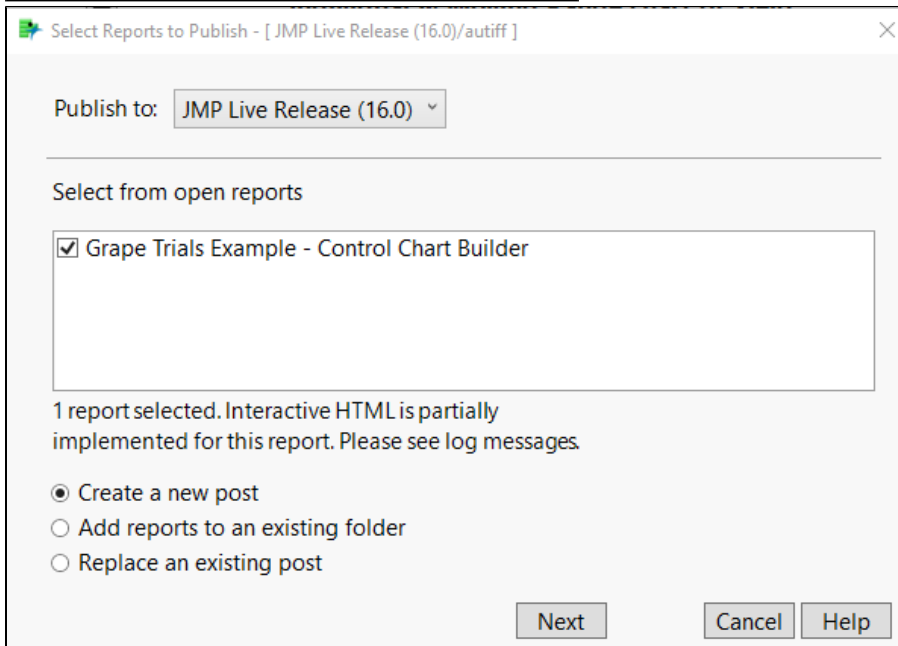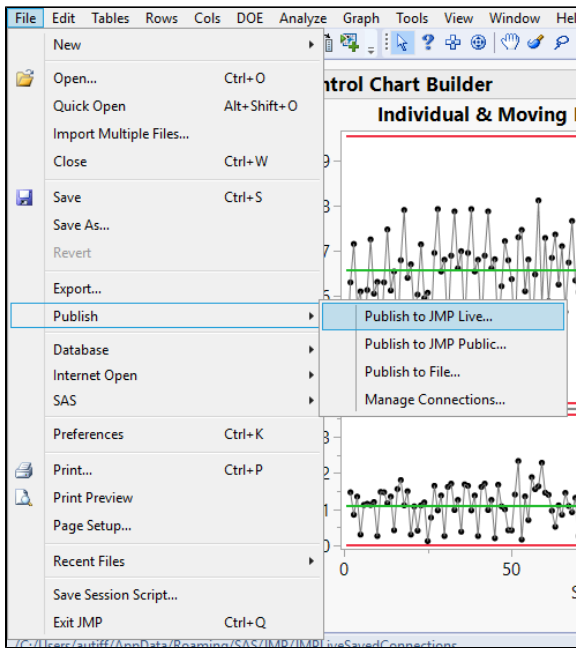

After pasting in the API key and clicking **Next**, you will be shown the dialog below, confirming that the connection was created.
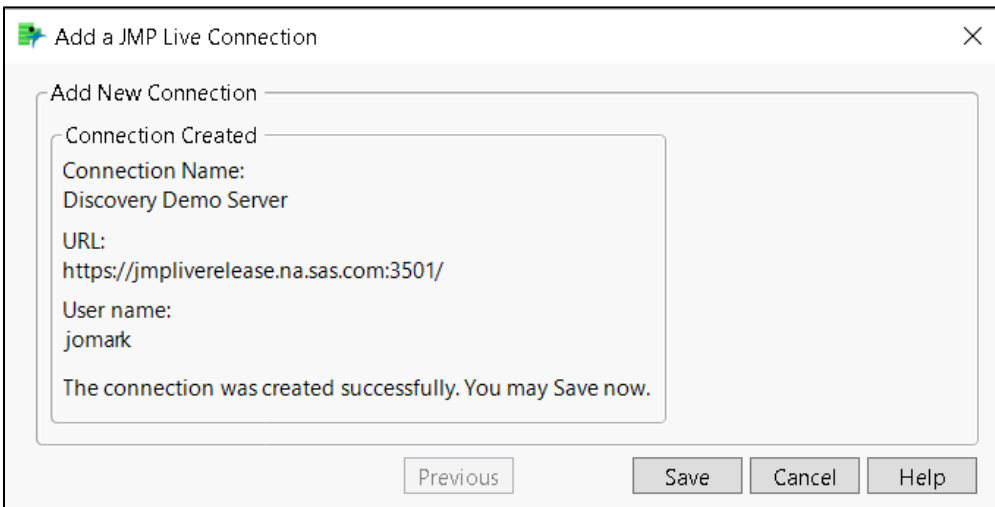
Click **Save** to save the connection for later use, and then **Exit** in the first Manage JMP Live Connections dialog. The connection is now ready to be used while publishing to JMP Live.

# Publish a control chart to JMP Live

As part of the publish wizard, you may select the "Enable Warnings" option. If you select this option, you are saying that "interested parties" should receive control chart warning notifications about this post, whenever:

1. The publisher has chosen to turn on some control chart warning test(s) in JMP.
2. The post is updated (i.e. it is published, replaced, or has its data updated), and the new data "fails" some control chart warning test(s) that the publisher has turned on.
3. The "interested party" has not chosen to silence control chart warning notifications through the notification settings page.

So, who are the "interested parties"?

1. You, as the publisher of the post
2. All members of any control chart warnings enabled group that the post is shared with. Group administrators have control over whether their groups are control chart warnings enabled.

This option is only available if the post has control chart builder content.
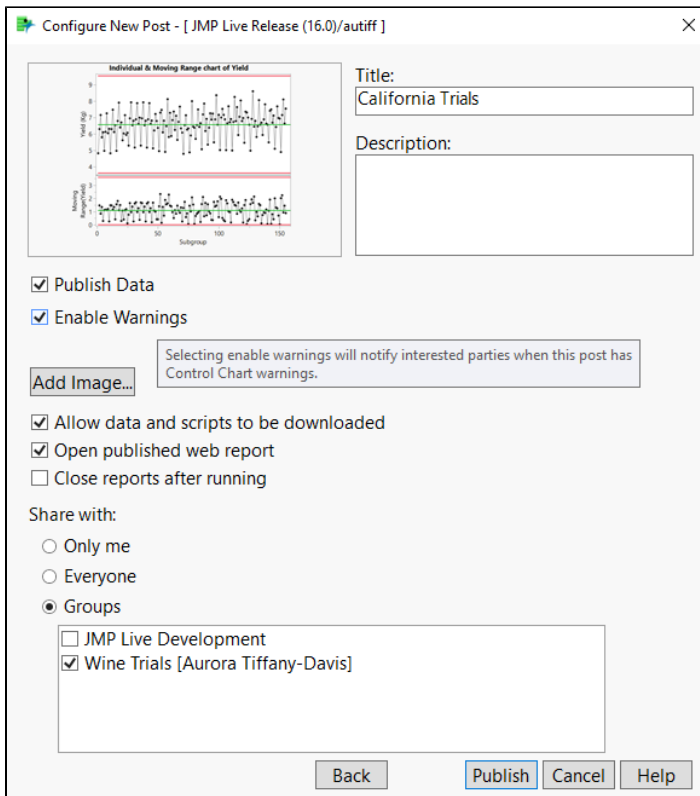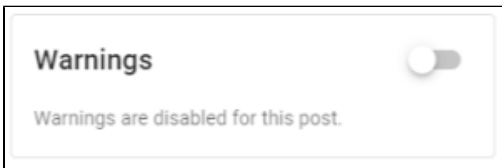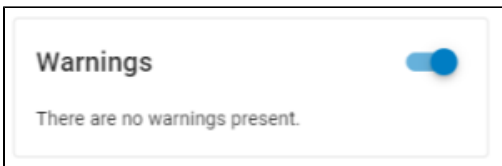
Enable or disable control chart warnings for a post

Why might you want to change your decision about whether control chart warning notifications should be enabled for a post? One reason might be that your process has warnings, and the interested parties have been notified, but you know that your data may be updated several times while the problem is worked. You may want to silence notifications on this post while the problem is worked, and then turn them back on again once this problem is solved, to catch any additional problems that might pop up in the future.
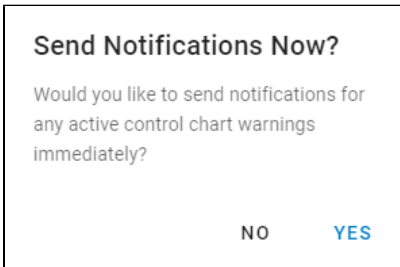
Open the post details, either by clicking the overflow menu on the post's card, or by clicking the details icon from an open post.
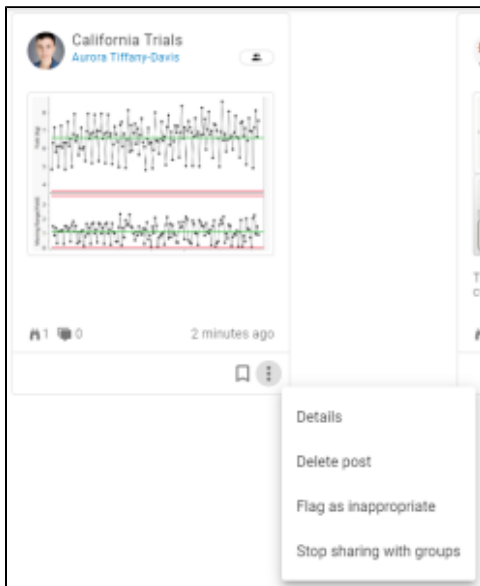
Scroll down to the "Warnings" section and toggle the enable / disable status for this post. This toggle switch does the same thing as the "Enable Warnings" checkbox that you saw during publish. If you select this option, you are saying that interested parties should receive control chart warning notifications about this post.

If you are enabling control chart warnings on a post where they were previously disabled, you will be prompted to make another decision. There may be control chart warnings on this post that interested parties do not know about, since control chart warnings were disabled until this change. You will be asked whether you want to "Send Notifications Now?" to let interested parties know about any control chart warnings on this post.
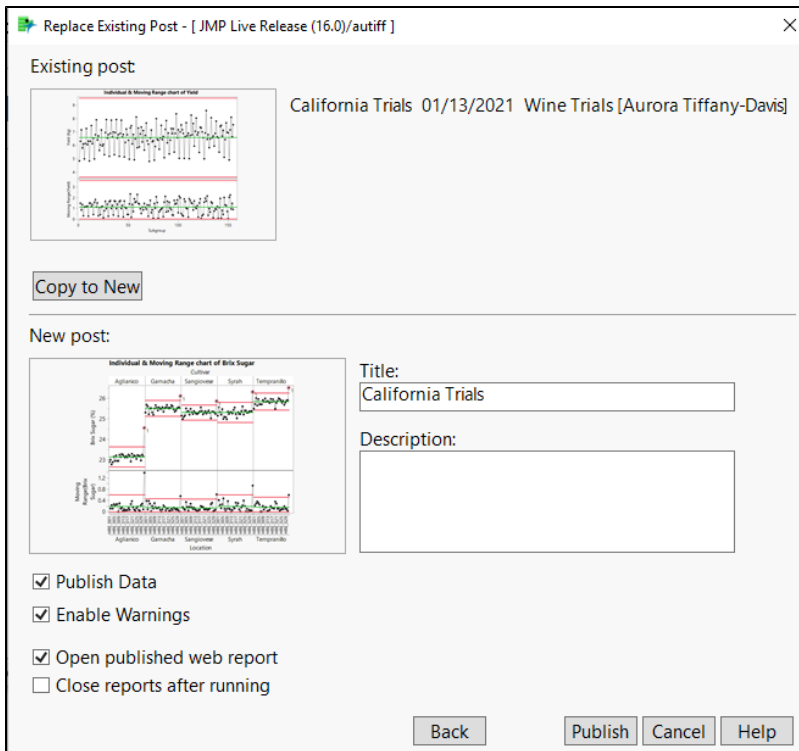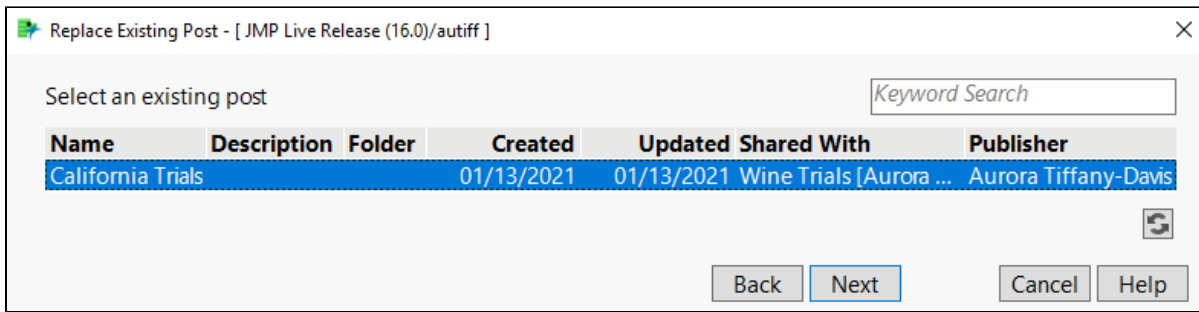

Update a control chart post

In JMP Live 16.0, you have many options for how to update a post.

You can replace (a.k.a. republish) the post from JMP interactively
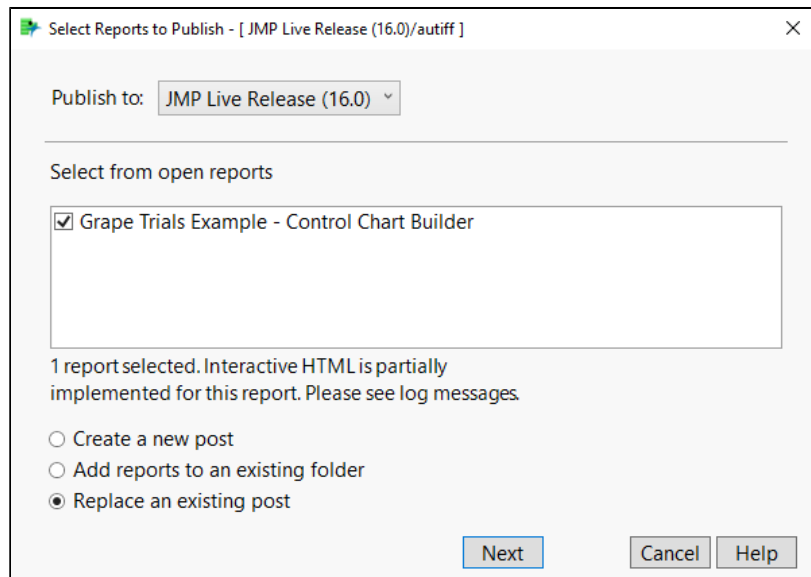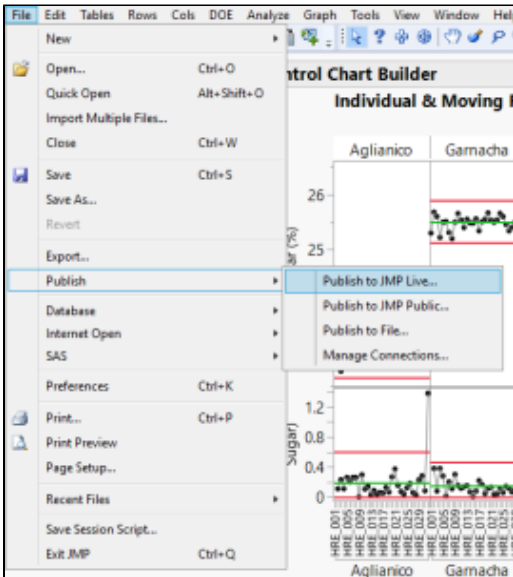
You can replace (a.k.a. republish) the post using JSL

See the "Replace" function in the scripting index or see the Guide for Content Publishers using JSL & Automation.

You can update the data for the post interactively

Open the post details, either by clicking the overflow menu on the post's card, or by clicking the details icon from an open post.

Scroll to the "Data" section and click "Manage".

Click "Update Data".

Select the new data and click "Submit".
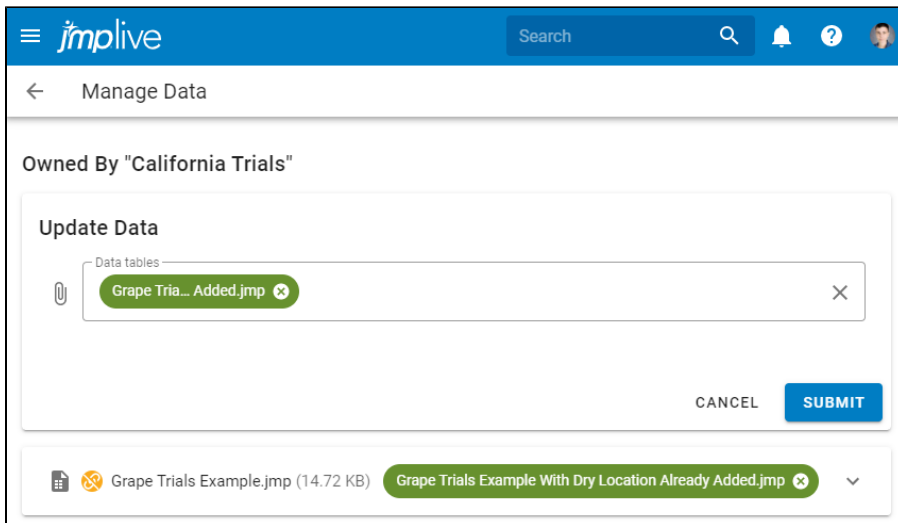
You can update the data for the post using JSL

See the "Update Data" function in the scripting index or see the Guide for Content Publishers using JSL.

Guide for Content Publishers using JSL

JSL Commands

In JMP 16, there a a number of new JSL commands that make it even easier to update reports that you have already published than in previous releases, including being able to update just the data of a report as well as the properties such as the title.

Establishing a JMP Live Connection

After saving a connection to JMP Live as displayed in the publishers guide, the **New JMP Live** command can be used to get a JMP Live connection object. This object can be used to retrieve reports. A **Publish** command (not demonstrated in the talk) will return a JMP Live Result object, just like the **Get Report** command does when you already know the report ID (a string of letters and numbers found at the end of a published JMP Live report's URL).

Establishing a JMP Live Connection

```
lc = New JMP Live( Connection( "Discovery Demo Server" ), Prompt(If Needed) );
report = lc << Get Report(reportId);
```

Getting Report Information

You can get a scriptable JMP Live Report object from the JMP Live Result object in order to query useful information about the report such as the ID, title, description and URL.

Getting Report Information

```
livereport = report << As Scriptable();
Write("Report(ID): ", livereport << Get ID);
Write("Report(Title): ", livereport << Get Title);
Write("Report(Description): ", livereport << Get Description);
Write("Report(URL): ", livereport << Get URL);
```

Updating just the Data of a Report

A new ability in JMP 16.0 is the ability to just update the data of the report using the **Update Data** command, which takes the report ID as the first argument, and a Data command providing the new table, and the name of the table to replace in the report.

Updating Just the Data

```
bc = Open( "./Datasets/Grape Trials Example 2.jmp" );
updateresult = lc << Update Data(
        (livereport << Get ID),              // ID of the report to update
        Data(
                bc,                                      // New data table that we are updating the
report with
                "Grape Trials Example 0.jmp"// Name of the data table saved within JMP Live Report to replace
        )
);
```

The JMP Live result object returned by the Update Data command can be examined to see details on the status of the update:

Getting Information about the Update Status

```
show(updateresult << Succeeded);
show(updateresult << Get HTTP Status);
show(updateresult << Get Error Message);
show(updateresult << Get Response);
show(updateresult << Get Response Type);
```

Updating Properties of the Data

Also new in JMP 16 is the ability to update properties of a report such as the title or description through JSL without having to recreate a report in JMP and replace it in JMP Live. For example, here we can build a more detailed title including the date and time that the script was run at, and update just the title of the report using the **Set Title** command.

Updating the Title of a Report

```
scriptTitle = "Control Chart of Yield, Sugar & pH";

datetime = Today();
time = Time Of Day( datetime );
date = datetime - time;
date_string = Abbrev Date(As Date( date ));

newTitle = (scriptTitle || (" " || date_string || " " || Format(time, "h:m:s")));
livereport << Set Title(newTitle);
```

Support for JSL publishing and updating commands is documented more thoroughly in another talk The Morning Update: Creating an Automated Daily Report to Viewers Using Internet-Based Data and in the JMP Scripting Guide. In addition, the above referenced talk gives a pattern on how to publish an initial report to JMP Live and automatically update the data within that report in JSL on a daily basis with Windows Task Scheduler. It uses a control chart scenario with warnings as an example, showing how you could take a basic script like this one that is run once and move it to an automated production setting.