

ColorQuick / Clarios Advanced User's Manual Volume 2

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1 Introduction

This manual provides press operators with information on using the more advanced features of Advanced Vision Technology's Clarios on-web, color measurement system.

The manual is divided into two documents:

- Clarios Advanced User's Manual – Volume 1
- Clarios Advanced User's Manual – Volume 2

See the *Clarios Training & User's Guide* for detailed information on the basic features of the Clarios system, including, navigating the Clarios views, creating a job and setting up forms, starting a job, monitoring a job and viewing scan data on the Web Data view, and making target adjustments.

Typographic Conventions

To make this manual easier to follow, bold letter are used to show touch-control buttons, icons, or view names, such as **OK**, **Apply**, or **Press Status**.

Note: Notes contain specific information. They may explain why a certain step should be performed. Sometimes they contain tips about a particular step in a process.

WARNING: Warnings appear when specific instructions must be followed to avoid creating a problem.

1.1 Volume 1 – Table of Contents

Starting and Stopping the Clarios System <ul style="list-style-type: none">▪ Power On the Clarios System Components▪ Exit Clarios and Turn off Computer
Configuring the System <ul style="list-style-type: none">▪ Access the Utilities – Configuration View▪ Specify Display Options▪ Access and Specify User Selections▪ Specify Default Preferences▪ Specify and Manage Tolerance Groups▪ Set Passwords▪ Specify and Manage Sampling Rules▪ Add Paper Classes▪ Add Ink Manufacturers▪ Specify and Manage Paper Types▪ Specify and Manage Ink Types▪ Configure Color Bars▪ Specify Language

<p>Managing Jobs</p> <ul style="list-style-type: none"> ▪ Find a Job ▪ Start and Stop Jobs ▪ Delete a Job ▪ Copy a Job to Create a New Job
<p>Managing Forms</p> <ul style="list-style-type: none"> ▪ Edit a Form ▪ Change the Sampling Rule for a Form ▪ Change the Inker Configuration Values for a Form ▪ Save a Form as a Template ▪ Delete a Form
<p>Archiving Jobs and Managing Job Archive</p> <ul style="list-style-type: none"> ▪ Archive a Job ▪ Find a Job in the Archive ▪ Load a Job from the Archive to the Active Job Queue ▪ Copy Archive Job to Create a New Job ▪ Delete a Job from the Archive
<p>Creating and Managing Templates</p> <ul style="list-style-type: none"> ▪ Create a Template ▪ Find a Template ▪ Edit Templates ▪ Copy a Template ▪ Delete a Template ▪ Set Template as Default
<p>Setting Up Color Bars</p> <ul style="list-style-type: none"> ▪ Review Color Bar Elements ▪ View Color Bar Layout ▪ View Color Bar Detail ▪ Review Color Bar Information and Function Control ▪ Review Color Bar Types ▪ Add a Color Bar ▪ Delete a Color Bar ▪ Delete Swatches ▪ Edit Color Bar Location ▪ Invert the Color Bar ▪ Import or Export a Color Bar
<p>Managing Web Controls</p> <ul style="list-style-type: none"> ▪ Make Web Changes ▪ Change Paper Type ▪ View Web

<p>Troubleshooting</p> <ul style="list-style-type: none"> ▪ Manual Color Bar Locate ▪ Locate Fixture Center ▪ System Tests ▪ Camera Icons ▪ Reading Faults (Xs) ▪ Press Production Issues Affecting Closed Loop
<p>Appendixes</p> <ul style="list-style-type: none"> ▪ Clarios System Buttons and Icons ▪ Press Events ▪ Swatch Information and Error Codes ▪ Auto Salable

1.2 Volume 2 – Table of Contents

<p>Presetting CIP3 Data</p> <ul style="list-style-type: none"> ▪ Preset a Form ▪ Start Job and Set Press with CIP3 Preset Data ▪ Monitor CIP3 Preset Settings ▪ Trigger Preset Corrections
<p>Using Closed Loop Operations</p> <ul style="list-style-type: none"> ▪ Closed Loop Guidelines ▪ Unit-to-Color Measure Timing Display ▪ Historical Data Displays ▪ Measurement Data Displays for Scan Troubleshooting
<p>Monitoring Spectral Data</p> <ul style="list-style-type: none"> ▪ Spectral Analysis - PCCD View ▪ Spectral Analysis – Scatter View
<p>Using Specialized Web Press Functions</p> <ul style="list-style-type: none"> ▪ Single-Sided Web Press ▪ Right-to-Left Web Press ▪ Unitized Web Press ▪ Two-Web Press
<p>Using Goss Auto Transfer</p> <ul style="list-style-type: none"> ▪ Auto Transfer Setup Rules ▪ Configure and Start Auto Transfer Jobs ▪ Set Auto Transfer ▪ Execute Auto Transfer ▪ Review Auto Transfer Error Conditions
<p>Using Web Edge Detect</p>
<p>Using Rapid Response Scanning</p>
<p>Appendixes</p> <ul style="list-style-type: none"> ▪ Spectral Analysis Buttons ▪ Scan Data for External Use

2 Presetting CIP3 Data

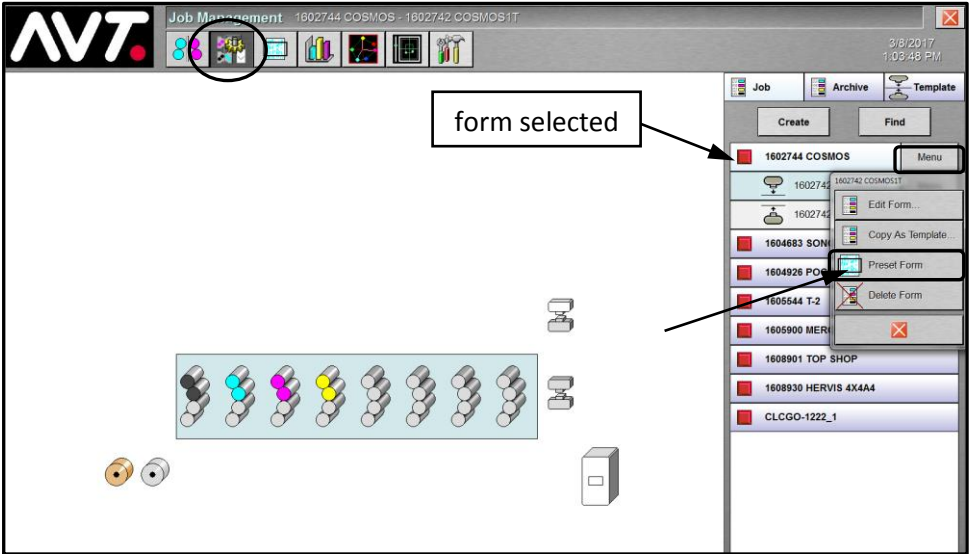
This section describes how to preset CIP3 data for a form.

2.1 Preset a Form

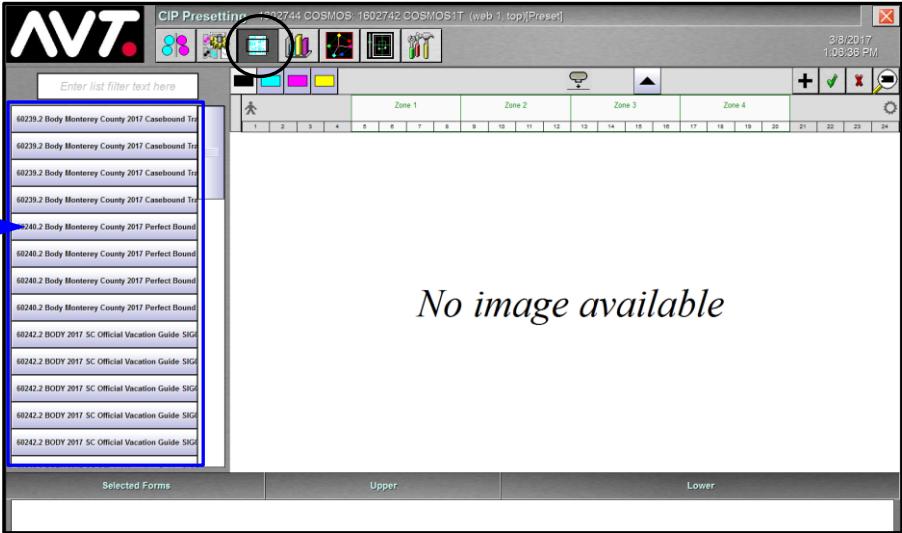
After setting up forms for a job, before starting the job you can choose to preset the press inker profiles with CIP3 preset data.

Note: You must preset the form data while the job is stopped.

1 From the Job Management view, touch the **form** you want to preset and then touch the **Menu** button.



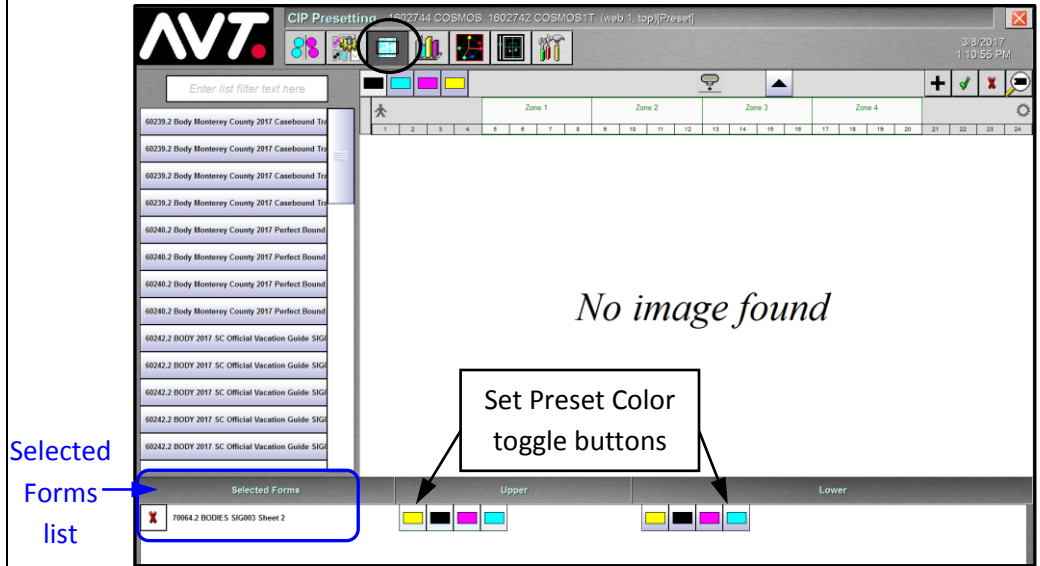
2 Touch **Preset Form** and the CIP3 Presetting view displays.



List of CIP3 forms

No image available

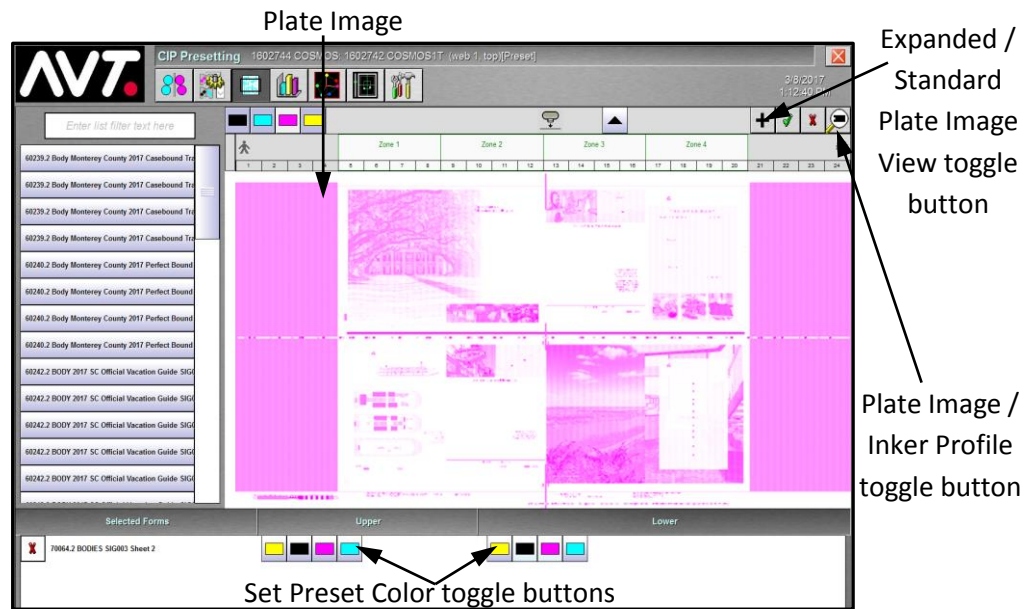
- 3 Touch a **CIP3 form** from the list of CIP3 forms and the form is moved to the Selected Forms list and the set preset color “toggle” buttons display under the appropriate surface (Upper or Lower).




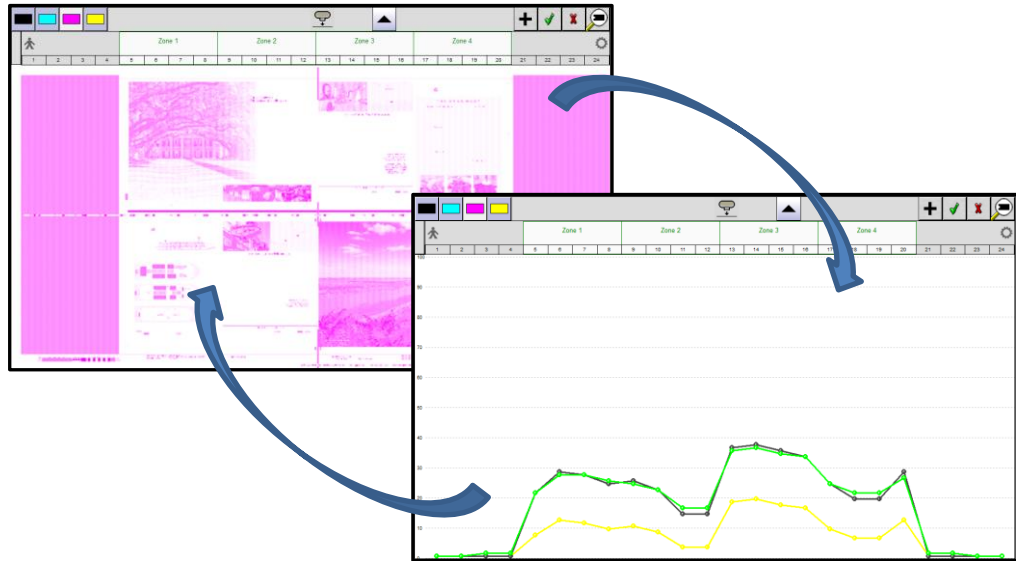
Initially, no plate image displays and the set preset color “toggle” buttons have a gray background indicating they are not active.


- 4 Touch one or more of the **Set Preset Color** toggle buttons to select the colors to use for presetting the form.

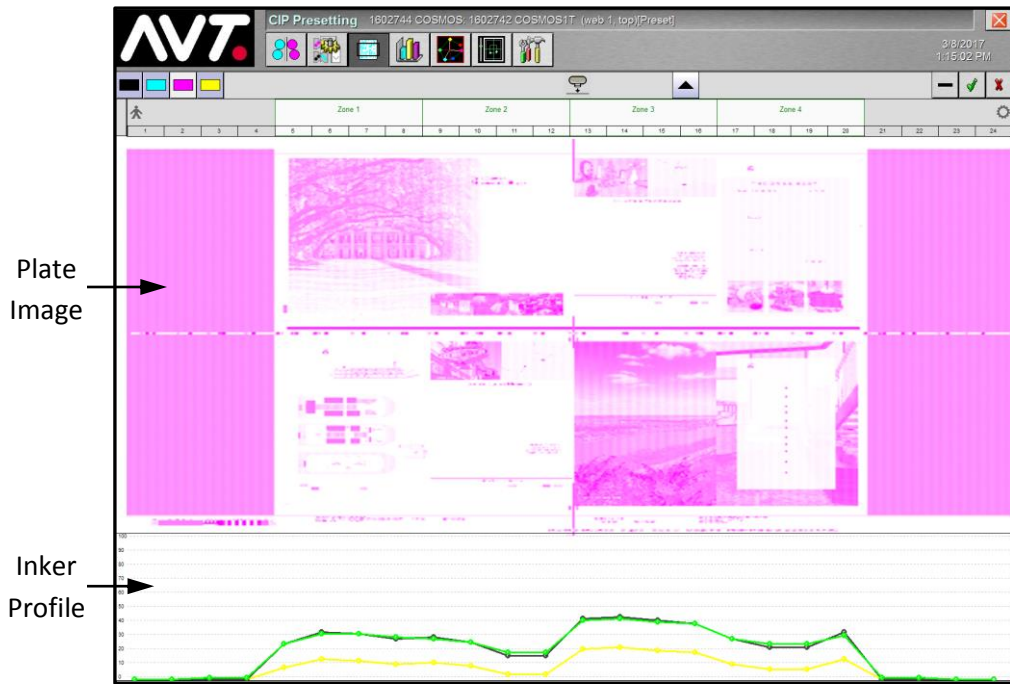
As you touch each button, the background of the color button changes from gray to white and you will see the plate image display in that color. In the following figure, the magenta button is selected showing the Plate Image in magenta.






- 5 Touch the  button to toggle between the Plate Image and Inker Profile views.



- 6 Touch the  button to show an expanded, full page view of the Plate Image and Inker Profile.

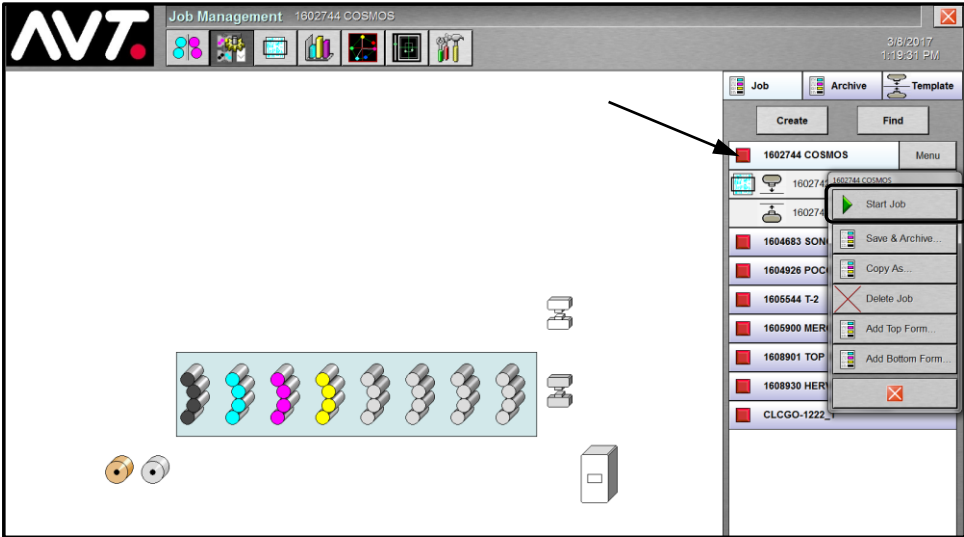


- Touch the  button on the expanded view to toggle back to the standard Plate Image view.

7	After specifying all the values for the CIP3 preset form, touch the  button on the CIP3 Presetting view to save the CIP3 preset form data. Touch the Yes button to save the CIP3 data for the form.
8	To discard CIP3 preset form data without saving it, touch the  button on the CIP3 Presetting view. Touch the Yes button to discard the data and quit presetting.

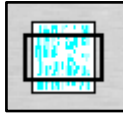
2.2 Start Job and Set Press with CIP3 Preset Data

After presetting a form with CIP3 data, you can start the job and set the press with the CIP preset key settings.

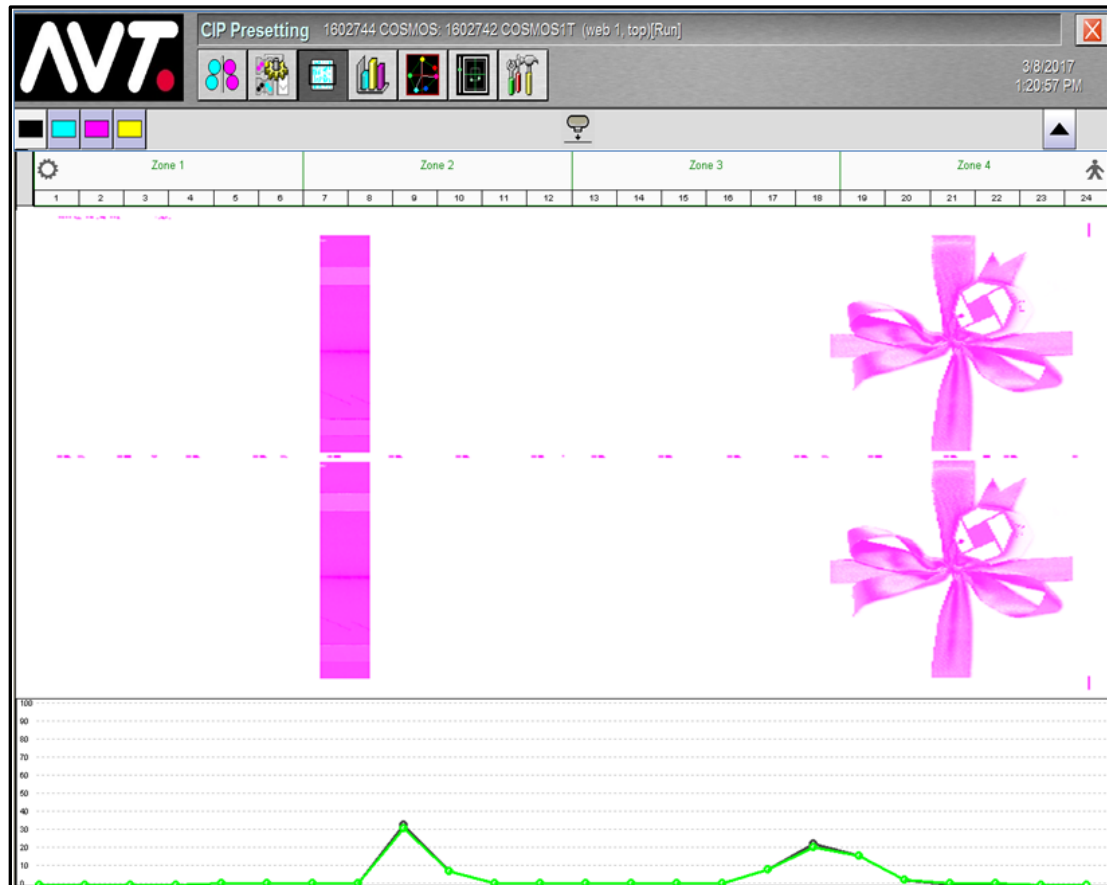
1	<p>From the Job Management View, touch the job and then touch the Menu button.</p> 
2	Touch Start Job from the drop-down menu.
3	<p>When the CIP3 Preset popup displays, touch the Yes button to set the press with CIP3 preset key settings.</p> <p>The job starts with the CIP3 preset key settings.</p>

2.3 Monitor CIP3 Preset Settings

After starting a job and setting the press with preset key settings, you can monitor the preset settings from the CIP3 Presetting view.



Touch the **CIP3 Presetting** button on the main toolbar to access the CIP3 Presetting view.



2.4 Trigger Preset Corrections

The configured trigger point determines when the preset calibration tables are updated. The trigger point can be selected from the Color OK, salable, on-skid press signal, and percent in tolerance (PIT) options.

After the configured trigger point occurs, an additional validation can be configured.

- The preset calibration table will not be updated for an individual inker until the PIT of that inker is above the configured low PIT value.
- Additional PIT requirement is disabled.

3 Using Closed Loop Operations

This section describes the Closed Loop Control (CLC) feature, which provides a closed loop link between the Clarios color measurement system and the Mercury remote ink control system or other supported press control system.

See the *Mercury Training and User's Guide* and the *Mercury Advanced User's Manual* for more detailed information on the CLC feature.

3.1 Closed Loop Guidelines

Some preparation is required prior to running print production using the CLC feature.

Below are some general closed loop guidelines, and also some guidelines for makeready, salable, historical, and scan troubleshooting.

Guideline	Description
Press Characterization	Need to know some information about how press equipment works before using CLC.
Inks and Papers	Test the standard ink formulation and papers, and understand how image reproduction is done with various combinations.
Press Equipment and Operations	Make sure press equipment is in good working order to ensure print production is predictable.
Established Process Aims and Tolerances	Know facility standard target densities for all inks and part of print production process. Know appropriate control tolerances for the materials used and the press equipment, to ensure CLC does not contribute to lower lifetime of press equipment.
Sampling Plan	Press operators must understand how often press is measured and controlled.
Tone Reproduction Curves	Know measures of tone reproduction abilities for ink and paper combinations, to allow predictable tone reproduction.
TVI and Color Objective	Control tone value increase (dot gain) and know what standards the facility will use to control print production.
Unit-to-Color Measure Timing	Determine timing between fountain changes and observe that change at the color measurement location.
Preset: Images Match Intended Work	For CIP3 preset, check image in presetting client against the production order to be sure they match.
Preset: Appropriate Paper Corrections	For CIP3 preset, choose correct paper calibration adjustments that match the paper being used in print production.

3.1.1 Makeready Guidelines

Guideline	Description
First Scan	Recommendation is that CLC be turned off until the first scan of the web is completed.
Automatic Control Enabled	Turn on CLC after first scan of web; if density differences are great, check camera images in key-by-key view to be sure correct swatches of color bar are being measured.
Manual Target Correction Matches Intended Image	As makeready progresses, change the density targets for zones which may need some color adjustment.
Press Events	<p>Clarios will stop scanning during certain press equipment changes:</p> <ul style="list-style-type: none"> • new roll splice – paper tension and physical roll splicing material will confuse measurement system • washing blankets and plates – color is not to be evaluated and ink transfer is interrupted during the makeready process • press speed – paper tension changes will confuse measurement system • off impression - color is not to be evaluated and ink transfer is interrupted during the makeready process
Ink and Water Balance	Operator is responsible for proper balance between ink feed and dampening of each printing unit.
Sampling	During makeready Clarios will measure as often as possible, but frequency of automatic changes to fountain keys will not occur any faster than the unit to measure timing.

3.1.2 Salable Guidelines

Guideline	Description
Sampling	In salable production mode, Clarios will not measure as often as possible; it will wait for a predetermined number of copies (set during installation) between samples of the printed web.
Expanded Scan Data	Various tints, overprints, and other measurement swatches can be incorporated into your color bar based on your process needs. These swatches are measured and reported during salable production scanning.

3.1.3 Historical Guidelines

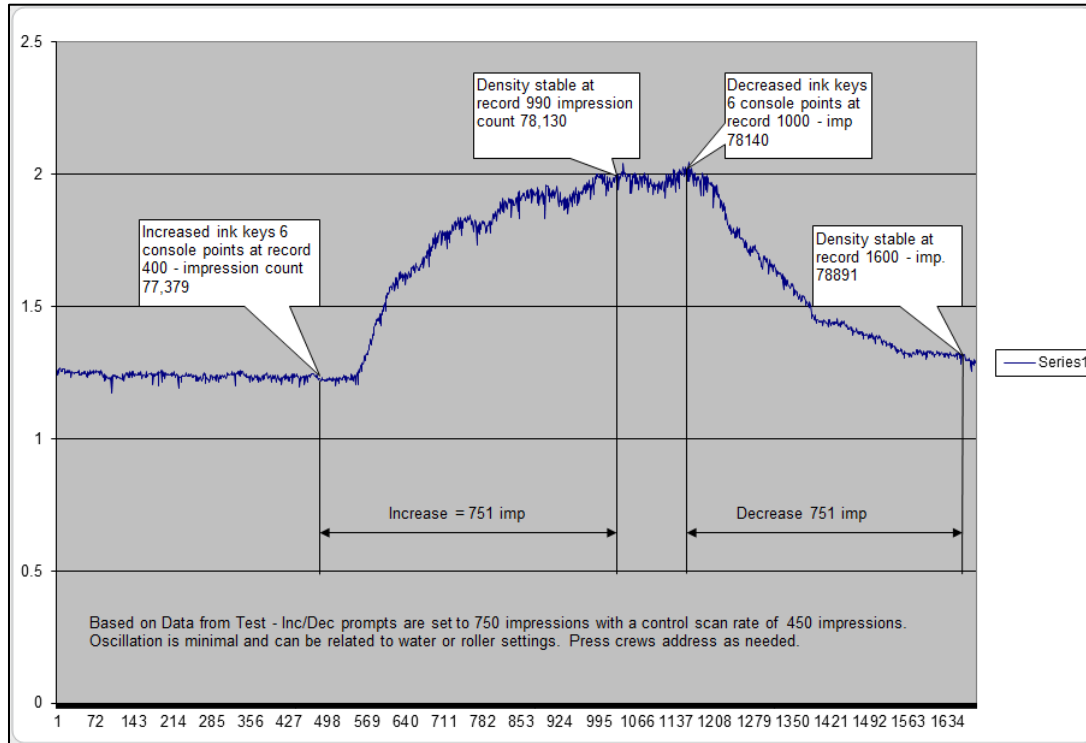
Guideline	Description
Feature Use	<p>A number of recorded data attributes can be used:</p> <ul style="list-style-type: none"> • how quickly web is scanned • how many copies are used to get colors to control tolerances • what press events cause greatest impact on print production.
Gauge of Press Performance	<p>Historical views of Clarios will allow analysis of the number of wasted print copies. Study and records of print production over long periods of time, allows you to improve the entire production process and consistently achieve low levels of waste during print production</p>

3.1.4 Scan Troubleshooting Guidelines

Guideline	Description
Color Oscillation	<p>Setting the timing between fountain key changes during production is always done at the time of installation, but there may be some changes to the process, materials, or press equipment which require another evaluation of this timing.</p>
Proper Fountain Profiles	<p>Check that the Clarios system is configured to allow the correct amount of key-to-key differences, so that the fountain profiles are properly matched with the fountain technology used in your press.</p>
Ink Contamination	<p>If measurements of one or two colors are missing or greatly different in some portions of print production, the ink fountain of these colors could be contaminated.</p>
Ink and Water Balancing	<p>Check that the ink and water feed is properly balanced.</p>
Press Equipment Failures	<p>Check for any failure of the press equipment. Roller failure and mechanical issues could cause measurement and control issues.</p>

3.2 Unit-to-Color Measure Timing Display

The unit-to-color measure timing, as seen in the following example, is critical to keeping the closed loop system from making too many changes to any color too fast.



3.3 Historical Data Displays

You can view trend historical data displays on the Delta Density and Key Position views, when historical scans exist. You can monitor press and process performance with these historical data displays. These views allow you to review how quickly the print production has reached color target within color tolerances.

3.3.1 Historical Feature Overview

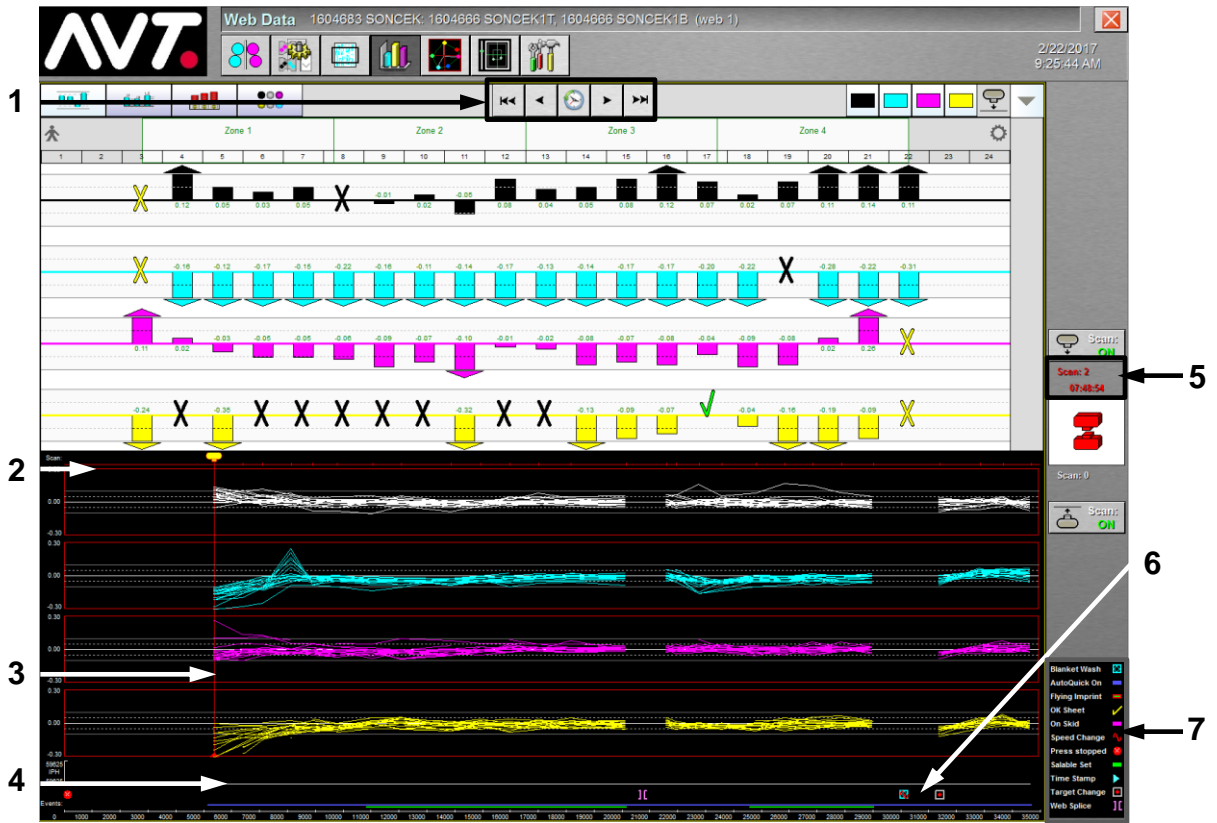
A number of recorded data attributes can be used in the historical views. Information collected by Clarios includes:






- How quickly the web is scanned
- How many copies are used to get colors to control tolerances
- What press events cause greatest impact on print production

At the start of print production, usually a number of print copies are expected waste from the printing press. An important benefit of the CLC feature is getting the number of wasted print copies to the smallest amount. The Clarios and Color Manager historical views allow some analysis of this important measurement. Careful study and record keeping of the print production over long periods of time will allow you to improve your entire production process and consistently achieve low levels of waste during print production.

3.3.2 Historical View Example

The example below shows trend historical data for the Delta Density view.



<p>1</p>	<p>Look Back Controls</p>	<p>Enable/disable Historical view mode and allows you to select which scan to view.</p> <ul style="list-style-type: none">  Displays earliest available scan.  Displays previous historical scan.  Allows specific scan number to display.  Displays next historical scan.  Disables Historical view and displays current scan.
<p>2</p>	<p>Trend Scan Indicator</p>	<p>Identifies a scan within a trend display.</p>

3	Timeline Indicator	Identifies the trend display position of the scan displayed in the by-key display area.
4	Press Speed Display	Graphically identifies the press speed at the displayed impression.
5	Historical Scan Indicator	When Historical view is active, currently displayed scan number and time displays in red.
6	Press Events Display	Graphically identifies the press events at the displayed impression.
7	Press Event Legend	Identifies graphic of each press event that may be represented in Press Events Display area.

See the *Clarios Training and User's Guide* for more detailed information on the Look Back buttons.

3.4 Measurement Data Displays for Scan Troubleshooting

Clarios collects measurement data that can help with seeing various issues that occur during print production, but which are difficult to see looking at only the printed product.

3.4.1 Color Oscillation Issue

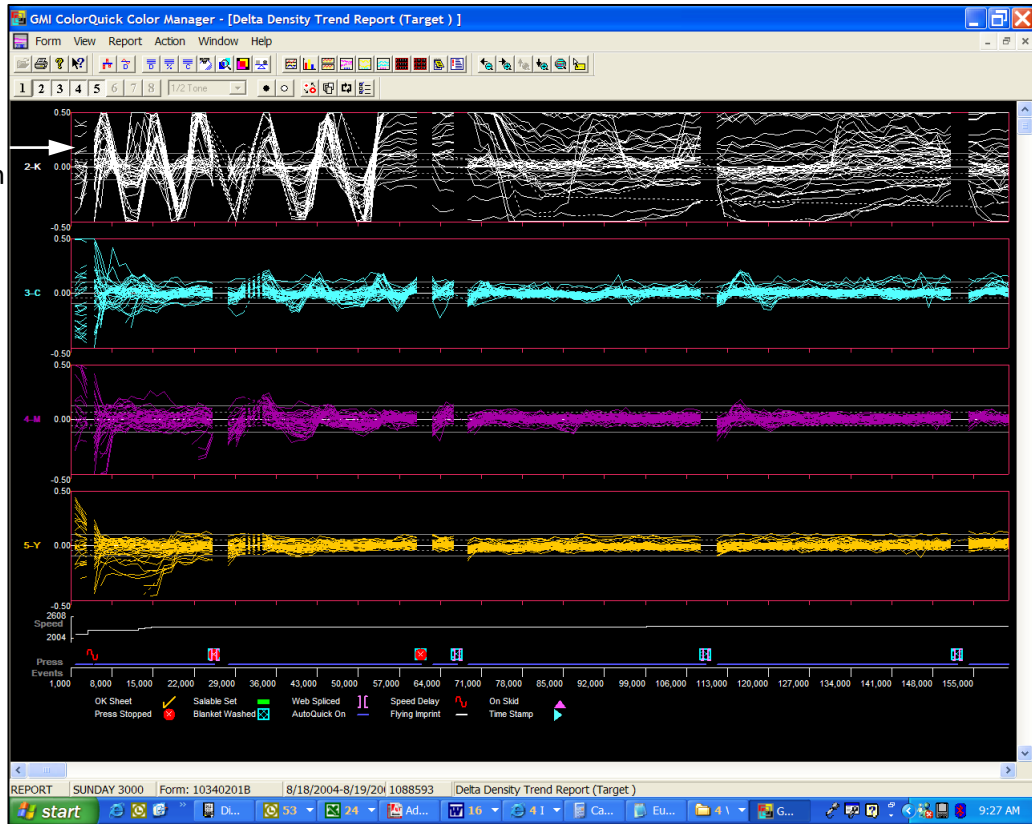
The timing between fountain key changes during production is important.

- If the time is too small, the fountain key impact may not be seen during the next measurement and another change may not be properly adjusting the key.
- If the time is too long, there are more wasted copies in the print production.

Getting the timing of the unit to measure adjustment is always done during installation, but there may be some changes to the process, materials, or press equipment which require another evaluation of this timing.

In the example below, Black oscillation is a severe issue. Other colors control better, which provide greater stability for the entire run.

Black
oscillation



Manual fountain key moves in CLC cause additional waste. In the example below, note the manual moves in K, C, and M. Oscillation in C and M is without key moves.

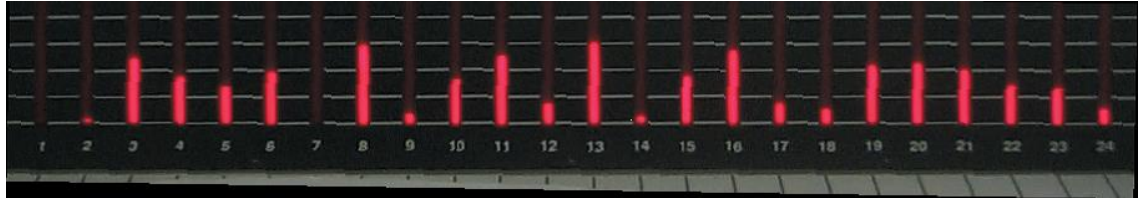


3.4.2 Proper Fountain Profile Maintenance

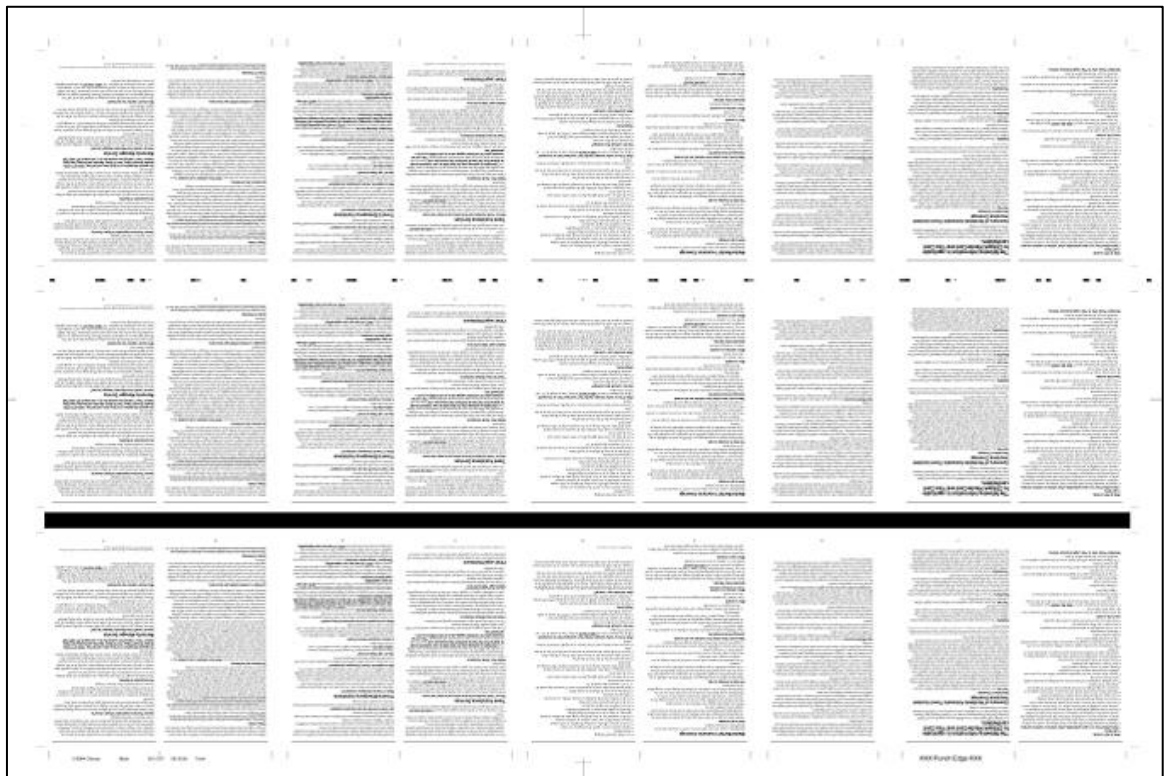
The key positions on your fountain should be limited to the type of fountain technology used in your press. Some press equipment can allow a very large key-to-key difference and some equipment should be limited to a smaller difference.

Clarios should be configured to allow the correct amount of key-to-key differences, so the fountain profiles are properly matched with the fountain technology in your press.

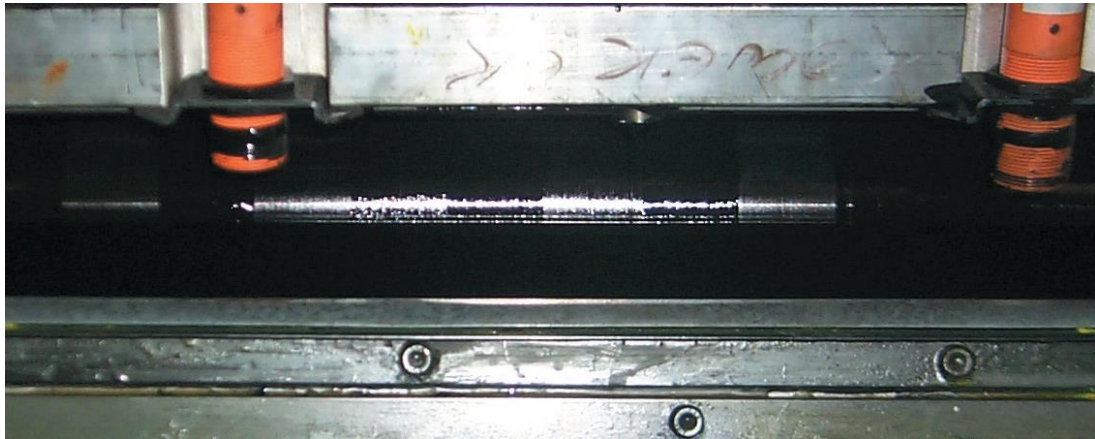
In the example below, you can see a low coverage profile with key positions that are not normal.



Below is the printed image for this profile. The press operator will see that this profile is not normal because the printed image looks uniform across the paper and automation has introduced key positions which do not follow the visual uniformity of the image.



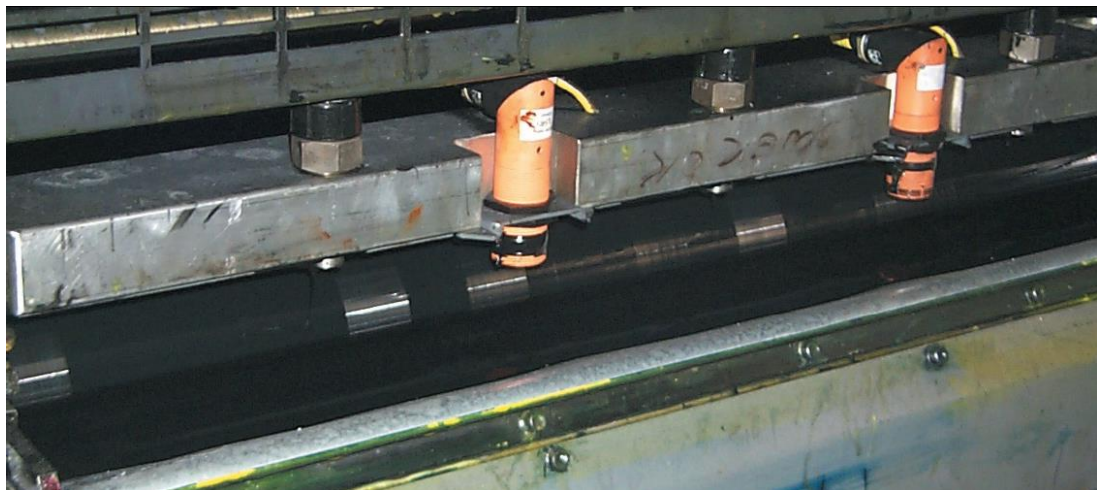
The following images show a subset of the key positions and the effect of the key positions on the ink rollers, which further illustrates the press operator's concern about the automation.



Direct View – Ink Roller



Numeric Profile of Roller Setting



Side View of Ink Roller

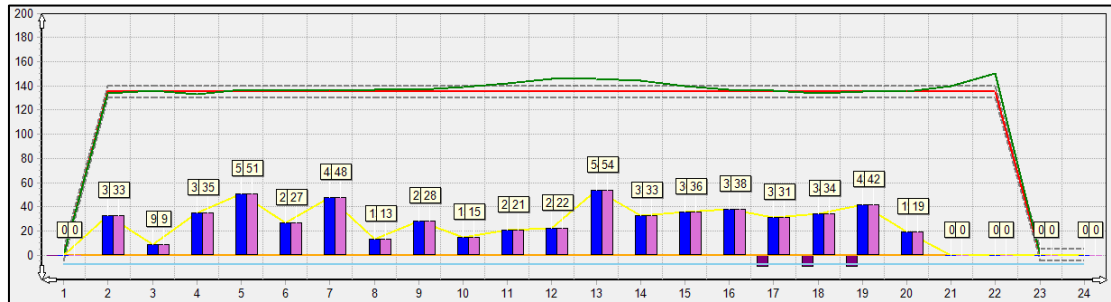
Possible causes of the effect of the key positions on the ink rollers are:

- Inaccurate initial setting of ink key positions (poor presetting)
- Errors in measurement of printed image
- Errors in ink key positioning
- Incorrect metering of the ink to the ink keys (bad sweep setting)
- Poor target density profiles

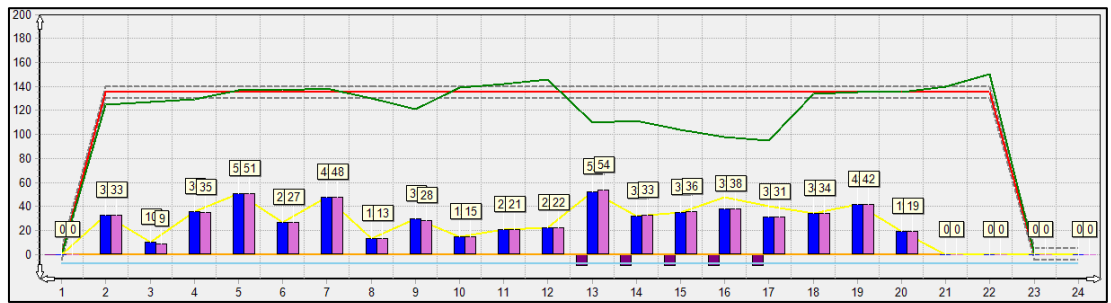
3.4.3 Ink and Water Balance Issue

Ink feed and water feed must be properly balanced by the press operator. The CLC system cannot perform changes to either control automatically.

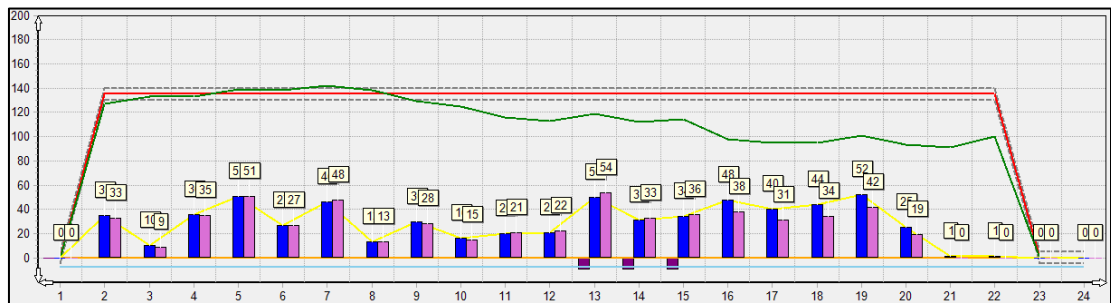
The example below shows the last scan before the press stops for a plate change.



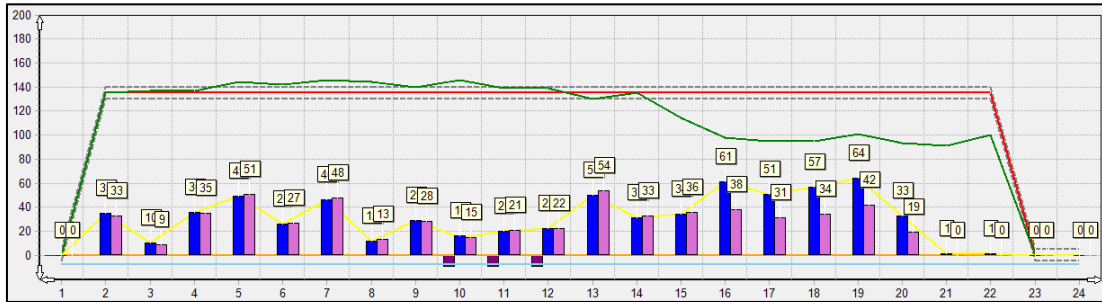
As you can see below, density is low on keys 13-17.



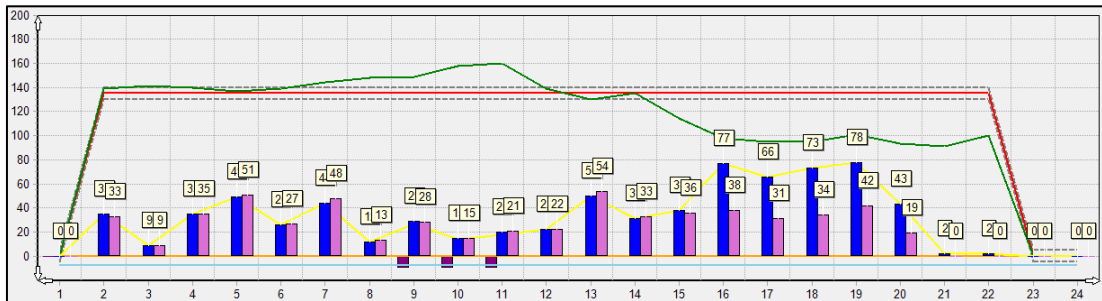
On the next scan, density is low on keys 9-22 and you can see that the system has raised keys 16-20.



On the next scan, you can see that density is not increasing despite the keys being increased.



Below you can see more key increases with no apparent change in density. You can see a density increase between keys 8-11, with no change in key settings, because excess water in the right of the ink train is forcing ink over.



To fix this issue, check the proper transfer of ink and water to the ink train.

4 Monitoring Spectral Data

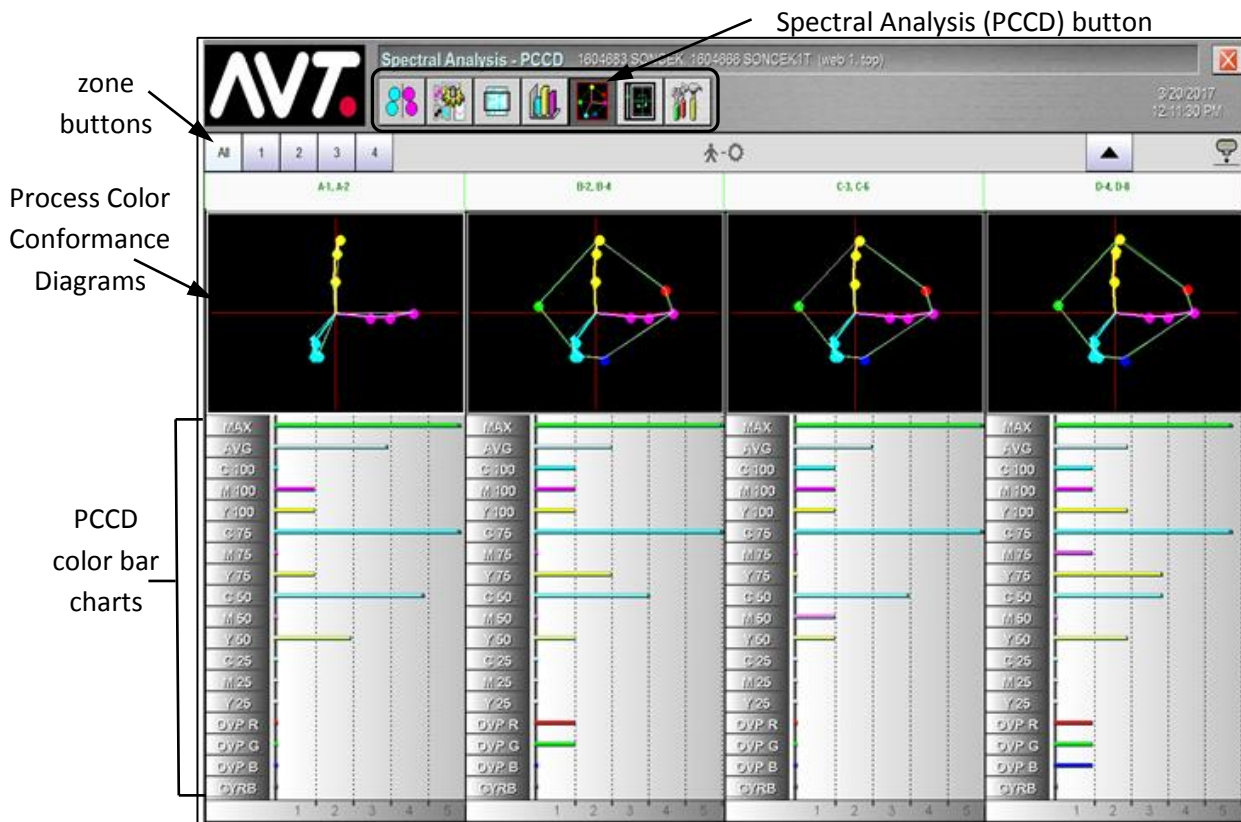
This section describes how to access and use the **Spectral Analysis – PCCD** and **Spectral Analysis - Scatter** views.

4.1 Spectral Analysis – PCCD View

You can use the Spectral Analysis - PCCD view to analyze the Process Color Conformance Diagram (PCCD), to monitor changes in solid ink density, dot gain, and apparent trapping for the cyan, magenta, and yellow process colors

4.1.1 Access the PCCD View

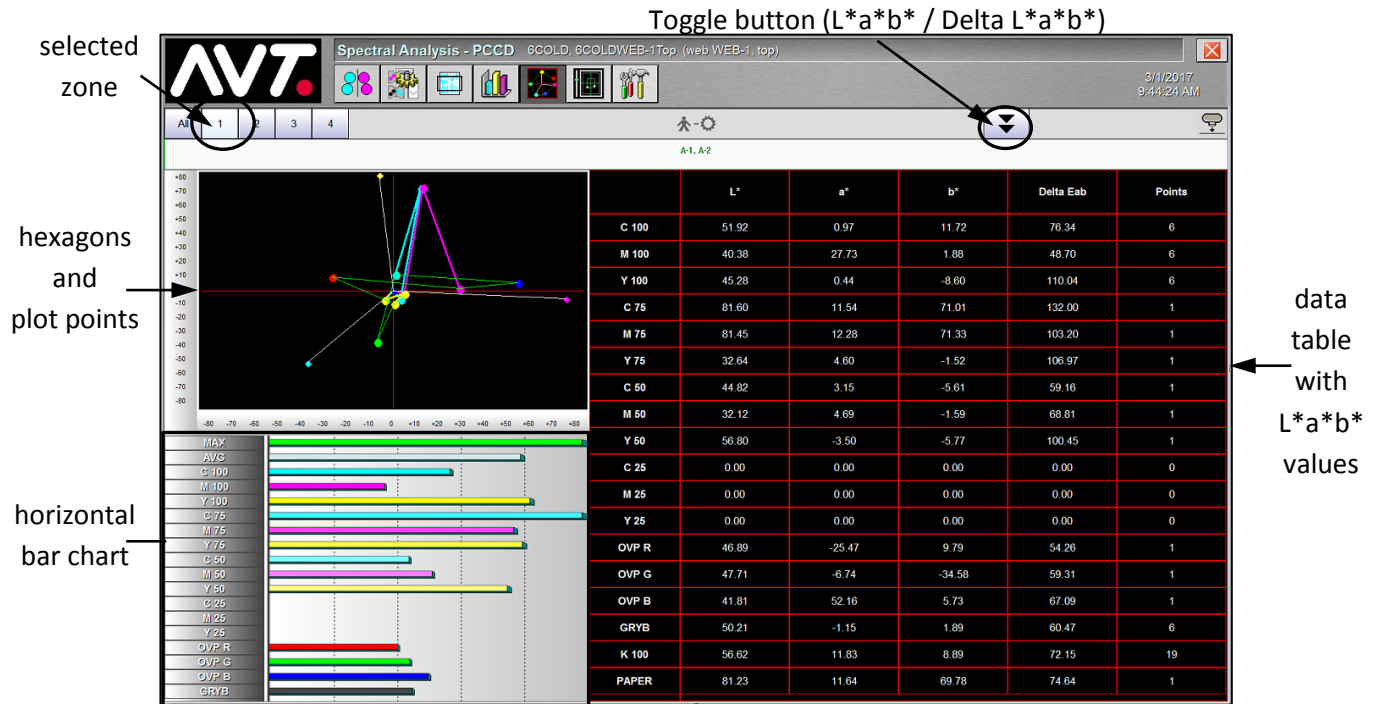
Touch the **Spectral Analysis (PCCD)** button on the main toolbar to display the **Spectral Analysis - PCCD** view.



The default Spectral Analysis – PCCD view shows how all printing units are performing, by displaying the Process Color Conformance Diagrams for four zones at a time. If there are more than four zones, you can scroll to the other zones using the left and right scroll arrows in the scroll bar.

4.1.2 View PCCD Color Bar Charts for Zones

On the Spectral Analysis – PCCD view, touch a **zone button** or anywhere in one of the zones to view the PCCD for that specific zone. The PCCD provides, in one screen, information on changes in solid ink density and apparent trapping for cyan, magenta, and yellow process colors.



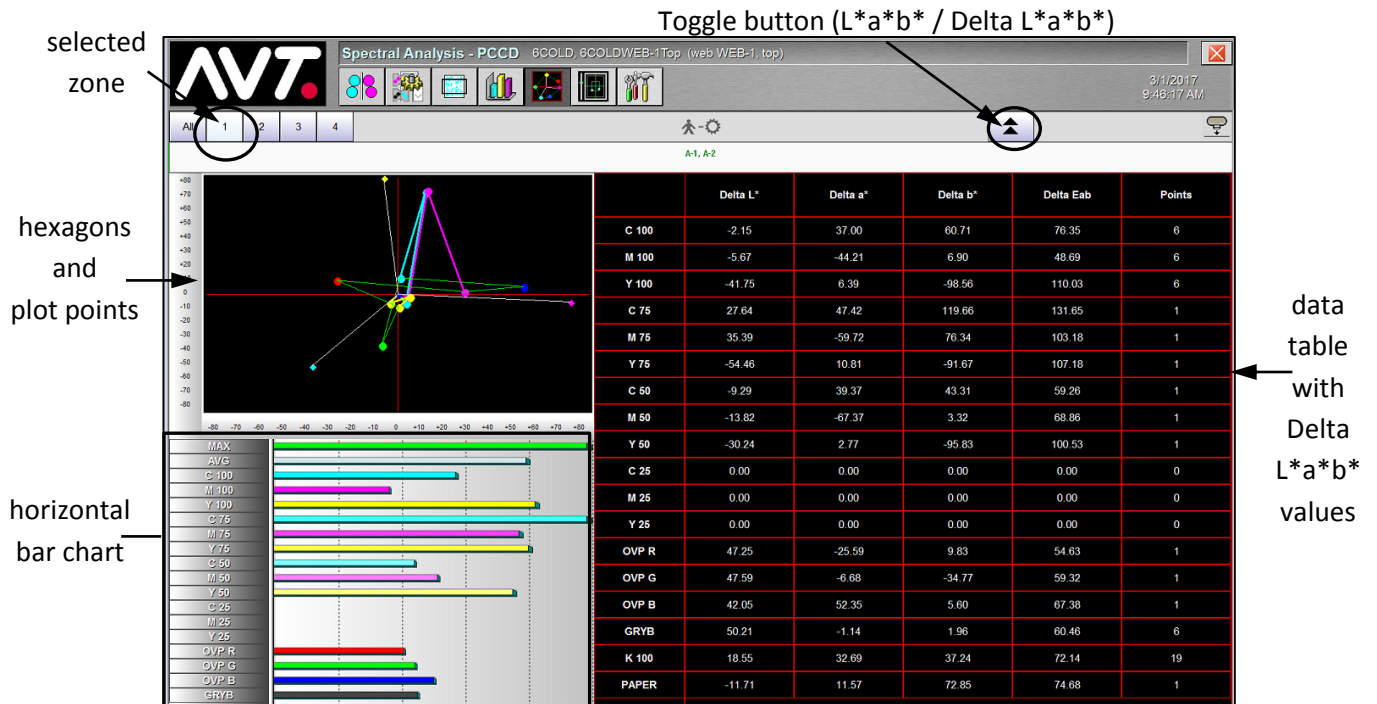
The PCCD is a quick way to determine whether the color (L*a*b*) of the color bar targets for solids or for tints have shifted from their target values. The most saturated (solid) results from the last scan are connected with a green line. (The expected results for the most saturated colors are connected with a white line.) When the most recent measured values are nearly the same as the targets, these lines can overlap. You can use this detailed information to determine the actual cause of the behavior, which could be changes in ink viscosity, paper quality, etc.

The color difference (Delta E) for each type of color bar target is graphed in the color bar charts section of the screen.

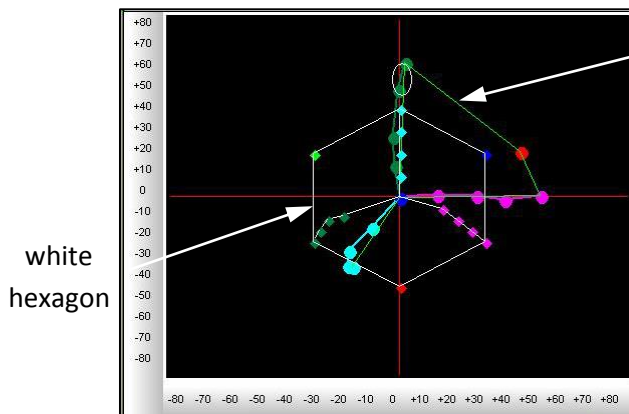
Each PCCD has an X (horizontal) axis and a Y (vertical) axis for plotting the data points. The X axis is for Δa^* values and the Y axis is for Δb^* values. The PCCD shows an a*b* plot for the zone averages of CMY solids (100%, 75%, and 50%) tints and red, green and blue overprints.

- CMY solids and tints are used to monitor solid ink density and dot gain.
- Red, green, and blue overprints are used for monitoring apparent trap.

You can also view the colorimetric differences values (Delta L*, Delta a*, Delta b*) for a selected zone by touching the toggle button. The following figure shows an examples of the Delta L*, Delta a*, Delta b* values for a selected zone.



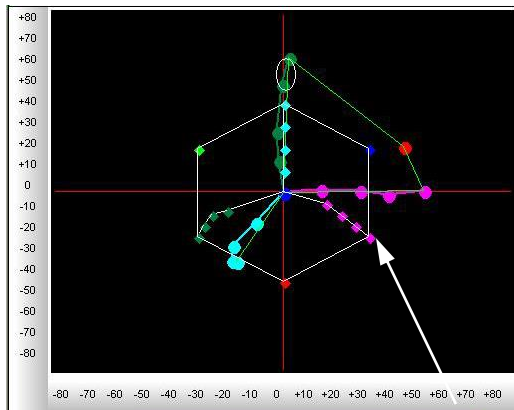
Hexagons



The white hexagon is the reference hexagon. It connects points that represent the targets or color OK for CMY solids and RGB overprints.

The green hexagon represents the sample scan. Its points show the average differences for each of the swatch types for the selected scan.

Plot Points (Diamonds)



plot points

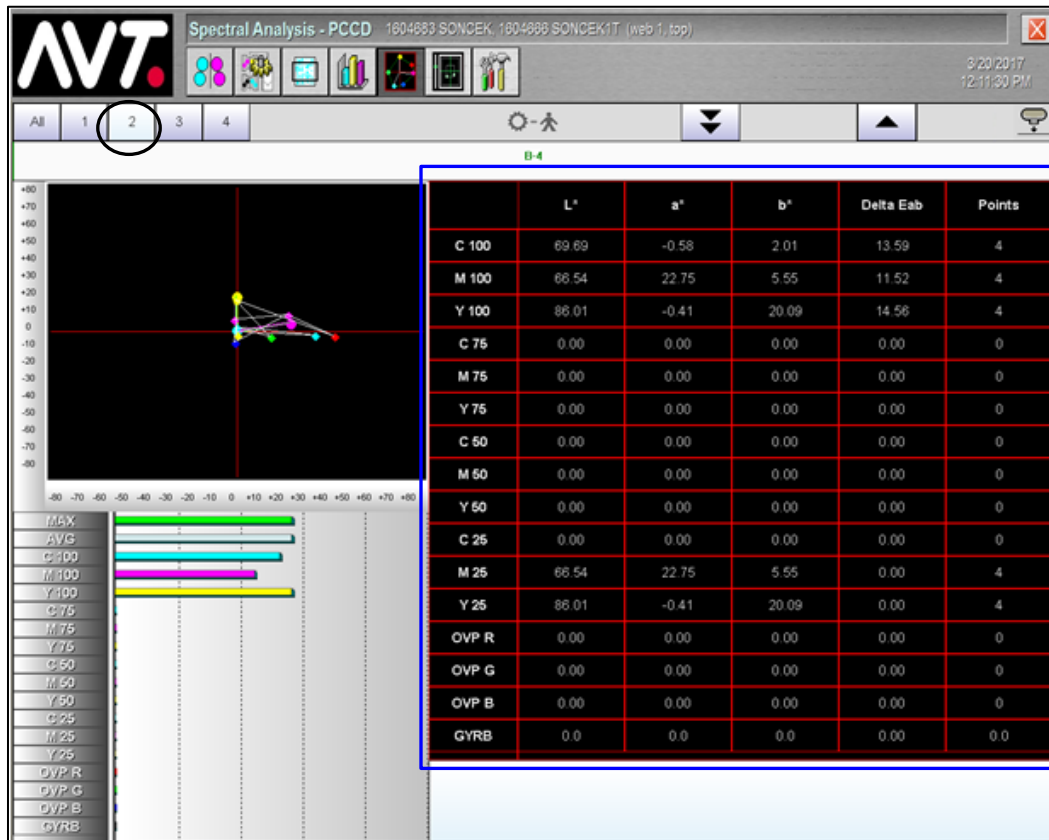
Colored diamonds at the vertices of the hexagons represent CMY solids and RGB overprints. The diamonds are in each swatch's display color.

Points for the 75% and 50% CMY values are plotted within the hexagons. The diamonds closest to the center are the 50% values, while the diamonds closer to the hexagon vertices are the 75% values.

The target points for these tints are white diamonds, for readability.

Selected Zone

To select a specific zone, touch a **zone** button.



For the selected zone, a data table of values to the right of the hexagons lists the average color differences by parameter for each swatch type and the number of points used in the averages.

Data Table Symbols

Δ Delta (d)	Greek letter that denotes “difference”. Often calculated by simple subtraction of one value from another.
L^* (Lightness)	Indicates the brightness or darkness of a color.
a^* (redness or greenness)	+ a^* means the color tends toward red. - a^* means the color tends toward green.
b^* (yellowness or blueness)	+ b^* means the color tends toward yellow. - b^* means the color tends toward blue.

4.2 Spectral Analysis – Scatter View

You can use the Spectral Analysis – Scatter view to analyze scatter diagrams that show colorimetric data by the color space or total color difference equation.

4.2.1 Access the Scatter View

Touch the **Spectral Analysis (Scatter)** button on the main toolbar to display the **Spectral Analysis – Scatter** view.

The screenshot shows the AVT Spectral Analysis - Scatter software interface. The main window displays four scatter plots arranged in a 2x2 grid, labeled Zone 1 through Zone 4. Each plot shows a scatter of data points with a central point and axes labeled L^* , a^* , and b^* . The top toolbar contains various buttons and controls, including color space buttons ($L^*a^*b^*$, ΔE^*ab), historical data size & data averaging buttons (30, Σ), swatch types, and inker selection controls. The bottom toolbar contains reporting zones and surface buttons. Annotations with arrows point to these specific UI elements.

Annotations in the image include:

- color space button
- historical data size & data averaging buttons
- swatch types
- inker selection controls
- Surface button
- Color difference equations button
- reporting zones

A basic chart displays for each reporting zone of both surfaces. Each surface has individual controls for the color spaces, color difference equations, and swatch types. The display is a quick way to observe the direction and size of color shifts, and is especially useful for monitoring gray balance.

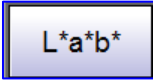
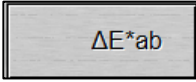
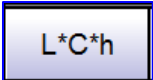


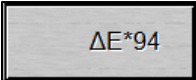
- Use the **color space button** and **color difference button** to change the color space or total color difference equation for the display. Doing so changes the color difference parameters displayed and the shape of the diagram.
- Four **reporting zones** display at a time. If there are more than four zones, left and right scroll arrows display for you to use.
- Use the **swatch buttons** to view the scatter diagram for that swatch type.

Display Features



The following features are common to all scatter diagrams.

Bullets	<ul style="list-style-type: none"> ➤ Each bullet represents the swatch's color difference for a particular scan. Its distance from the target (intersection of X and Y axes), shows how far it is from the target. ➤ Bullets are colored with display color for selected swatch type, except for current scan. Current scan is in light green. If data is outside chart limits, the bullet has white brackets. ➤ Up to 19 previous scans are displayed along with current scan.
Axes	The X (horizontal) axis represents Δa^* and the Y (vertical) axis represents Δb^* for $L^*a^*b^*$ space.
Lightness	The ΔL^* value for the zone is plotted on a vertical bar to the left of each zone's scatter plot.
Limits	Control limit tolerance is indicated by a shape with a dashed line. Process tolerance limit is shown as a shape with a solid line.
Zones	Selected zone is highlighted with a green box. A table of numerical data from selected zone (parameter values, differences, and tolerances) is shown for the scatter plot.
Zoom	To get closer look at highlighted zone, click on screen to zoom in. Click screen again to return to default view.

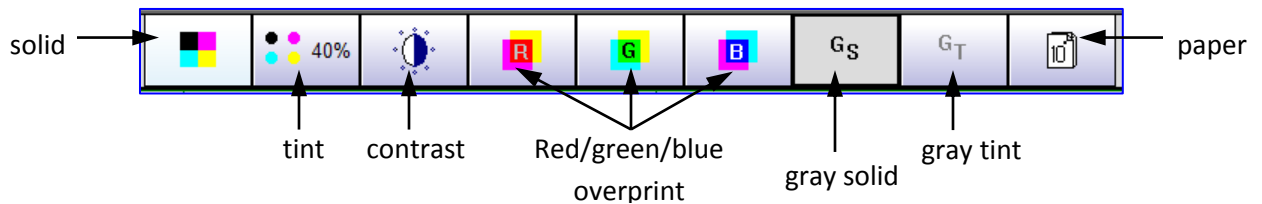
Color Space and Color Difference Equations Buttons

Color Space Button	Color Difference Equations (ΔE^*) Buttons
	
	  

Historical Data Size and Data Averaging Buttons

	Select/adjust historical data sample size for all color spaces.
	Averaging control for the numerical data and plot displayed.

Swatch Type Buttons



4.2.2 View Scatter Diagrams for One Surface

On the Spectral Analysis – Scatter view, touch a **Surface** button to view scatter diagrams and the basic numeric data for the reporting zones for one surface.

The screenshot displays the AVT Spectral Analysis - Scatter software interface. The top bar shows the AVT logo, the title 'Spectral Analysis - Scatter', and the device ID '1804883 SONCEK: 1804886 SONCEK1T (Web 1, top)'. The date and time are '3/28/2017 12:55:43 PM'. The interface is divided into four reporting zones, each with a scatter diagram and a table of basic numeric data.

Scatter diagrams for reporting zones (indicated by an arrow):

- Zone 1: $\Delta L^* = 0.78$, $\Delta a^* = 0.01$, $\Delta b^* = -0.42$
- Zone 2: $\Delta L^* = 0.83$, $\Delta a^* = 0.03$, $\Delta b^* = -0.43$
- Zone 3: $\Delta L^* = 0.63$, $\Delta a^* = 0.04$, $\Delta b^* = -0.48$
- Zone 4: $\Delta L^* = 0.45$, $\Delta a^* = 0.01$, $\Delta b^* = -0.51$

Basic numeric data for reporting zones (indicated by an arrow):

	L*	a*	b*
Samples	31.78	1.01	2.58
Target	31.00	1.00	3.00
Δ	0.78	0.01	-0.42

Tolerances	Control	Process
ΔL^*	2.50	3.50
Δa^*	2.50	3.50
Δb^*	2.50	3.50
ΔE^*_{ab}	4.33	6.06

	L*	a*	b*
Samples	31.83	1.03	2.57
Target	31.00	1.00	3.00
Δ	0.83	0.03	-0.43

Tolerances	Control	Process
ΔL^*	2.50	3.50
Δa^*	2.50	3.50
Δb^*	2.50	3.50
ΔE^*_{ab}	4.33	6.06

	L*	a*	b*
Samples	31.63	1.04	2.52
Target	31.00	1.00	3.00
Δ	0.63	0.04	-0.48

Tolerances	Control	Process
ΔL^*	2.50	3.50
Δa^*	2.50	3.50
Δb^*	2.50	3.50
ΔE^*_{ab}	4.33	6.06

	L*	a*	b*
Samples	31.45	1.01	2.49
Target	31.00	1.00	3.00
Δ	0.45	0.01	-0.51

Tolerances	Control	Process
ΔL^*	2.50	3.50
Δa^*	2.50	3.50
Δb^*	2.50	3.50
ΔE^*_{ab}	4.33	6.06

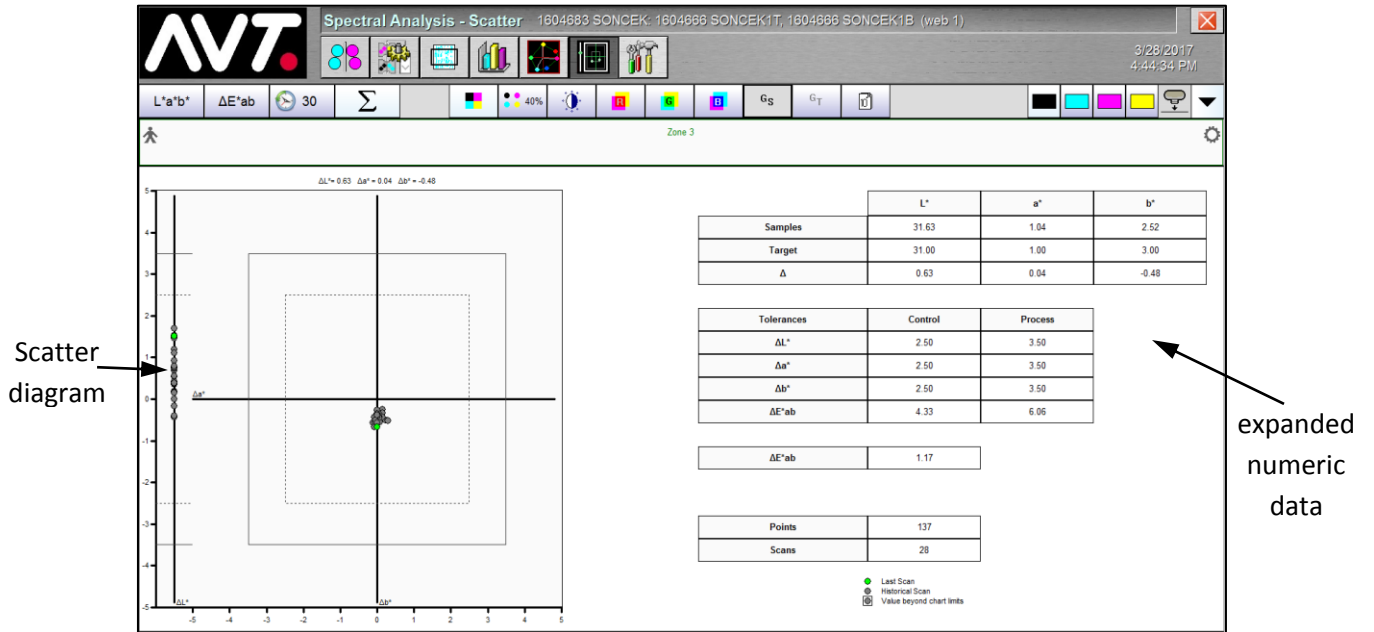
	L*	a*	b*
Samples	31.45	1.01	2.49
Target	31.00	1.00	3.00
Δ	0.45	0.01	-0.51

Surface button (indicated by an arrow): A gear icon in the top right corner of the interface.

For the four reporting zones, the top shows the scatter diagrams and the bottom shows the basic numeric data.

4.2.3 View Scatter Diagram for One Zone on One Surface

On the Spectral Analysis – Scatter view, click within a **reporting zone** to view the scatter diagram for one reporting zone of one surface only.



The left side shows the scatter diagram for the zone and the right side shows the expanded numeric data.

5 Using Specialized Web Press Functions

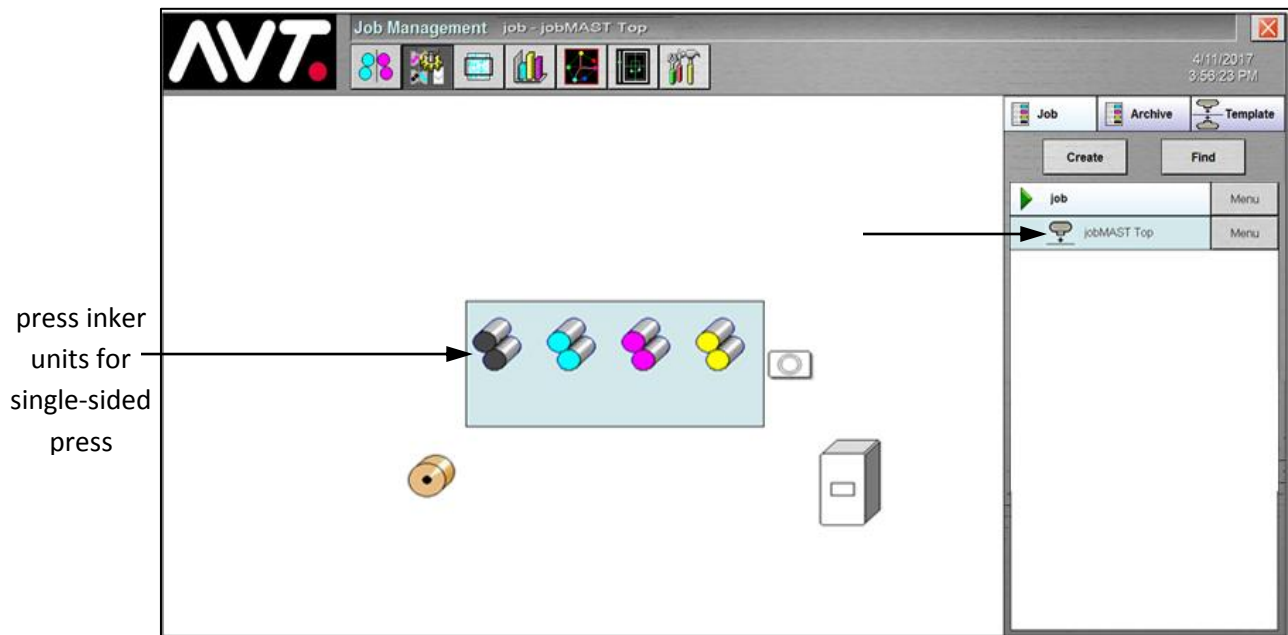
This section describes several specialized web press functions available in Clarios.

5.1 Single-Sided Web Press

Clarios can be set up to allow the press layout to represent a single-sided web press.

For presses that only print on the top surface, Clarios needs to recognize that there is only one head equipped on the On Press, and should not display or test the bottom surface. Also, Clarios will not allow the operator to create a bottom form.

Following is an example of the Job Management View for a single-sided web press.

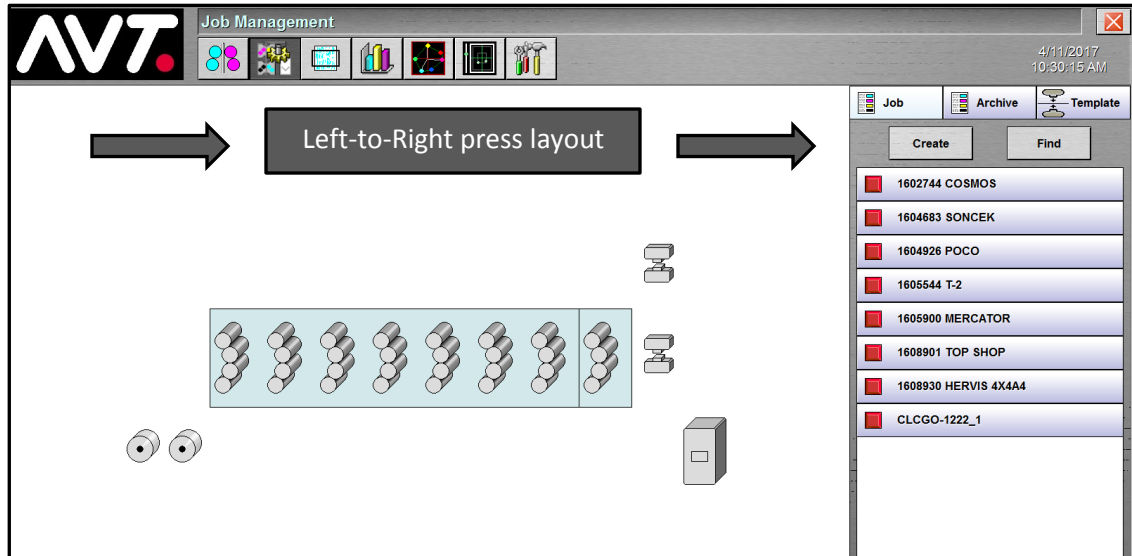


5.2 Right-to-Left Web Press

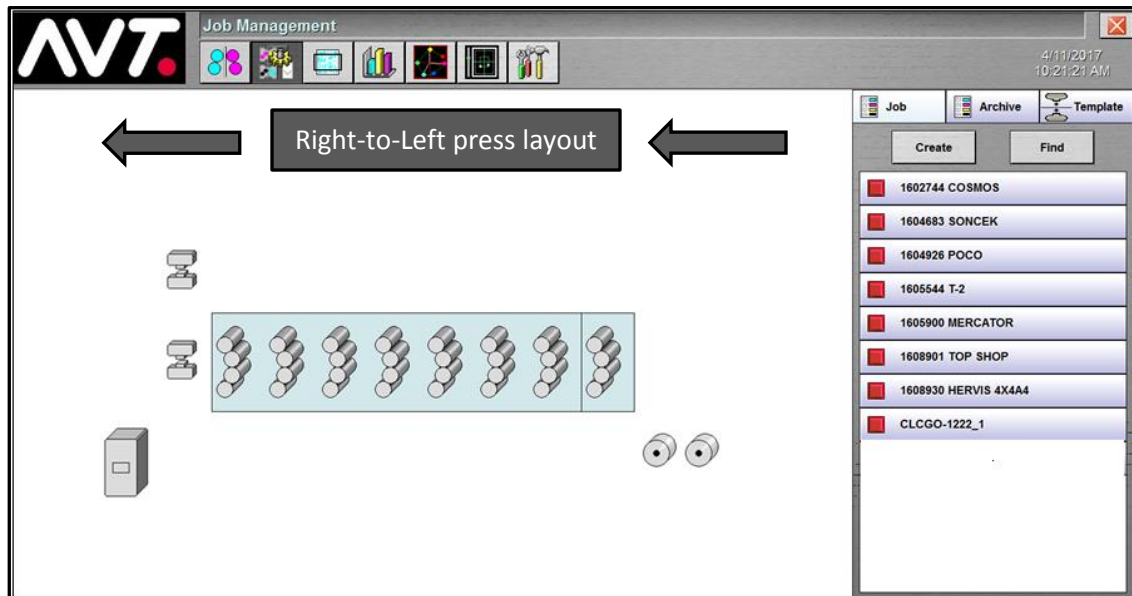
Clarios can be set up to allow the press layout to represent the right-to-left setup on either inline, stacked, or side-by-side configurations.

Clarios typically depicts press layouts as left-to-right. However, some presses have reel stands to the far right of where the press operators stand and the web direction runs right-to-left in relation to where the Clarios is located to the press.

The Job Management view typically shows a left-to-right press layout, with the spools on the left and the cameras on the right.



When your Clarios system has been set up for right-to-left press layout, the Job Management view will show the spools on the right and the cameras on the left.



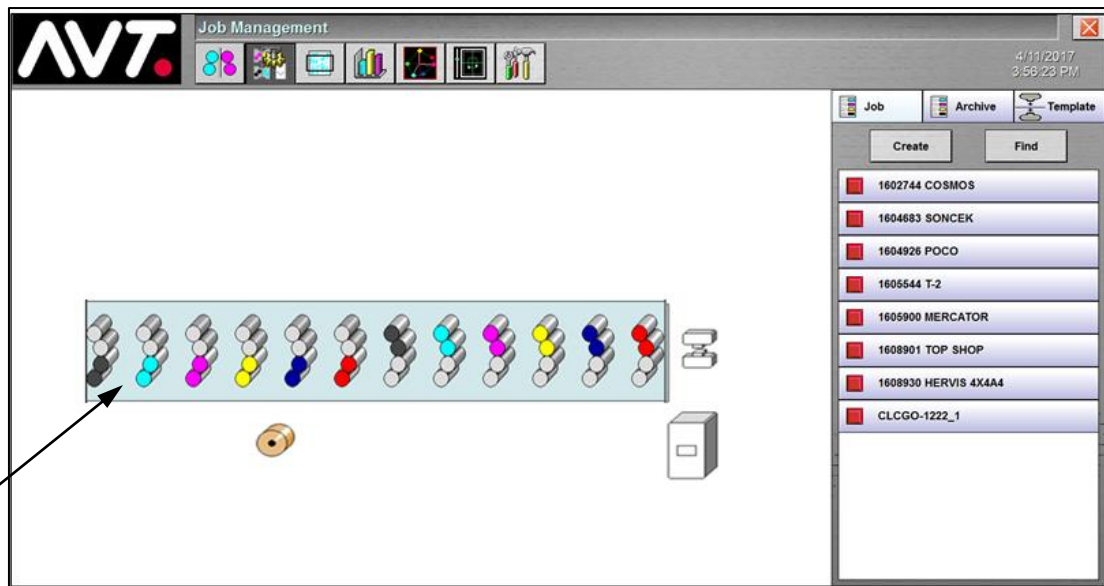
5.3 Unitized Web Press

Clarios can be set up to allow the press layout to represent a unitized web press.

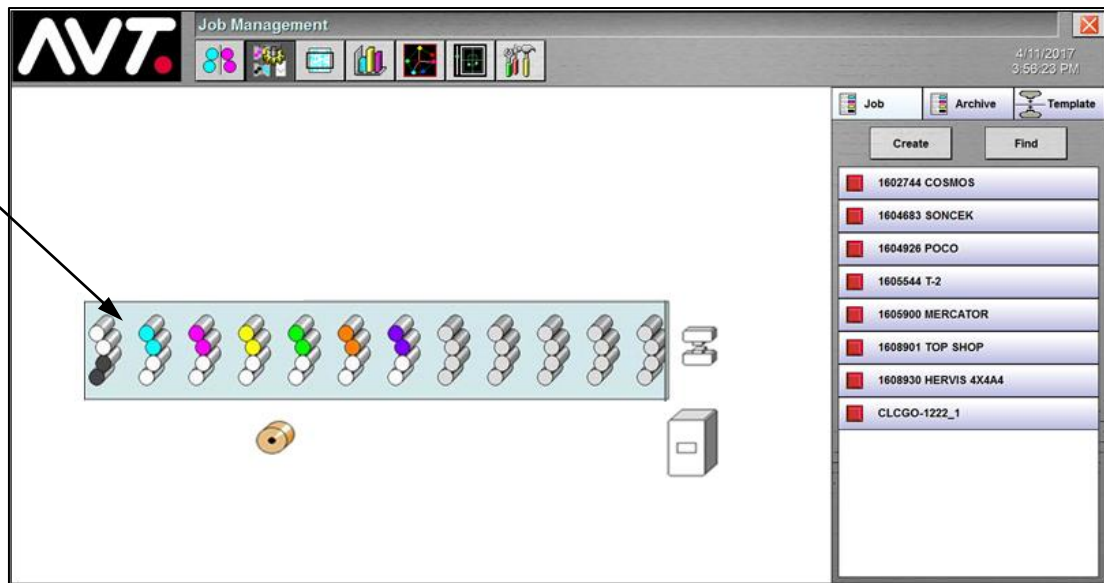
In the unitized web configuration, each printing unit will have either a top or bottom fountain assignment and a form to be created for each surface. A unitized web press shows some press inker units with colors on one side (top form) and other press inker units with colors on the other side (bottom form).

Turnbars are added between press inker units to flip the web and print on the other side. The turnbars determine where forms end and where they begin, as well noting the press inker unit as being on the top or bottom form. Turnbars are not shown in the press layout of Clarios.

Following are a few examples of the Job Management View for a unitized web press.



press
inker units for
two-sided
press



5.4 Two-Web Press

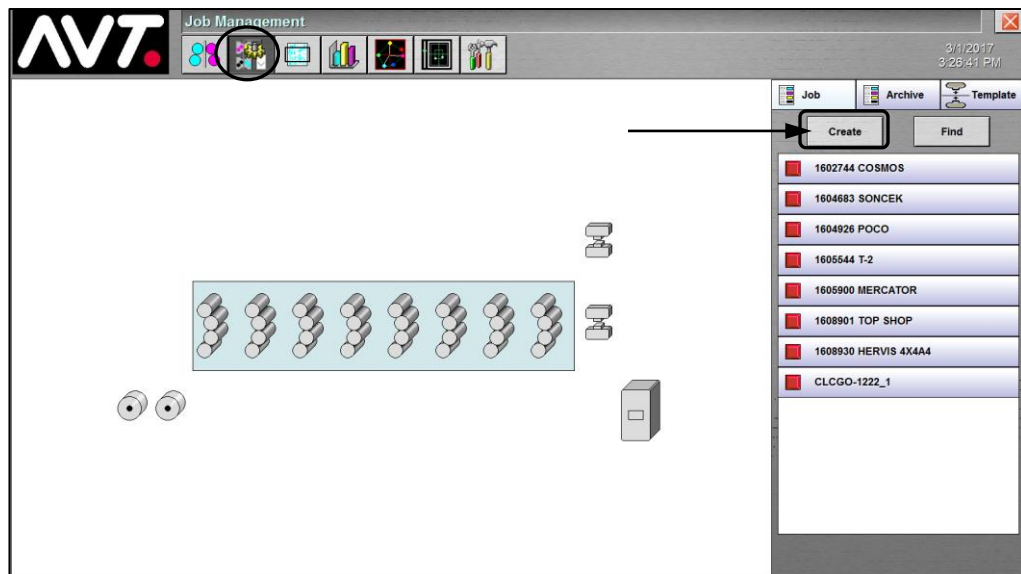
Clarios can be set up to allow the press layout to represent a two-web press.

In the two-web configuration, there will be four forms and each web will have a top and bottom form. When creating a job for a two-web press, you will pick which web selection buttons are associated with that job name.


The sections below provide an example for creating a job and setting up forms for a two-web press. You will follow the basic steps for creating a job and setting up forms, as described in the *Clarios Training and User's Guide*.

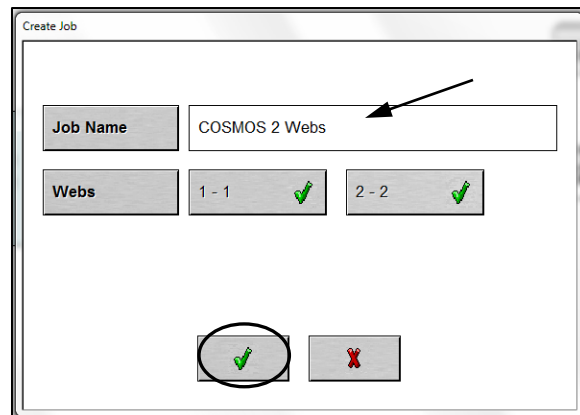
Creating a Job for Two-Web Press

From the Job Management view (with the Job tab selected), touch the **Create** button.



On the Create Job dialog:

- Enter the name for the two-web job in the **Job Name** field.
- Check both boxes for the **Webs**.
- Touch  and the new job name displays in the job queue.

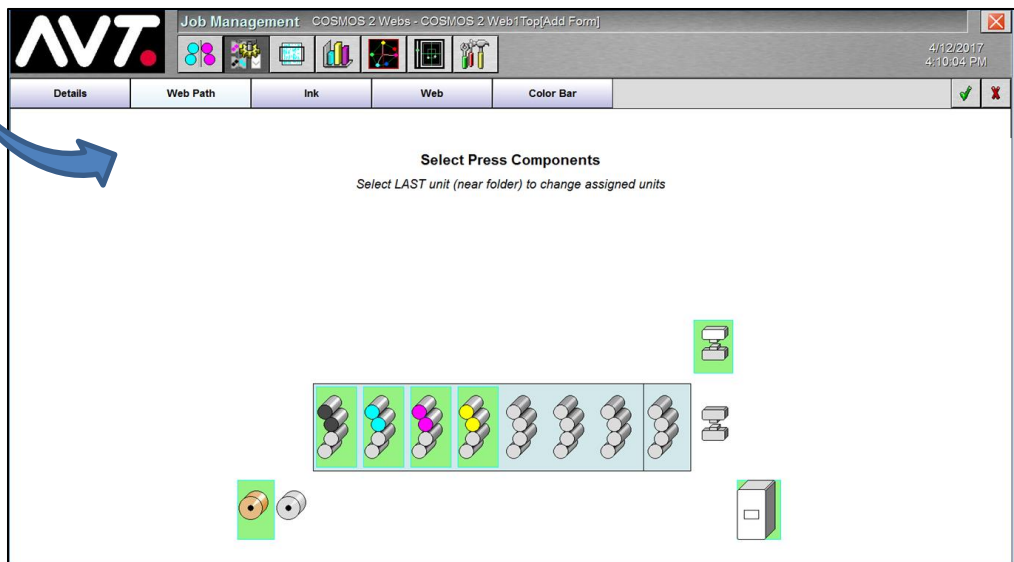
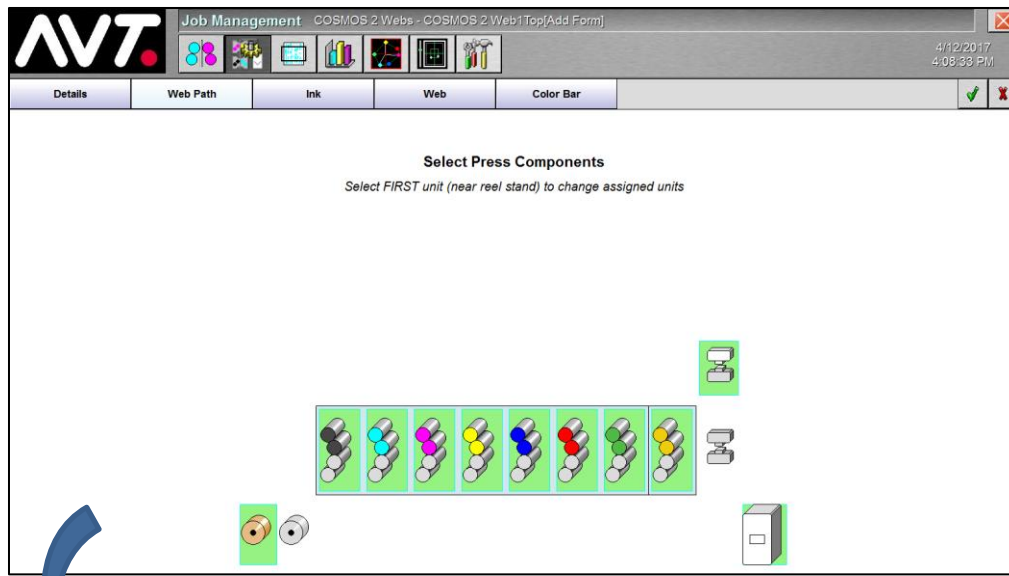


Setting Up Forms for Web1 of Two-Web Press

From the Job Management view, you will need to add a top and bottom form for Web1.

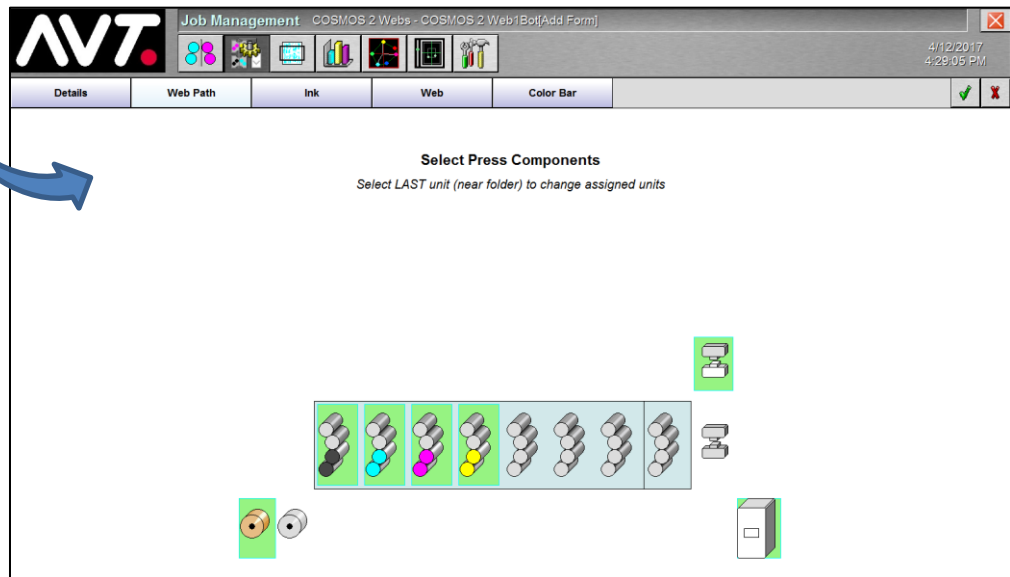
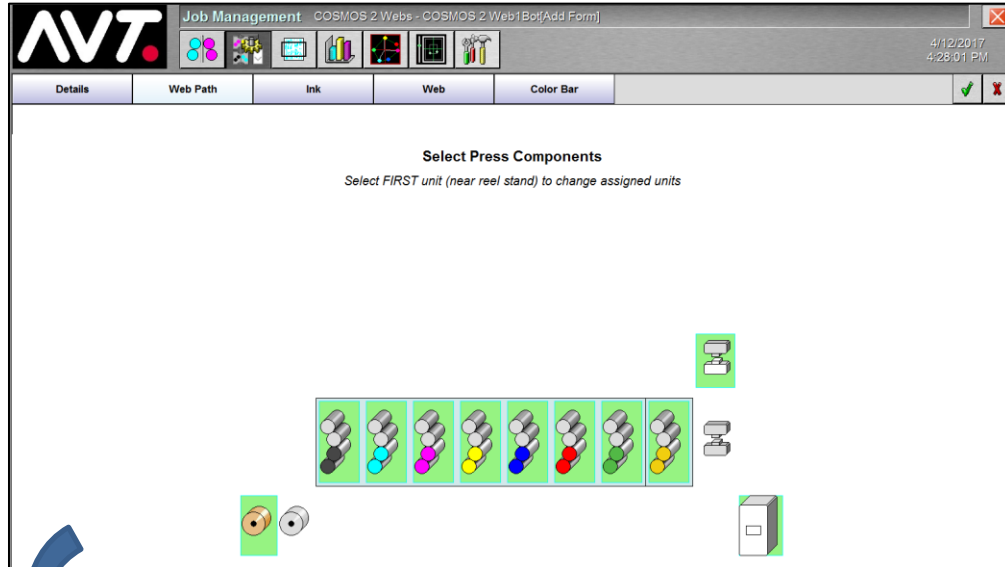
Touch the **two-web press** and then touch **Add Top Form** from the drop-down menu. Clarios automatically names the form using the job name, identifying the top for Web1.

For **Web Path**, follow the prompts on the screen to specify the assigned units.



Touch the **two-web press** and then touch **Add Bottom Form** from the drop-down menu. Clarios automatically names the form using the job name, identifying the bottom for Web1.

For **Web Path**, follow the prompts on the screen to specify the assigned units.

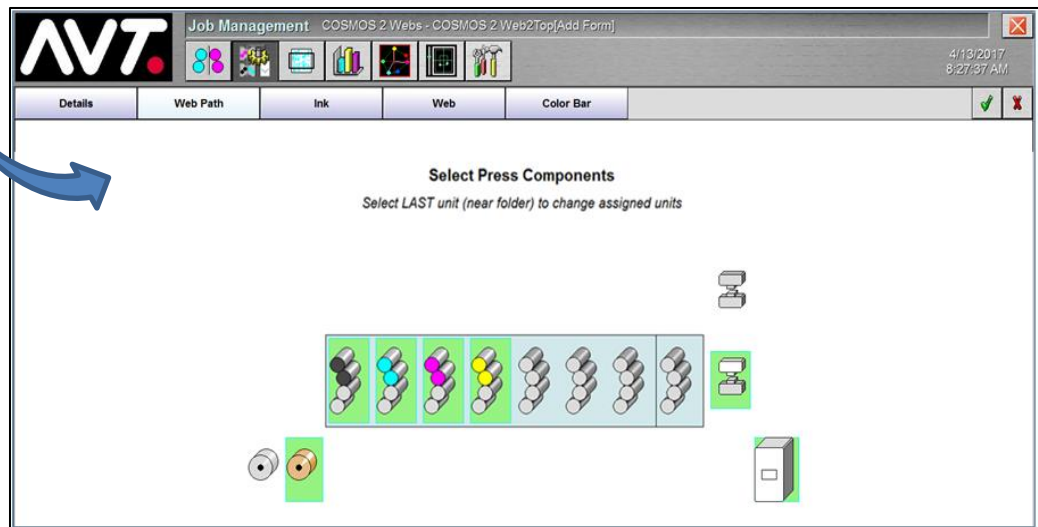


Setting Up Forms for Web2 of Two-Web Press

From the Job Management view, you will need to add a top and bottom form for Web2.

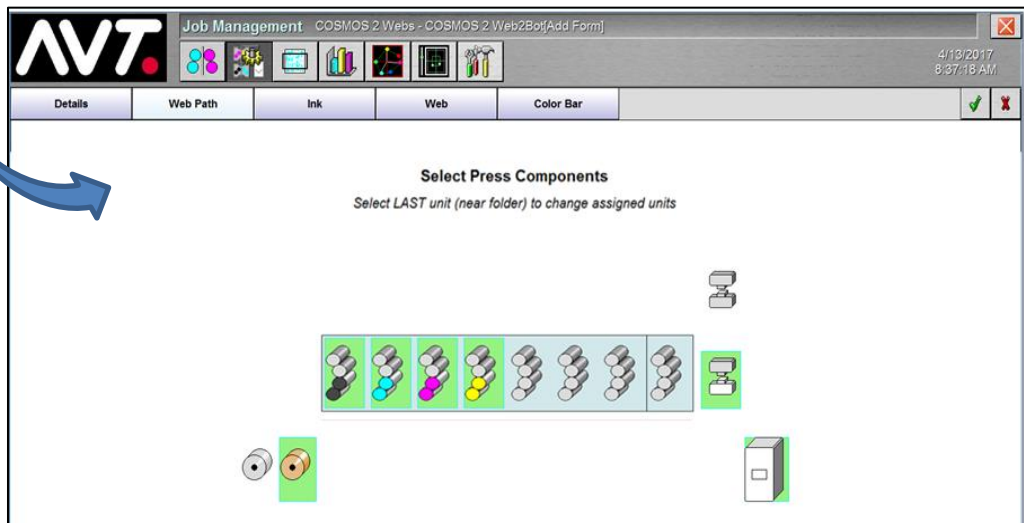
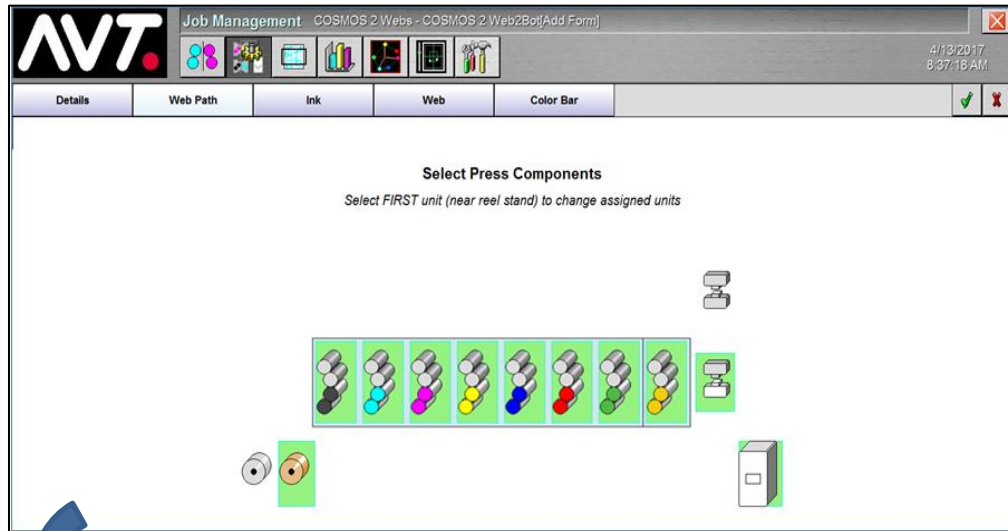
Touch the **two-web press** and then touch **Add Top Form** from the drop-down menu. Clarios automatically names the form using the job name, identifying the top for Web2.

For **Web Path**, follow the prompts on the screen to specify the assigned units.



Touch the **two-web press** and then touch **Add Bottom Form** from the drop-down menu. Clarios automatically names the form using the job name, identifying the bottom for Web2.

For **Web Path**, follow the prompts on the screen to specify the assigned units.



6 Using Goss Auto Transfer

This section describes the Goss Auto Transfer feature, which allows one set of non-printing units to be plated up and made ready for printing while another set of units is printing. Upon activation, each set of units will change their state.

The operator can swap the units without stopping the press and with minimum lost production time. This “on the fly” configuration change saves time and material, taking the time-consuming activities of mounting plates and webbing up the press out of the critical path of a job change.

To fully capture this benefit, the Clarios job set-up activities must also be removed from the critical path of job changeover.

6.1 Auto Transfer Setup Rules

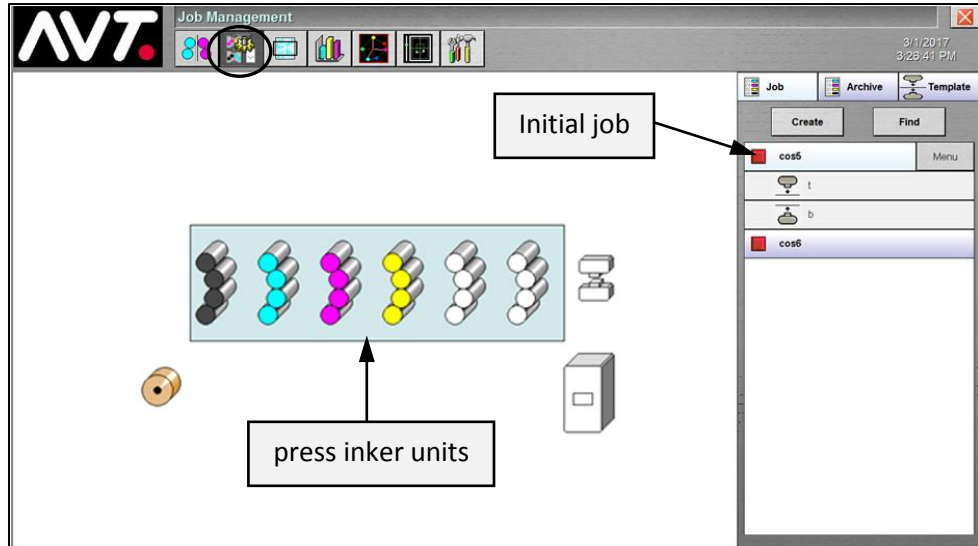
Auto Transfer has very strict set-up rules. The following rules must be understood and followed, as the configuration will be validated before it is accepted.

You cannot select two Auto Transfer jobs at the same time for each folder.
The initial job configured in Clarios must match the initial configuration of the press and the Auto Transfer job configured in Clarios must match the Auto Transfer configuration of the press. If the configuration of the Auto Transfer job does not match the press configuration, Clarios will not be allowed to switch to the second job and a prompt will be displayed.
A print unit with an assigned color may be used in the initial job, the Auto Transfer job, or both jobs.
If a print unit is selected for both the initial and Auto Transfer job, the color in that unit must remain the same.
At least one print unit must change to be an Auto Transfer job. Both the initial and Auto Transfer jobs may not use the exact same print units.
The reel stand, OP, and folder must remain the same for each web in both jobs. The press web-up configuration cannot change if the press is not going to stop.
If the press has multiple webs and they are able to run multiple jobs at the same time, there may be only one Auto Transfer job configured for the same reel stand OP and folder.
Both initial and Auto Transfer jobs must use same set of webs and surfaces. If the job starts with one web it may not Auto Transfer to two webs. If it starts with one surface it may not Auto Transfer to two surfaces.

6.2 Configure and Start Auto Transfer Jobs

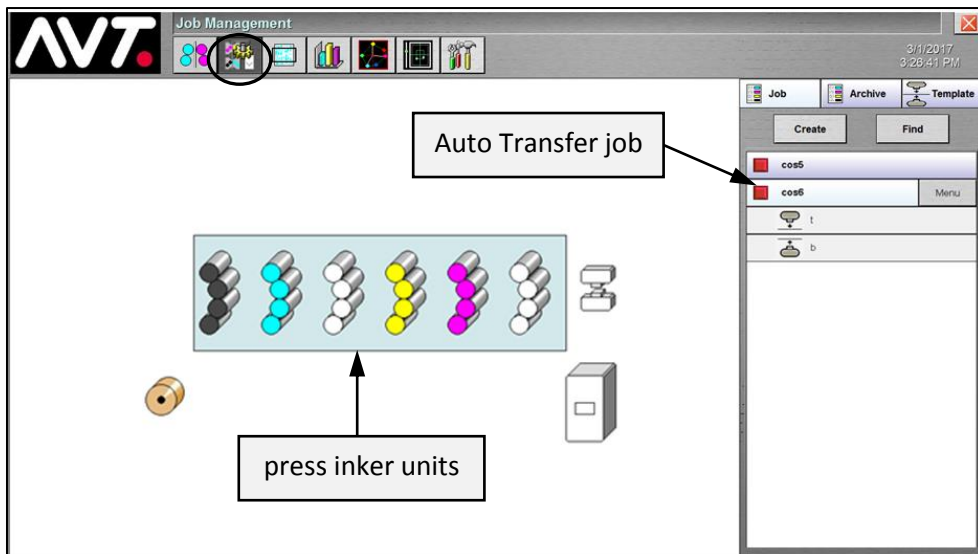
Auto Transfer jobs are configured like any other job.

- 1 On the Job Management view, configure the **initial job**.



In this example, **cos5** is the initial job. It has been configured using four of the six press inker units (1 = K, 2 = C, 3 = M and 4 = Y). The other two units are open. The form setup is the same as any other form setup.

- 2 On the Job Management view, configure the **Auto Transfer job**.

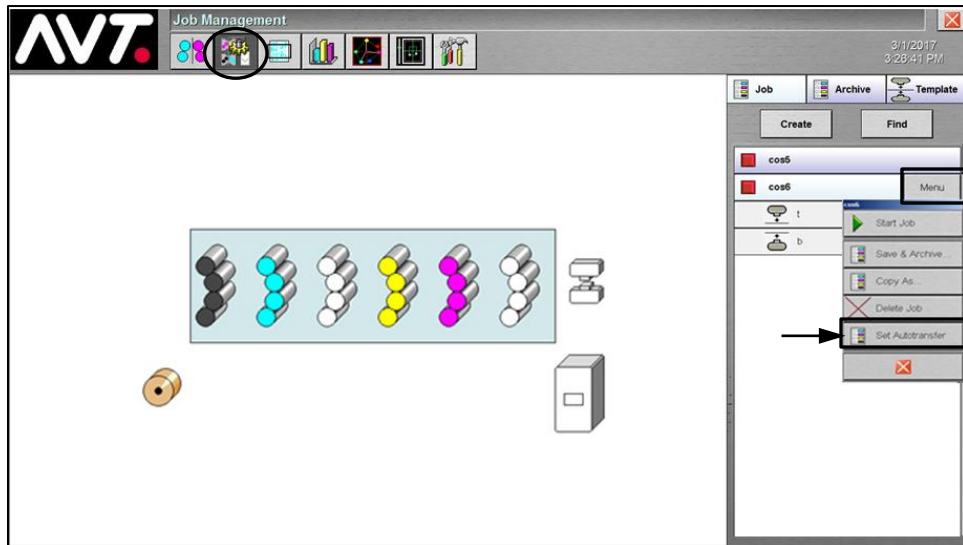


In this example, **cos6** is the Auto Transfer job. It has been configured like **cos5**, except that unit three is open and unit five now has the magenta color. Unit six is still open. Form setup is the same as form setup for the initial job

- 3 Start the initial job in the usual manner by selecting **Start Job** from the Menu.

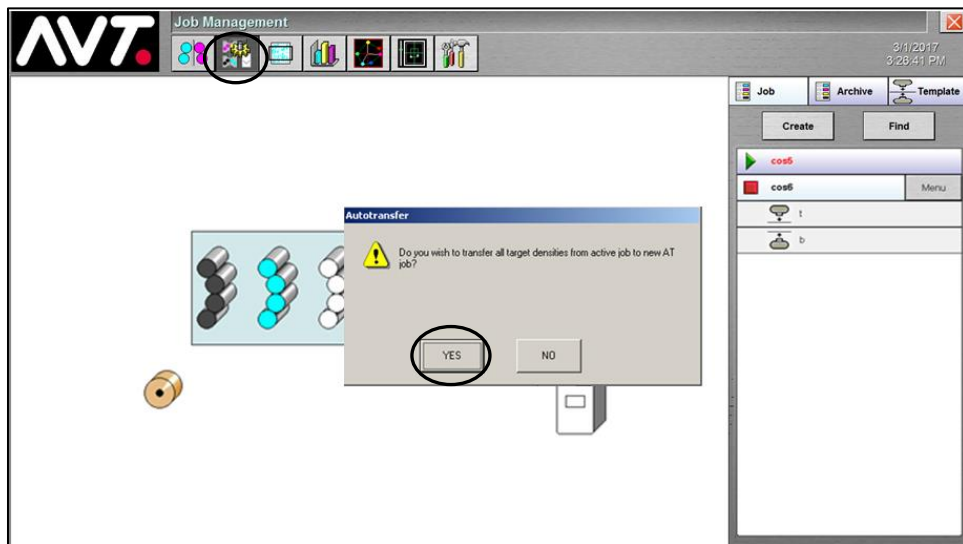
6.3 Set Auto Transfer

- 1 Once the initial job is running, click the **Menu** button for the cos6 job and you will see the Set Autotransfer selection is now available.



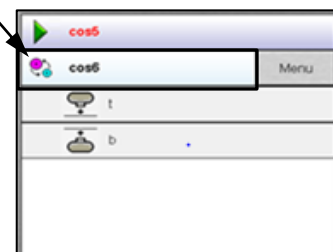
To set Auto Transfer for the cos6 job, touch **Set Autotransfer**.

- 2 On the Autotransfer popup, touch **Yes** to have target densities transferred to the Auto Transfer job.



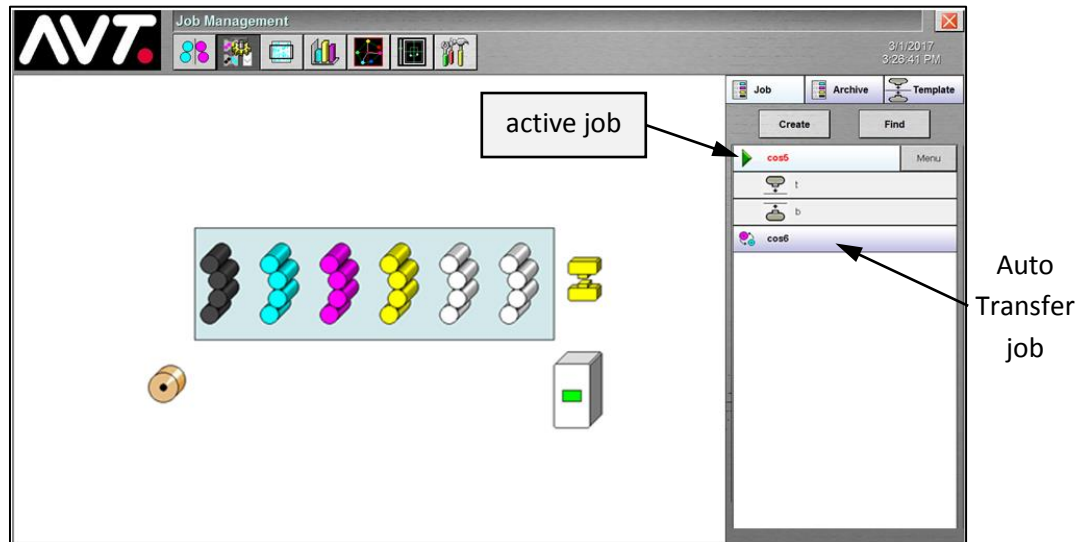
The **cos6** job will then be marked as the Auto Transfer job in the Job list with a new icon. The system is now ready for Auto Transfer.

Note: If the active job is stopped, the Auto Transfer job is unselected at that time. When the initial job starts again, the Auto Transfer job must be selected again.



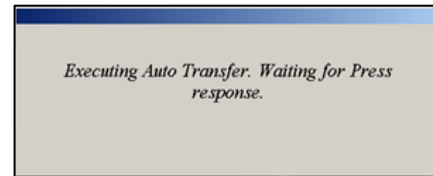
6.4 Execute Auto Transfer

When the press is ready for the auto transfer, the Job Setup screen shows **cos5** is the active job and is running in closed loop with **cos6** standing by as the Auto Transfer job.

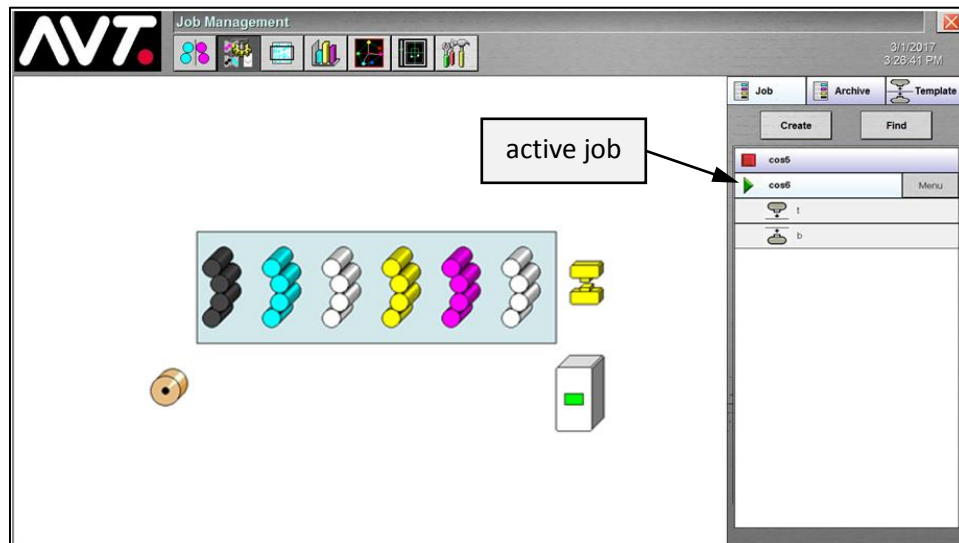


When the press triggers the Auto Transfer, a Clarios message will advise that the Auto Transfer is executing.

This message displays on all Clarios screens.



When the press advises Clarios that Auto Transfer is complete, the Job Setup screen will show that **cos6** is now the active job running in closed loop and **cos5** is inactive. This shows that the Auto Transfer has been successful.



Note: If Auto Transfer is not configured correctly, Clarios prompts to reconfigure the next job to match the running job or accept the way the next job is configured.

6.5 Review Auto Transfer Error Conditions

Auto Transfer Fails

The press executes an Auto Transfer, but the press does not send the new press configuration. The Auto Transfer job fails and a message box will pop up saying that the Auto Transfer has failed and the job must be configured manually.

See [Manual Transfer](#) for information on doing a manual transfer.

Initial Job & Auto Transfer Job Match

The press executes an Auto Transfer, but the press configuration does not change. A message box will pop up saying that the jobs are the same and prompts you to specify whether to use the current job or not.

Answering **Yes** causes the job to continue running and the data to be added to the initial job data. Answering **No** causes the Clarios job to stop running.

No Auto Transfer Job Configured – No Other Jobs in the List

In this case, no Auto Transfer job has been defined and there are no other jobs in the job list. A job has been running as the initial job, with no other jobs in the list. When the press is ready to do the Auto Transfer the message shows that it is in progress, but no Auto Transfer job is available. When Clarios has received confirmation the Auto Transfer is complete, it will display a message that there is no other job in the list.

After selecting **OK**, Clarios will stop the job that is running and it may either be restarted or another job may be created and run.

No Auto Transfer Job Configured – One Other Job in the List

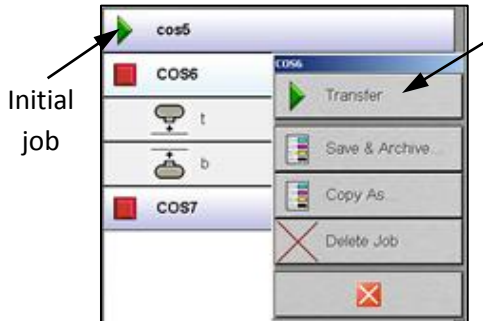
In this case, no Auto Transfer job has been defined and there is one other job in the job list. A job has been running as the initial job, with no Auto Transfer job set. When the press is ready to do the Auto Transfer the message shows that it is in progress, but no Auto Transfer job is available. When Clarios has received confirmation the Auto Transfer is complete it will prompt whether to transfer to the other job in the list or to continue with the initial job.

Answering **Yes** causes the other job in the list to become active. Answering **No** causes the Clarios job to stop running.

Note: If **yes** is chosen, but the other job in the list is not configured correctly, Clarios will prompt whether to reconfigure the other job to match the job that is running or to accept the way the other job is configured.

No Auto Transfer Job Configured – More Than One Other Job in the List

In this case, no Auto Transfer job has been defined and there are multiple other jobs in the job list.



In this example, **cos5** has been running as the initial job with no Auto Transfer job set. When the press is ready to do the Auto Transfer a message shows it is in progress, but no Auto Transfer job is available.

When Clarios has received confirmation that the Auto Transfer is complete, it will prompt whether to transfer to another job in the list or to stop.

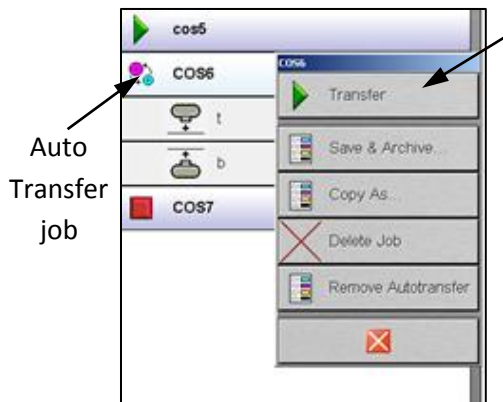
Answering **Yes** allows another job in the list to be selected. Answering **No** causes the Clarios job to stop running.

Note: If **Yes** is chosen, another job in the list may be selected. The Transfer option becomes available for the selected job and if you touch **Transfer**, the job will become the active job.

If the job is not configured as the press is configured, Clarios will prompt whether to reconfigure the other job to match the job that is running or to accept the way the other job is configured.

Manual Transfer

If Clarios is not notified by the press, it becomes necessary to make a manual transfer.



In this example, **cos5** has been running as the initial job with **COS6** configured as the Auto Transfer job. When the press is ready to do Auto Transfer, the press messages fail to reach Clarios server.

To make the transfer manually, touch the **COS6** job and then touch the **Menu** button.

Touch **Transfer** and **COS6** becomes the active running job.

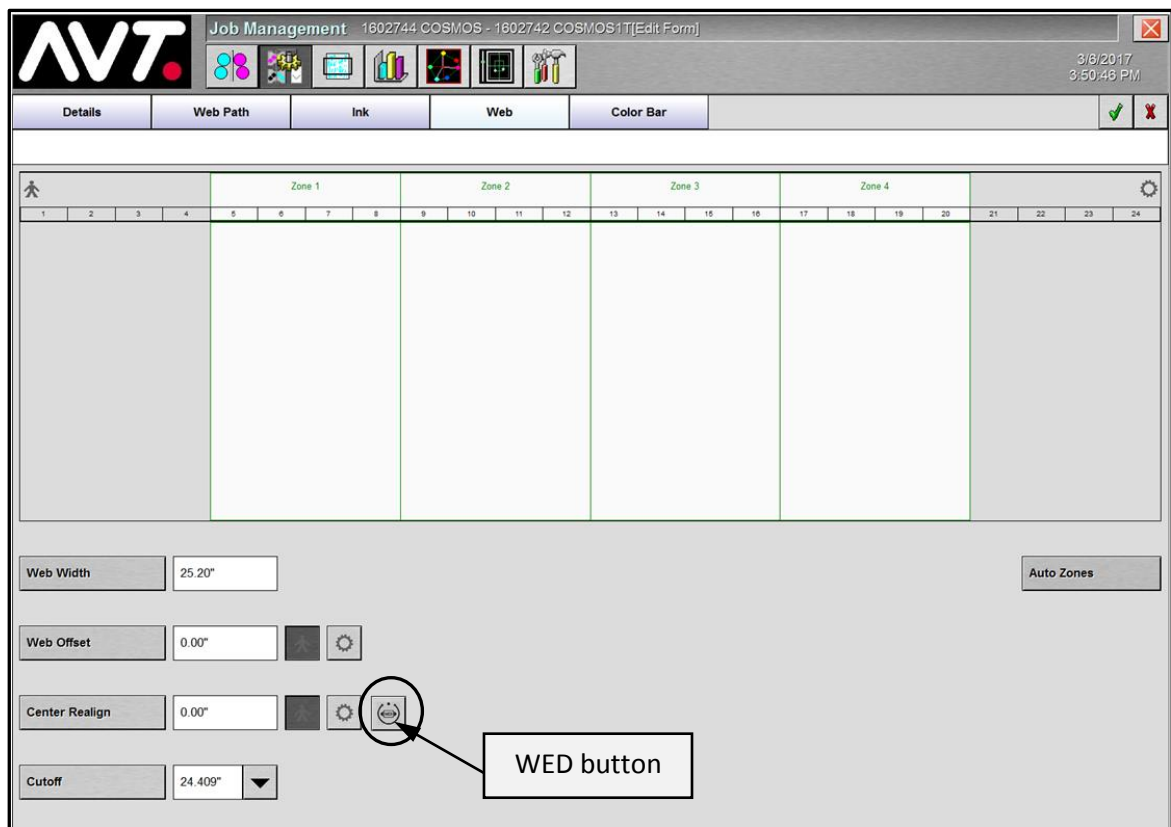
7 Using Web Edge Detect

This section describes Web Edge Detect (WED), normally used for a Sheeter Delivery, which is an automated aid for determining the web offset needed at the Clarios On-Press module.

Instead of manually applying an estimated offset and direction of the Center Realign in the form Web view, selecting the WED button will automatically determine the offset and direction needed to correctly position the probe head over the printed color bar.

Note: There are no further indications when this feature is working, beyond scanning data appearing in the Clarios client data views.

You can enable this option on the **Web** tab of the **Job Management** view, while creating or editing a form, by touching the **WED** button next to Center Realign.



When WED is enabled, the Center Realign value is reset and disabled.

See “Managing Web Controls” in the *Clarios Advanced User’s Manual - Volume 1* for more information on the Job Management web controls.

8 Using Rapid Response Scanning

This section describes Rapid Response Scanning (RRS), which is a method of color bar scanning that accelerates the response of Clarios during the makeready stage of production. RRS reduces the number of measurements collected during the initial makeready scans by about 50%, so that the first ink key adjustments can be sent to the press console sooner

- RRS response can be enabled or disabled globally during installation.
- Global configuration sets the number of RRS scans that will occur during makeready. The standard is three scans.
- RRS mode can be enabled or disabled on a job-by-job basis.

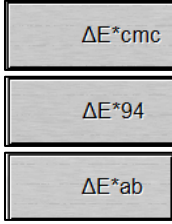



Features of Rapid Response Scanning

Following are the main features of RRS:

- Scan uses GBT swatches instead of CMY solid swatches. So rather than measuring a cyan, magenta, and yellow solid swatch, a single swatch is measured in each key.
- Solid CMY densities are calculated from the GBT measurement. Using reference data, solid densities are calculated for cyan, magenta, and yellow from the GBT measurement. The calculated CMY densities are passed to displays and closed loop control (CLC).
- RRS reduces the number of impressions required to complete a makeready scan, thus reducing the number of measurements needed in each key position from four (K, C, M, Y solids), for each key, to two (K solid + Gray tint).

<p>Faster Makeready Scans</p>	<ul style="list-style-type: none"> • Moves CMY from a single gray measurement in each key. • Cuts scan time for a process color during following form makeready by almost 50%. • Reduces impressions to first save on following forms by 100-400 impressions.
<p>Faster Scan Updates</p>	<ul style="list-style-type: none"> • Measurements stream to the display in pages. • No more waiting until the scan finishes for the latest measurement results. • Printers can choose their next move while the scan is happening. This reduces over-corrections and accurate moves happen sooner.

Appendix A: Spectral Analysis Buttons

Button	Name	Description
	Color Difference Equation Toggle	Toggle between the Color Difference Equations (ΔE^*) buttons on Spectral Analysis – Scatter view.
	Data Averaging	Averaging control for numerical data and plot displayed on Spectral Analysis – Scatter view.
	Historical Data Size	Select/adjust historical data sample size for color spaces on Spectral Analysis – Scatter view.
	L*a*b* / Delta L*a*b* Toggle	Buttons to toggle between color ($L^*a^*b^*$) and color difference of (Delta $L^*a^*b^*$) color bar targets on the Spectral Analysis – PCCD view.

Appendix B: Scan Data for External Use

The **Clarios Runtime Data Export** feature allows color scan data exchange between AVT and customers that subscribe to exported color data.

This feature will export color and relevant configuration data, write the data in a standardized file format, and place the data in a customer requested location where the customer can retrieve and process the data.

The exchanged data will consist of:

- color measurement data collected during scanning operations by the On-Press
- relevant color bar specific data
- relevant press specific data retrieved from the local configuration file
- standard values for selected data the customer

Note: This feature is only available to AVT customers who have obtained appropriate licenses.

File formats for data export will be XML and/or ASCII formatted keyword-value files.

Revision History

Version 1.8

Revision Date	Revised By	Version (EO)	Section / Page Numbers	Revision Description
5/11/2017	SW	1.8 A (17254)	All	<ul style="list-style-type: none"> • Initial release of V1.8; moved additional features to this new document called <i>Clarios Advanced User's Manual – Volume 2</i>. • Renamed document with core functions to <i>Clarios Advanced User's Manual – Volume 1</i>. • Converted V1.3 from FrameMaker to Word and updated all screen shots. • Incorporated all updates for versions 1.40 – 1.80.

Version 1.3

Revision Date	Revised By	Version (EO)	Section / Page Numbers	Revision Description
4/5/2010	SW	1.3 A (15315)	All	Initial release.
3/3/2015	SL	1.3 B (16630)	Front matter	Updated address and logo on PDF file. Frame files were not updated.

