Standard Operating Procedure: New Media and Color Profile Setup

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Objective: To provide a comprehensive, step-by-step guide for creating, calibrating, and implementing a new media print condition on the EQUIOS printing system.

1.0 Print Condition Creation and Configuration

This phase covers the initial setup of the new media profile, including its core settings and associated calibration files.

1.1 Create the Core Print Condition

1. Navigate to the desired paper stock within the media library.
2. From the **Add Menu**, select **Create New Print Condition**.
3. In the configuration window, set the following parameters:
    - **Base Profile/Template:** Select **NextIJ**.
    - **Printer Resolution:** Choose the appropriate resolution for the intended job.
4. Enter a unique and descriptive name in the **Print Condition Name** field.
5. **Critical Step:** Copy the full Print Condition name to the clipboard (**Ctrl+C**). This name will be used for all associated profiles to ensure consistency.

1.2 Generate Supporting Calibration Profiles

Note: The following profiles must be created using the exact name copied in step 1.1.5.

1. **Alignment Profile:** Navigate to the **Alignment** tab, initiate a new profile based on **NextIJ**, and paste the copied name.
2. **Uniformity Profile:** Navigate to the **Uniformity** tab, initiate a new profile based on **NextIJ**, and paste the copied name.
3. **ICC Preset:** Navigate to the **ICC Preset** tab, initiate a new preset, and paste the copied name.

1.3 Define Media Attributes

With the new Print Condition selected, define its physical and operational parameters.

- **Paper Description:**
    - **Brand:** Manufacturer of the paper.
    - **Weight:** Paper weight (e.g., g/m² or lbs).
    - **Type:** Paper finish (e.g., Gloss, Matte, Coated, Uncoated, Offset).

- **Resolution and Speed:** Confirm the print modes are correct.
    - 1200 x 1200 dpi @ 50 mm/s
    - 1200 x 600 dpi @ 100 mm/s
    - 600 x 600 dpi @ 120 or 150 mm/s
- **Roll Width:** Enter the width of the paper roll.
- **Paper Thickness:** Use a micrometer to obtain an accurate measurement in millimeters (mm) and enter the value.
- **Special Settings:** Configure any unique media properties, such as pre-printed areas or registration holes.

1.4 Activate and Register the Print Condition

1. **Activate:** Review all settings for accuracy. Click the **Make Current** icon (e.g., a checkmark or star) next to the new Print Condition name.
2. **Register in Jet Inspect:**
    - Access **Service Mode**: Navigate to **System Settings** and change the user to **Service** (Password: **SCREEN**).
    - Open the **Jet Inspect** application and select the **Register** icon (upper right) to register the new media profile.

2.0 System Calibration

This phase involves calibrating the printer's physical output to the newly created media profile.

2.1 Perform Print Head Alignment

1. Navigate to the **Print Head Alignment** menu.
2. Select **Print and Adjust** to launch the automated alignment wizard.
3. Ensure all color channels are selected and uncheck the **Print Test** option.
4. Select the **High Speed Alignment** button to proceed.
5. To verify the results, select **Edit** from the top of the window and print a test pattern.
6. If the test print reveals misalignment, perform manual adjustments as necessary.

2.2 Calibrate Print Density and Linearization

- **2.2.1 Mid-Tone Density Linearization**
    1. Navigate to the **Print Density Adjustments** menu. In the **Mid-Tone Adjustment** section (middle panel), select **Print and Adjust** to generate a density chart.

2. Launch the **LinearizationTool** on the EQUIOS Center PC (use Remote Desktop if necessary).
3. Select the new Print Condition and measure the printed chart for **Printer 1 (Front)**. Enter the values for the recommended points: **0, 10, 30, 50, 70, 100%**.
4. Save the file, appending _**P1** to the name.
5. Repeat the measurement and saving process for **Printer 2 (Back)**, appending _**P2**.

- **2.2.2 Apply Mid-Tone Correction Data**
  1. Return to the **Mid-Tone Adjustment** window on the printer panel.
  2. Press the **Mid-tone density correction rollback** button.
  3. Select the _**P1** linearization file and press **Rollback**.
  4. Repeat the process for the _**P2** file. Exit when complete.
- **2.2.3 Set Maximum Densities (D-Max)**
  1. In the **Print Density Adjustments** menu, go to the **Max Densities** section (top panel) and select **Print and Adjust** to output the D-Max chart.
  2. Measure the chart and adjust the values to meet the targets based on the *Paper Evaluation Results (TPJ520 HD for SC ink)*.

Paper Type	Black	Cyan	Magenta	Yellow
Coated	1.65 - 1.70	1.50 - 1.55	1.45 - 1.50	1.00
Uncoated	1.20 - 1.25	1.05 - 1.10	1.00 - 1.05	0.80 - 0.85

2.3 Adjust Print Uniformity

1. Navigate to the **Print Uniformity** menu and select **Print and Adjust**.
2. Choose the **High Speed Uniformity** option.
3. Select **No** for the **Intelligent Nozzle Control** prompt.
4. Confirm the temperature setting by clicking **OK**.
5. *Note: For optimal results on Gloss and Matte papers, this process should be run at least twice.*

3.0 ICC Profile Generation and Implementation

This phase finalizes the color characterization of the media by creating and assigning an ICC profile.

3.1 Configure Final Print Settings

1. **Set AIA (Advanced Ink Amount):** In the **Print Density Adjustment** menu, set the AIA value based on paper type and **Save** the changes.

    - **Offset/Uncoated:** 130% - 140%
    - **Coated:** 140% - 160%
2. **Print ICC Profiling Chart:** From the bottom of the **Print Density Adjustment** window, output the **CMYK 1617** patch chart.

3.2 Measure and Process Chart Data (ColorAnt)

1. Open the **ColorAnt** application.
2. Drag and drop the **CMYK 1617** measurement data file (.txt) into the window.
3. Select **Measure**, connect the spectrophotometer, and click **Start**.
4. Once measurement is complete, close the reading window and select **Transfer and Exit**.
5. Process the data using the following tools in order: **Redundancies** (ensure "Remove Duplicate Patches" is checked), **Corrections**, and **Smooth**.
6. Navigate to **File > Save As** and save the processed data as a .txt file with a descriptive profile name.

3.3 Generate ICC Profile (CoPra)

1. Open the **CoPra** software.
2. Click **New Color Profile**, then **Load**.
3. Select the .txt file saved from ColorAnt and click **Open**.
4. Proceed by clicking **Next**, using the default screen settings, and save the final **.icc profile**.

3.4 Implement the New Profile

1. **Assign Profile in Media DB Manager:**
    - Open the **Media DB Manager** and select **New Profile**.
    - Assign the newly generated ICC profile to the corresponding Paper ID.
    - Click **Next**, then **Register** to finalize the assignment. Close the application.
2. **Update EQUIOS Template:**
    - Open the **EQUIOS Client** and navigate to the **Paper Evaluation Job Template**.
    - Change the **Print Conditions** to the new profile.
    - Save the changes and register the Paper Evaluation PDF to complete the setup.

4.0 Verification (Optional)

This optional phase verifies the calibration against G7 grayscale standards.

4.1 G7 Grayscale Calibration and Verification

1. Open the **Curves** software.
2. From the top menu, navigate to **Calibrate > Untitled Calibration**.
3. Select **Run1 Calibration**.
4. Under the **Based on Measurements** section, select the **Measure Chart** icon to initiate a measurement.

* Load the **P2P251** chart and measure it using the connected spectrophotometer (e.g., MYIRO-9).
* Once complete, analyze the resulting curve to verify if it meets G7 grayscale specifications.
* **If the curve fails validation:** A corrective **Press Curve** can be created in **EQUIOS Color Tools**.