

Advanced System Overview **Users Guide**

JRE version 1.1

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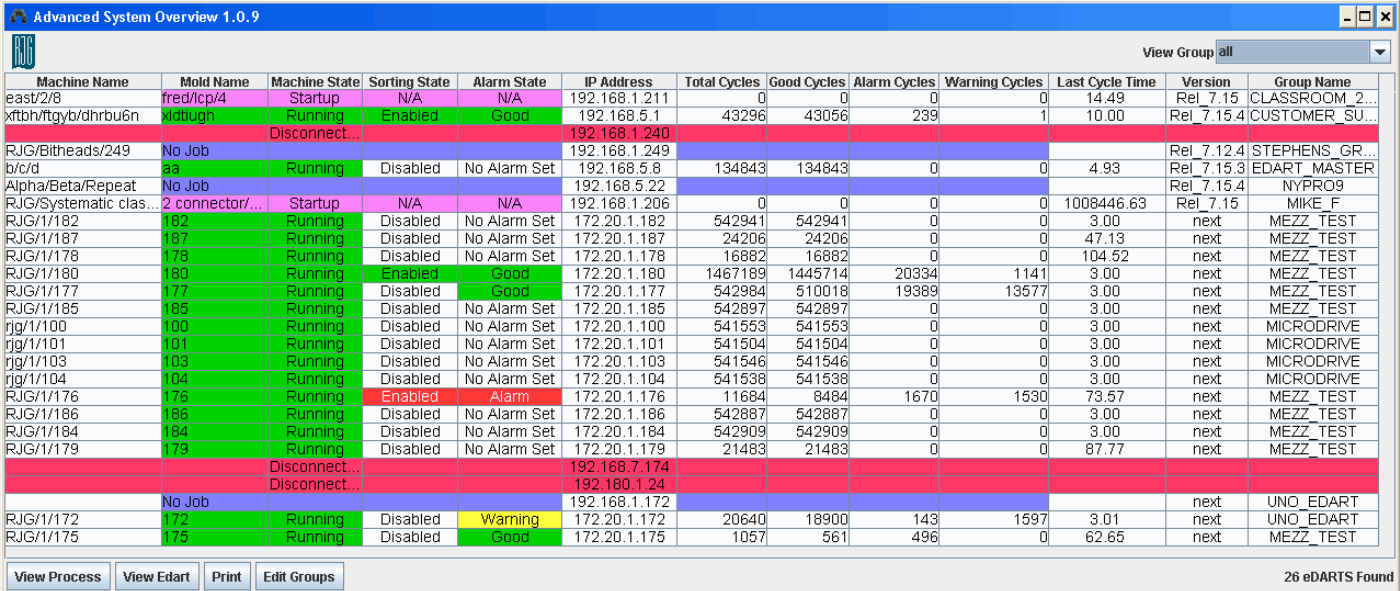
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Overview

“Advanced System Overview” is an integrated web based application that allows user to view current status and process information with regard to eDARTs connected to/monitored by the Insight Server at the customer’s facility.

Main Features of the Advanced System Overview are:

- Advanced System Overview can be viewed from anywhere on the plant network provided the user’s computer has access to a web browser and is on the network.
- Advanced System Overview can be also viewed from anywhere in the world provided user’s computer has access to the Internet and their system is on the web.
- Allows user to keep track of vital information regarding entire network of machines through single web page, without having to monitor each eDART individually.
- Provides users with the dynamic and cost effective web-based option to access eDART systems and view process information from any location with network access.
 - Allows users to launch Phindows from the Advanced System Overview Page enabling them to monitor individual eDART from their own computer;
 - Allows users to launch “Process Viewer” for selected machine that displays real-time web based version of the Cycle Graph and Summary Graph tool.
- Utilizes combination of Microsoft .Net and Java technologies to provide an integrated platform:
 - for effective and secure communications between web applications and other components of the system.
 - with extensive scope for expansion and modifications.
 - that requires low maintenance and Support. Installation of software components, configuration, support and future updates will be carried out only on one computer i.e. Insight.Net Server and not individually on each user’s workstation.



Machine Name	Mold Name	Machine State	Sorting State	Alarm State	IP Address	Total Cycles	Good Cycles	Alarm Cycles	Warning Cycles	Last Cycle Time	Version	Group Name
east/2/8	fred/icp/4	Startup	N/A	N/A	192.168.1.211	0	0	0	0	14.49	Rel_7.15	CLASSROOM 2...
xtfbh/ftgyb/dhrbu6n	xtbtough	Running	Enabled	Good	192.168.5.1	43296	43056	239	0	10.00	Rel_7.15.4	CUSTOMER_SU...
RJG/Bitheads/249	No Job	Disconnect...			192.168.1.249						Rel_7.12.4	STEPHENS_GR...
b/c/d	aa	Running	Disabled	No Alarm Set	192.168.5.8	134843	134843	0	0	4.93	Rel_7.15.3	EDART_MASTER
Alpha/Beta/Repeat	No Job				192.168.5.22						Rel_7.15.4	NYPRO9
RJG/Systematic clas...	2 connector/...	Startup	N/A	N/A	192.168.1.206	0	0	0	0	1008446.63	Rel_7.15	MIKE_F
RJG/1/182	182	Running	Disabled	No Alarm Set	172.20.1.182	542941	542941	0	0	3.00	next	MEZZ_TEST
RJG/1/187	187	Running	Disabled	No Alarm Set	172.20.1.187	24206	24206	0	0	47.13	next	MEZZ_TEST
RJG/1/178	178	Running	Disabled	No Alarm Set	172.20.1.178	16882	16882	0	0	104.52	next	MEZZ_TEST
RJG/1/180	180	Running	Enabled	Good	172.20.1.180	1467189	1445714	20334	1141	3.00	next	MEZZ_TEST
RJG/1/177	177	Running	Disabled	Good	172.20.1.177	542984	510018	19389	13577	3.00	next	MEZZ_TEST
RJG/1/185	185	Running	Disabled	No Alarm Set	172.20.1.185	542897	542897	0	0	3.00	next	MEZZ_TEST
rjg/1/100	100	Running	Disabled	No Alarm Set	172.20.1.100	541553	541553	0	0	3.00	next	MICRODRIVE
rjg/1/101	101	Running	Disabled	No Alarm Set	172.20.1.101	541504	541504	0	0	3.00	next	MICRODRIVE
rjg/1/103	103	Running	Disabled	No Alarm Set	172.20.1.103	541546	541546	0	0	3.00	next	MICRODRIVE
rjg/1/104	104	Running	Disabled	No Alarm Set	172.20.1.104	541538	541538	0	0	3.00	next	MICRODRIVE
RJG/1/176	176	Running	Enabled	Alarm	172.20.1.176	11684	8484	1670	1530	73.57	next	MEZZ_TEST
RJG/1/186	186	Running	Disabled	No Alarm Set	172.20.1.186	542887	542887	0	0	3.00	next	MEZZ_TEST
RJG/1/184	184	Running	Disabled	No Alarm Set	172.20.1.184	542909	542909	0	0	3.00	next	MEZZ_TEST
RJG/1/179	179	Running	Disabled	No Alarm Set	172.20.1.179	21483	21483	0	0	87.77	next	MEZZ_TEST
		Disconnect...			192.168.7.174							
		Disconnect...			192.180.1.24							
	No Job				192.168.1.172						next	UNO_EDART
RJG/1/172	172	Running	Disabled	Warning	172.20.1.172	20640	18900	143	1597	3.01	next	UNO_EDART
RJG/1/175	175	Running	Disabled	Good	172.20.1.175	1057	561	496	0	62.65	next	MEZZ_TEST

Fig 1.0: Advanced System Overview page

Getting Started

To get started, ensure that your plant/facility is networked and configured as per the requirements specified by the RJG, Inc.

1. Insight Server must be installed and configured, as per RJG specifications ([Appendix A](#)).
2. Supporting Software Components must be installed on the Insight Server.
3. Network of eDARTs (version 7.12 and above which include software modules required for communications with the server) attached to the Injection molding machines in the customer's plant and connected to the Insight Server.
4. RJG data service IDM should be running on the Insight server.
5. In order to launch "Process Viewer" on your computer, your browser may need to be configured to allow running Java applets. Also ensure your computer has Java (Java5.0/Java 1.5) Runtime Environment installed. **Java Runtime** can be downloaded for free from Sun Microsystems website:

<http://java.sun.com/j2se/1.5.0/download.jsp>

Functionality

When a user connects to the server through web browser, the web page “Advanced System Overview” comes up on the screen which serves as a home page.

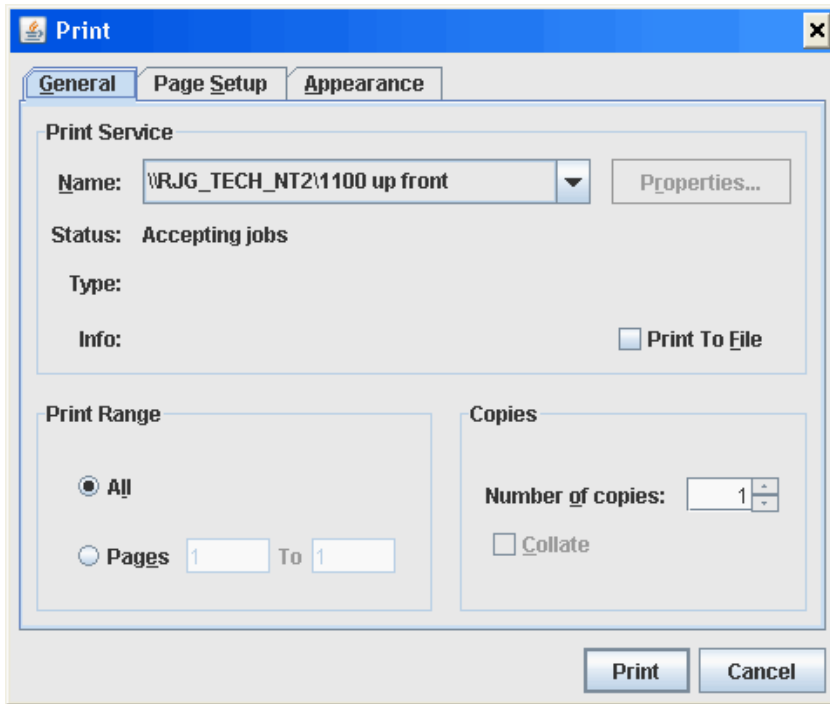
Advanced System Overview page layout and contents:

- displays following information, in tabular form, with regard to each eDART connected to/monitored by the RJG Data Service on the server: Machine Name, Mold Name, Production State, Alarm State, Sorting, Total Cycles, Alarm Cycles, Warning Cycles, IP Address, Software Version.

eDART information is displayed for the “Current Run” only. If a job is stopped and restarted the web page updates the information accordingly and cycle/Alarm counts begin from zero. The information on Advanced System Overview is updated real-time as it happens on the eDARTs.

- displays two buttons and total number of eDARTs found on the bottom toolbar:
 - a. **View eDART** - Clicking this button launches Phindows that allows user to monitor the selected eDART from user’s computer.
 - b. **View Process** – Clicking this button brings up another window displaying web based real-time Cycle and Summary Graph tools for the selected machine. At this point, process Viewer will display these two tools only, for the currently running process on an eDART. Also, these tools will display “live” data only and not historical data.

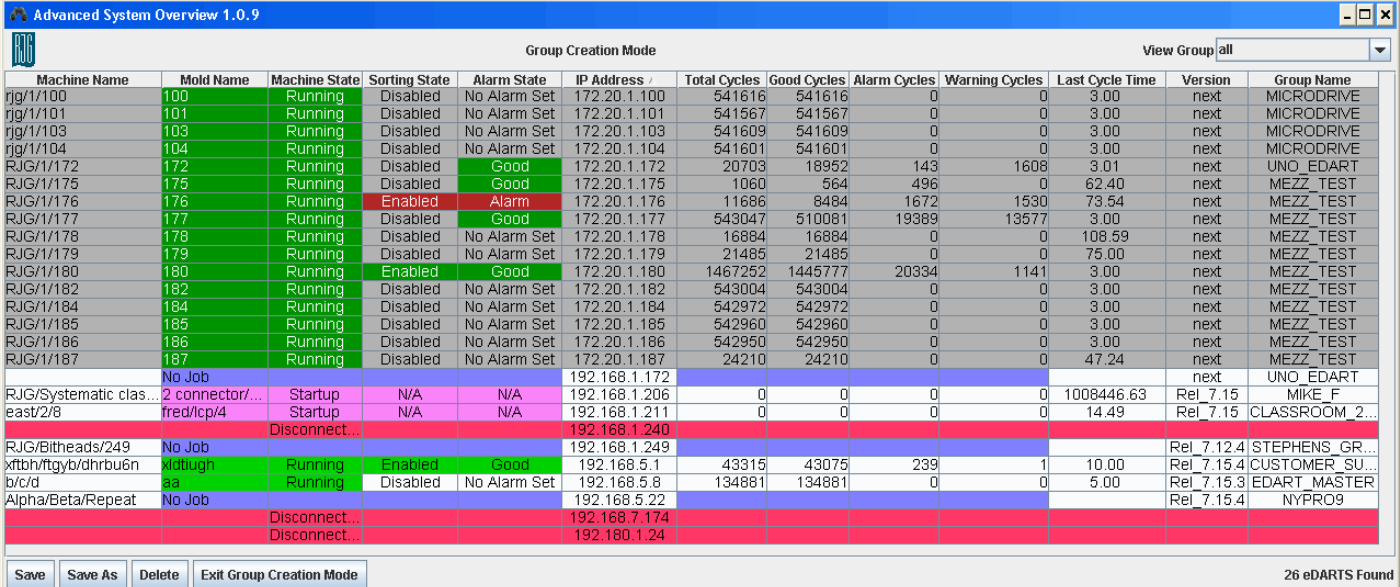
 **Print**



The Print function allows you to print the current overview display to a printer of your choice. This can be useful in documentation and reporting on how the machines connected to the eDARTs are performing.

Edit Groups

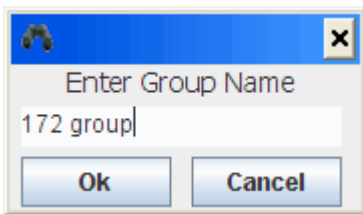
This button puts the display into 'edit' mode which allows you to select specific eDARTs and group them together as a separate display page.



Machine Name	Mold Name	Machine State	Sorting State	Alarm State	IP Address	Total Cycles	Good Cycles	Alarm Cycles	Warning Cycles	Last Cycle Time	Version	Group Name
rjg/1/100	100	Running	Disabled	No Alarm Set	172.20.1.100	541616	541616	0	0	3.00	next	MICRODRIVE
rjg/1/101	101	Running	Disabled	No Alarm Set	172.20.1.101	541567	541567	0	0	3.00	next	MICRODRIVE
rjg/1/103	103	Running	Disabled	No Alarm Set	172.20.1.103	541609	541609	0	0	3.00	next	MICRODRIVE
rjg/1/104	104	Running	Disabled	No Alarm Set	172.20.1.104	541601	541601	0	0	3.00	next	MICRODRIVE
RJG/1/172	172	Running	Disabled	Good	172.20.1.172	20703	18952	143	1608	3.01	next	UNO_EDART
RJG/1/175	175	Running	Disabled	Good	172.20.1.175	1060	564	496	0	62.40	next	MEZZ_TEST
RJG/1/176	176	Running	Enabled	Alarm	172.20.1.176	11686	8484	1672	1530	73.54	next	MEZZ_TEST
RJG/1/177	177	Running	Disabled	Good	172.20.1.177	543047	510081	19389	13577	3.00	next	MEZZ_TEST
RJG/1/178	178	Running	Disabled	No Alarm Set	172.20.1.178	16884	16884	0	0	108.59	next	MEZZ_TEST
RJG/1/179	179	Running	Disabled	No Alarm Set	172.20.1.179	21485	21485	0	0	75.00	next	MEZZ_TEST
RJG/1/180	180	Running	Enabled	Good	172.20.1.180	1467252	1445777	20394	1141	3.00	next	MEZZ_TEST
RJG/1/182	182	Running	Disabled	No Alarm Set	172.20.1.182	543004	543004	0	0	3.00	next	MEZZ_TEST
RJG/1/184	184	Running	Disabled	No Alarm Set	172.20.1.184	542972	542972	0	0	3.00	next	MEZZ_TEST
RJG/1/185	185	Running	Disabled	No Alarm Set	172.20.1.185	542960	542960	0	0	3.00	next	MEZZ_TEST
RJG/1/186	186	Running	Disabled	No Alarm Set	172.20.1.186	542950	542950	0	0	3.00	next	MEZZ_TEST
RJG/1/187	187	Running	Disabled	No Alarm Set	172.20.1.187	24210	24210	0	0	47.24	next	MEZZ_TEST
	No Job				192.168.1.172						next	UNO_EDART
RJG/Systematic clas...	2 connector/...	Startup	N/A	N/A	192.168.1.206	0	0	0	0	1008446.63	Rel_7.15	MIKE_F
east/2/8	fred/lcp/4	Startup	N/A	N/A	192.168.1.211	0	0	0	0	14.49	Rel_7.15	CLASSROOM_2...
		Disconnect...			192.168.1.240							
RJG/Bitheads/249	No Job				192.168.1.249						Rel_7.12.4	STEPHENS_GR...
xtfbh/ftgyb/dhrbuén	idtiugh	Running	Enabled	Good	192.168.5.1	43315	43075	239	1	10.00	Rel_7.15.4	CUSTOMER_SU...
b/c/d	sa	Running	Disabled	No Alarm Set	192.168.5.8	134881	134881	0	0	5.00	Rel_7.15.3	EDART_MASTER
Alpha/Beta/Repeat	No Job				192.168.5.22						Rel_7.15.4	NYPRO9
		Disconnect...			192.168.7.174							
		Disconnect...			192.180.1.24							

When in the 'edit' mode you left click on the 'Machine Name' you wish to add to this display group. You can use the 'shift-left click' to select a range of eDARTs, or you can use the 'ctrl-left click' to select multiple eDARTs individually.

Once you have completed your selection you can click on either the "Save" or "Save As" button to save your changes.



If you select the 'Save As' button the above window is display to allow you to name this group for later display using the "View Group" selection.

Reference Notes

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[View eDART](#)

[Process Viewer](#)

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D.1 Advanced System Overview

Details on each Column heading is as follows:

a. ***Machine Name:***

Lists the names of current machines connected to/monitored by the RJG Data Server running on the Insight Server. The machine names are displayed in all the three required levels <Plant/Cell/Machines> as setup by the user on the “Job Setup” tool on the eDART and stored in the eDART PO Box Current Setting:Machine Name.

The Insight Data Manager (IDM) utilizes periodic broadcast protocol to automatically detect machines that are connected to or disconnected from the network and updates the list accordingly.

Future modification: At this point, *If an eDART is disconnected from the network*, its machine(s) still display on the Advanced System Overview screen, however, the entire row(s) will be highlighted in Red indicating the disconnected status. However, in future, user will be given an option to remove the disconnected machines from the display, if so desired.

b. ***Mold Name:***

Mold Name field displays:

- Name of the current Mold (in green background) for the selected machine if job is running. Name of the current mold is displayed with levels (<Mold/Material/Cavities>), as defined by the user on the “Job Setup” tool of the eDART and stored in the eDART PO Box Current Setting:Mold Name.
OR
- No Job (in blue background), if job is not running. In this case, following column fields will not display any text in “this” row and will be highlighted in blue: Mold Name, Production State, Alarm State, Sorting, Total Cycles, Warning Cycles and Alarm Cycles.
OR
- When Press is down, mold name will still be visible though background color will change to purple. Also rest of the row will be highlighted in purple from Mold column onwards except Machine Name, Software version and IP address column fields.

OR

- When Production State is “Setup” on the eDART, mold name will appear on the Advanced System Overview screen as setup for this machine but the entire row from Mold column onwards except Machine Name, Software version and IP address column fields, will be highlighted in pink;

OR

- If the eDART is disconnected from the network, the entire row including Mold field is highlighted in Red indicating the disconnected status.

c. Machine State:

Machine State Column field displays status as obtained from the eDART PO Box Status:Machine State. It displays following <text> (<color>):

- “Running” (green) - when job is running.
- Blue background with no text – when Job is not running on the eDART.
- “Disconnected” (Red) – when eDART is disconnected.
- “Start Up” (pink) – When Production State is “Setup” on the eDART.
- “Down Since <date> <time>” (Purple) - when press is down.

d. Alarm State:

Alarm State field displays status on the basis of production state, alarm Indicator and indicator state of the eDART PO Box.

- “Good” (Green) – When Sort Alarm Status and indicator status is “Good” on eDART.
- “Suspect” (Yellow) – When Sort Alarm Status is “Good” and the indicator status is “Suspect” or if the Sort Alarm Status is “Suspect”.
- Reject (Red) –When Sort Alarm Status OR indicator status OR both status is “Reject” on the eDART.
- No Alarm Set – When no alarms are set on the eDART software i.e. alarm and indicator count as obtained from eDART PO Box is \leq zero.
- Blue background with no text – when Job is not running on the eDART.
- Purple background with no text – when press is down.
- Pink background color with no text – When Production State is “Setup” on the eDART.

e. Sorting:

This column field displays if the part sorting is enabled or disabled on the eDART for the currently running job. It obtains Part Diverter status from the eDART PO Box to for the purpose. If the cursor is hovered over the Sorting column field, it also displays bubble text that corresponds with the Sort Alarm Status on the eDART PO Box. Sorting column field displays:

- Enabled, if Part Diverter tool is running and alarms are setup.
- Disabled, if Part Diverter tool is not running. The bubble text in this case will display “No Diverter”.
- Blue background with no text – when Job is not running on the eDART.
- Purple background with no text – when press is down.
- Pink background color with no text – When Production State is “Setup” on the eDART.

f. Total Cycles:

Total Cycles column field displays total number of shots/cycles made by that particular press during the current run. This number is obtained from the eDART PO Box for Total Production: Total Cycles.

g. Alarm Cycles:

Alarm Cycles column field displays total number of cycles that made ‘Reject’ parts to that point during the current run. This number is obtained from the eDART PO Box for Total Production: Alarm Cycles.

h. Warning Cycles:

Warning Cycles column field displays total number of cycles that made ‘Suspect’ parts to that point during the current run. This number is obtained from the eDART PO Box for Total Production: Warning Cycles.

i. IP Address:

IP Address column field displays IP address of the eDART (s) connected to the network. IP address is obtained from RJG Data service on the Insight Server that communicates with the software module “eDART Data Interface (EDI)” on the eDART for the purpose. EDI uses “Server Broadcast Responder” on eDART to update information regarding available eDARTs on the network.

j. Software Version:

Software Version column field displays name of the current software version installed on each of the listed eDARTs. This is obtained from the eDART PO Box System info: Software Version.

k. Group Name:

Group Name column field displays the group name that has been assigned to that eDART by the eDART Configuration application. This obtained from the eDART PO Box System info: Group Name

l. Average Cycle Time:

Average Cycle Time is the average of all cycle for the current job. This is obtained from the eDART PO Box System info:

m. Last Cycle Time:

Last Cycle Time is the time of the last cycle recorded for the current job. This is obtained from the eDART PO Box System info:

n. Advanced System Overview - Additional Features:

- **Sorting the columns:** All the columns in the Advanced System Overview page can be sorted, in ascending/descending order, alphanumerically i.e. first number wise and then alphabetically.
- **Multiple column sorting** is also possible by using ctrl key on the keyboard.
- **Customizing the appearance of the table** on Advanced System Overview page: Users can select the columns and reposition them to display the data as they want/require.
- **View Group selection** makes it possible to display eDARTs in a predefine group.

Click the column heading of the Advanced System Overview table to bring up the Column headers list (fig 2.0). User can now make selections by checking the required column heading name check boxes. Columns with unchecked check boxes will not appear on the table on Advanced System Overview page.



Fig 2.0: Column headers List

Columns can be repositioned easily by clicking on the column header and dragging and dropping it to the place as required.

D.2 View eDART

On the Advanced System Overview page, select an eDART by clicking on the row and then click “View eDART” button. This will launch Phindows displaying the selected eDART. User can monitor multiple eDARTs by bringing up multiple Phindows screens up on the desktop.

D.3 Process Viewer

Select an eDART from the Advanced System Overview page and then click “View Process” button. “Process Viewer” will come up as a separate window providing users with an option to keep both or either window open on the screen. When launched, the Summary graph and Cycle graph for the selected eDART, will automatically come up on the screen, arranged as individual frames inside a single window. These tools will display real-time data that will match the data being displayed currently on the eDART. For example, whatever curves/ measurements are being displayed on these tools on the eDART, the same will be displayed on the respective tools on “Process Viewer”. The data on these screens will update as close to real time as possible but will be dependent on the server and network conditions.

Main Features of the “Process Viewer” are:

- “Process Viewer” has been developed using Java technology to display sophisticated layouts and curves plotting live data.
- Data is buffered on the server and thus web cycle graph display may be slightly behind cycle graph on the eDART.
- The layout of these tools will be as close as possible to their eDART counterparts.
- At this point, these tools are for “view only” and provide limited features to the users. *Any changes made in the Viewer are not applied to the eDART; therefore, no security functions are required.*
- User can *change the view on “Process Viewer” by repositioning or resizing each of the two frames.*

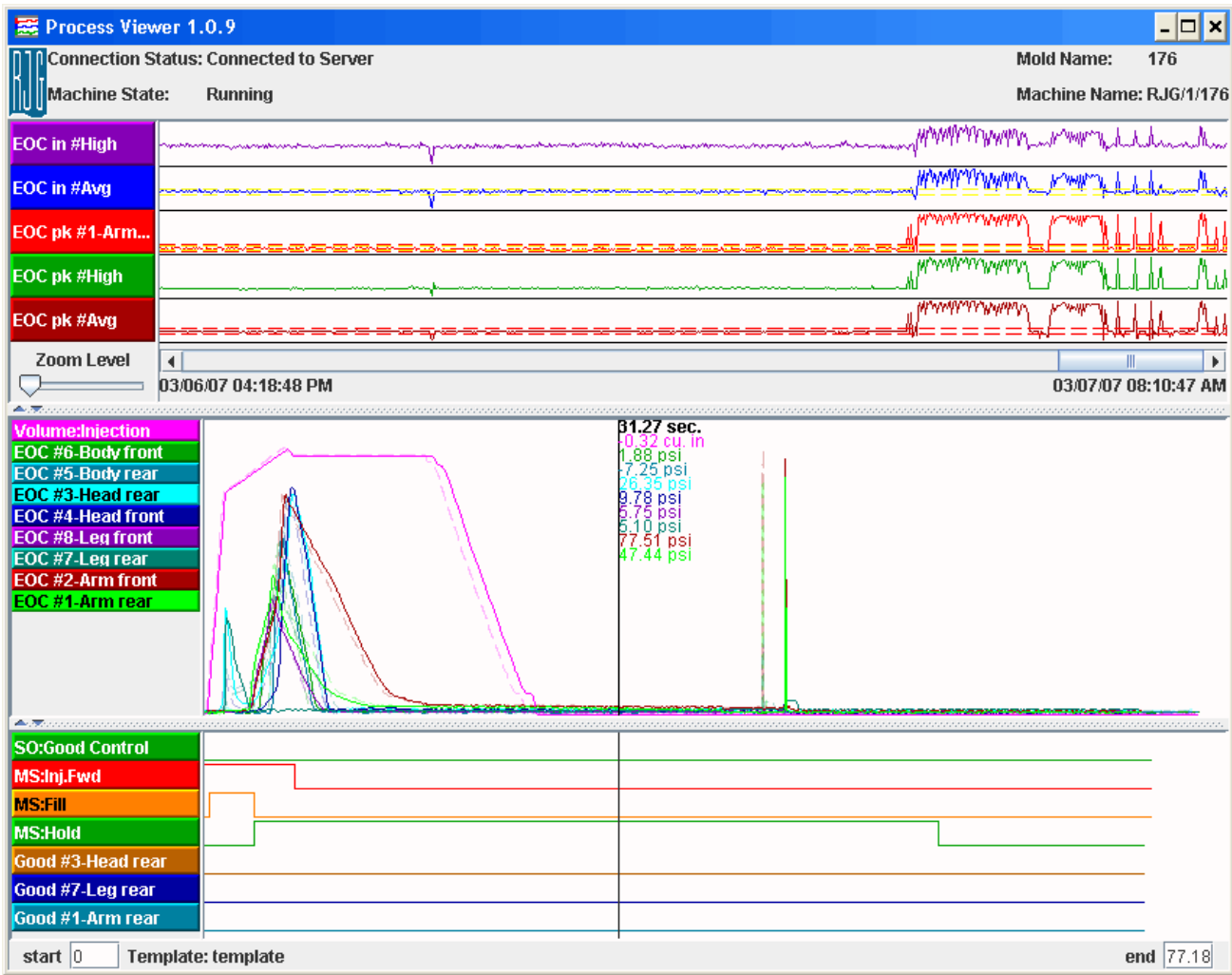


Fig 3.0: Process Viewer

Layout of Process Viewer is as follows:

- A common Title bar on top of the “Process Viewer” window displays the following (from left to right):
 - Name of the Application – “Process Viewer”
 - Minimize/Maximize/Close buttons.
 - RJG logo
 - Connection Status (Connected to server/Disconnected from the server)
 - Mold Name: Displays current Mold Name. Refer Mold Name in the Advanced System Overview section for details.
 - Machine State: Running/Job Stopped/Down.
 - Machine Name: Displays current Machine Name. Refer Machine Name in the Advanced System Overview section for details.

- Horizontally positioned tools in separate frames (from top to bottom):
 - Summary Graph
 - Cycle Graph

A. Summary Graph

Summary Graph displays following information that matches with that on the selected eDART:

- Summary measurements pane: Lists names of the Summary measurements. Allows to list names in full or abbreviated form. This pane can be stretched left or right, using divider, to view either abbreviated or full form of the measurements.
- Curves Pane: Displays Curves for the current run. (Maximum of 10,000 data points initially). Also, Cursor is displayed which can be moved left or right either by dragging it or clicking on the desired position on the graph. Cursor displays the time at that point on the graph as also the curve values.
- Bottom Pane: Displays:
 - Zoom level slider that allows user to zoom and un-zoom the graph.
 - A scrollbar that can be used to conveniently scroll through the data on the graph.
 - Summary Graph View Start and End time and date.

Summary graph window can be resized/stretched using horizontal divider between the two frames i.e. for Summary graph and Cycle Graph. Curves are auto scaled and displayed in same time and colors as being displayed on the eDART.

B. Cycle Graph

Cycle Graph displays following information that matches with that on the selected eDART:

- Cycle measurements pane: Lists names of the Cycle measurements. It allows to list names in full or abbreviated form. This pane can be stretched left or right, using divider, to view either abbreviated or full form of the measurements.
- Curves Pane: Displays Curves and Cursor with their values. Also displays template and its values if currently being displayed on the eDART.
- Bottom Pane: Displays Machine Sequence Traces names at left and its curves on right. Names can be displayed in full or abbreviated form.
- Bottom Bar: Displays Cycle Start and End time. Also displays Template name, if currently being displayed on the eDART.

Additional Features allowed for users:

- Add/Remove Curves/Machine Sequence Traces. Right click the Cycle measurements pane that will bring up the “Configure Curves” tool. This tool will list only those curves that are available for the current process on the eDART.

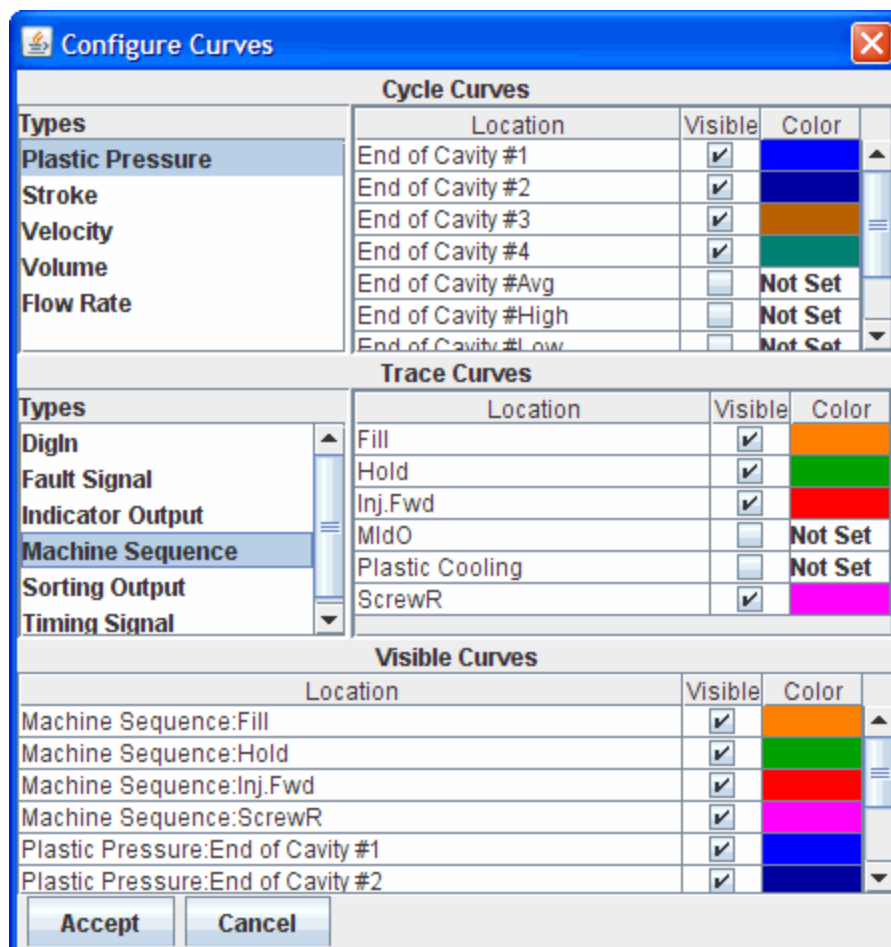
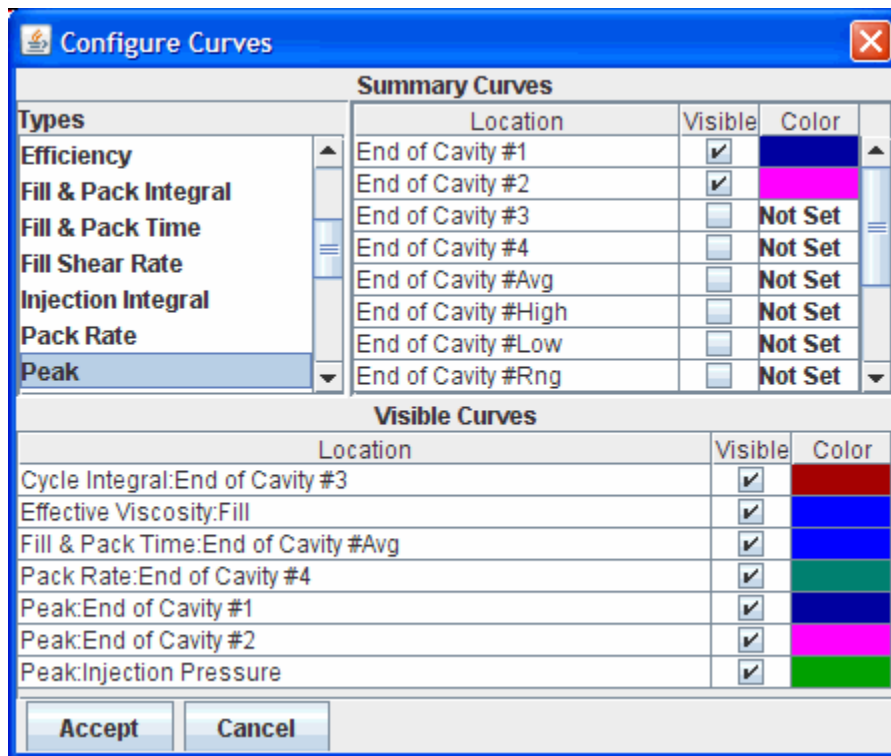


Fig 4.0: Configure Curves List

- Zoom/Unzoom the graph by right clicking the mouse on the graph and dragging the desired area.
- Right clicking the curves pane area allows you to select one of the options: “Zoom to last cycle” and “Zoom to average Cycle”
- Divider for stretching panes to left or right.
- Resize Cycle Graph window.

 **Performance Highlights**

- Process Viewer ensures that various server and eDART conditions relating to connection and job and machine status are handled appropriately and user is informed of the status.
- Process Viewer will display the Connection and Machine status on its title bar. Summary and Cycle Graph tool will display appropriate status in a message box which will appear inside the tool. The background of these tools will appear grayed out (disabled) or data will stop replaying depending upon the following conditions:

eDART/Server Status	Status Displayed on Process Viewer
<i>eDART is disconnected from the network / Power is interrupted/ eDART is shut down</i>	Disconnected. Cycle and Summary Graph will stop replaying data.
<i>Machine is Down</i>	Down since <date and time>. Appropriate message is displayed inside the tool.
<i>Job is stopped on the eDART</i>	Job Stopped. Appropriate message is displayed inside the tool.
<i>No Job is setup on the Job Setup tool on the eDART</i>	No Job Setup Appropriate message is displayed inside the tool.
<i>Server is disconnected.</i>	Disconnected. Cycle and Summary Graph will stop replaying data.
<i>Press or job restarts/eDART is re-connected</i>	Process Viewer will start displaying “live data” again. “Advanced System Overview” page will also display current machine data and status as specified.
<i>eDART is restarted or Power is restored.</i>	Appropriate status will display as explained above depending upon if job is setup and started or no job is setup yet.

- Server can handle connection with more than 100 eDARTs simultaneously.
- On windows server and XP systems 40 instances of Advanced System Overview can be handled by concurrent users.

Limitations

When “Process Viewer” is launched, the two tools (Cycle Graph, Summary Graph tool) will display those curves/ data/alarms which are currently being displayed on the eDART on respective tools. Additional curves can be added and recalled the next time the Process Viewer is started. In addition:

- Data displayed on these tools will only be “live data” and at this point, no historical data can be monitored.
- If any changes made to these tools on the eDART directly or through Phindows e.g. more curves are added, colors changed or units changed etc., “Process Viewer” will not update to reflect the changes. In order to view these changes, user will have to close the current applet and re-launch it from “Advanced System Overview” page.
- User cannot make any changes to the data being displayed on these tools on “Process Viewer”. User will not be able to add summary notes, display notes, save/select/remove template, flip the graph, change their colors, show overlays, change units, change alarms etc. User may launch Phindows or connect to eDART directly if wishes to make any changes.

Above mentioned limitations will be addressed in future during different development stages as per customer requirements and decision taken by the RJK team.

- i) Will allow for overlays.
- ii) Show/Hide Cursor Values/Units
- iii) Only template name should be displayed on the bottom bar of the cycle graph and not full path.
- iv) Will add one more option in the options menu of the Curves pane area allowing user to show/hide template on the Process Viewer, if being displayed on the eDART.

NOTE: *All changes made to the Summary and Cycle Graph tools on Process Viewer will be local only and not affect the process display on the eDART or on other workstations viewing the same eDART.*