

SOFTWARE

Factory Client Overview

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software and services
for manufacturing

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Introduction

The Factory Client application provides real time productivity feedback in the production environment. The Factory Client application is designed to be used either with a conventional keyboard and mouse, or with a touch screen interface.

The Factory Client application is designed to increase the intrinsic motivation and focus of attention of factory employees by providing them with real time feedback on plant performance relevant to their area of operation.

The Factory Client provides factory employees with:

- A short interval schedule
- A fast and effective way to enter reasons for down time
- Real time analysis of plant performance and down time, including OEE metrics
- A fast and effective way to maintain the production schedule
- A factory work team communication tool.

The Factory Client is designed to provide real time productivity feedback in a manner that:

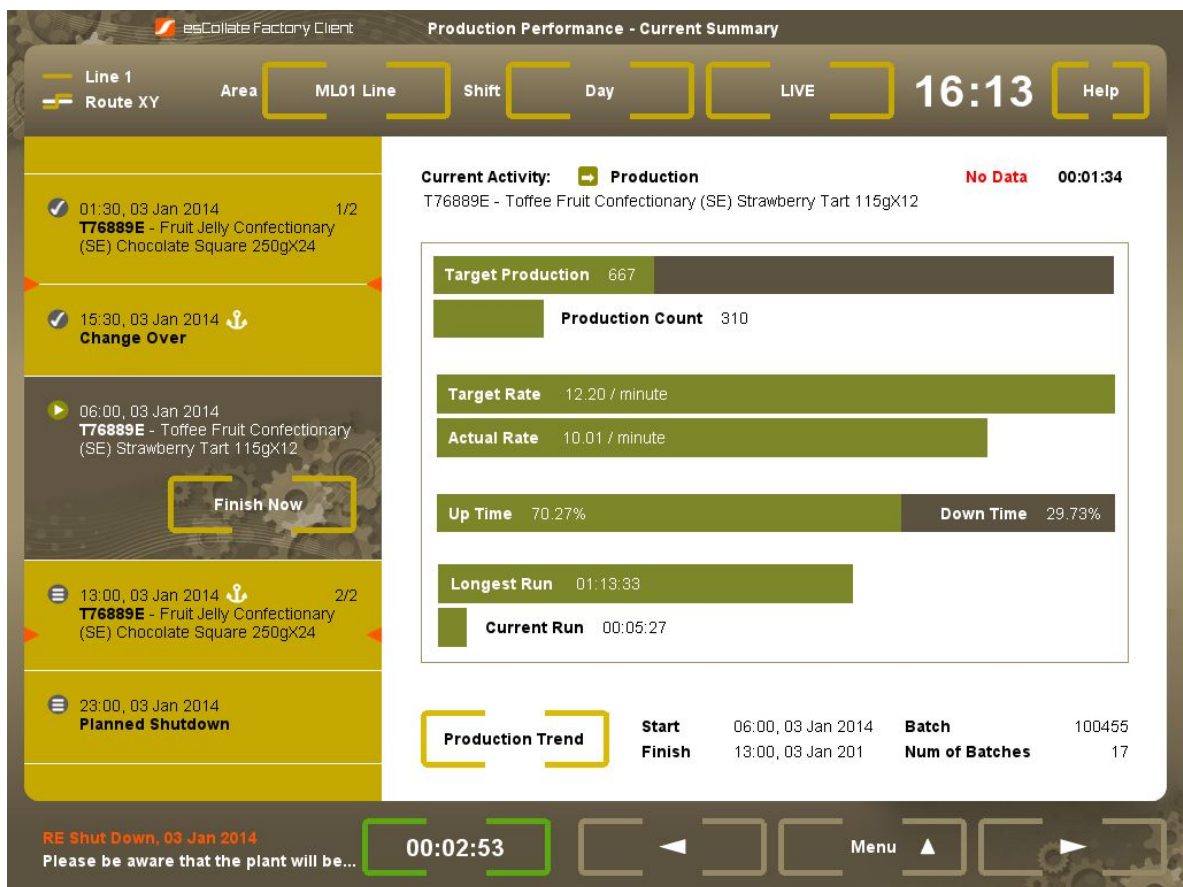
- Engages factory employees in achieving production targets
- Provides a graphical view of recent production performance that facilitates objective interaction with front line management
- Clearly indicates to factory employees the impact of down time on productivity
- Illustrates production performance over the shift boundaries
- Allows factory employees on an incoming shift to see what the preceding shift had achieved.

Real Time Productivity Feedback

The Production Performance screen provides a 30 minute short interval schedule and an overview of production performance over the preceding 12 hours.

The short interval schedule has the effect of focusing factory employees on the current production performance and provides them with an insight into the effect of stops on production output. This feedback also helps factory employees see the potential improvement in overall production performance when they compare the output from the best 30 minute periods with the average output.

Front line managers can use the Production Performance screen to facilitate a deeper discussion on what has been occurring during the shift and to identify opportunities to recognise good effort and performance.



Down Time Entry and Analysis

Traditionally the collection of information on down time events and their reasons has been a burden for factory employees. It can be very difficult to faithfully log down time events and there is often little incentive to do so accurately. The Factory Client application removes the burden from logging down time events and provides useful feedback to factory employees as reasons are entered.

The screenshot displays the 'Down Time Event' screen in the esCollate Factory Client. The interface includes a header with 'Line 1', 'Route XY', 'Area ML01 Line', 'Shift Day', 'RECORDED', '16:13', and 'Help'. Below the header are buttons for 'Assign', 'Split', and 'Note', along with 'Shift: 14:30, 17 Jan 2014 to 23:30, 17 Jan 2014' and 'Filter All Stops'. The main area contains a table of events:

Date	Time	Duration	OEE	Event Reason	Event Path	1 / 1
17 Jan 2014	16:13:38	00:00:28				
17 Jan 2014	16:05:45	00:00:56	🔒			
17 Jan 2014	15:46:39	00:02:01	🔒	Tooling	2B Station / External Production	
17 Jan 2014	15:11:00	00:00:14	🔒	External Production	2B Station	
17 Jan 2014	14:58:00	00:10:56	🔒	Mechanical - General	Delivery Unit / Mechanical	
17 Jan 2014	14:42:16	00:06:05	🔒	Tooling	2B Station / External Production	
17 Jan 2014	14:32:59	00:01:26	🔒	Tooling	2B Station / External Production	

At the bottom, a summary bar shows 'RE Shut Down, 17 Jan 2014' and 'Please be aware that the plant will be...' followed by a green box containing '00:02:53' and a 'Menu' button.

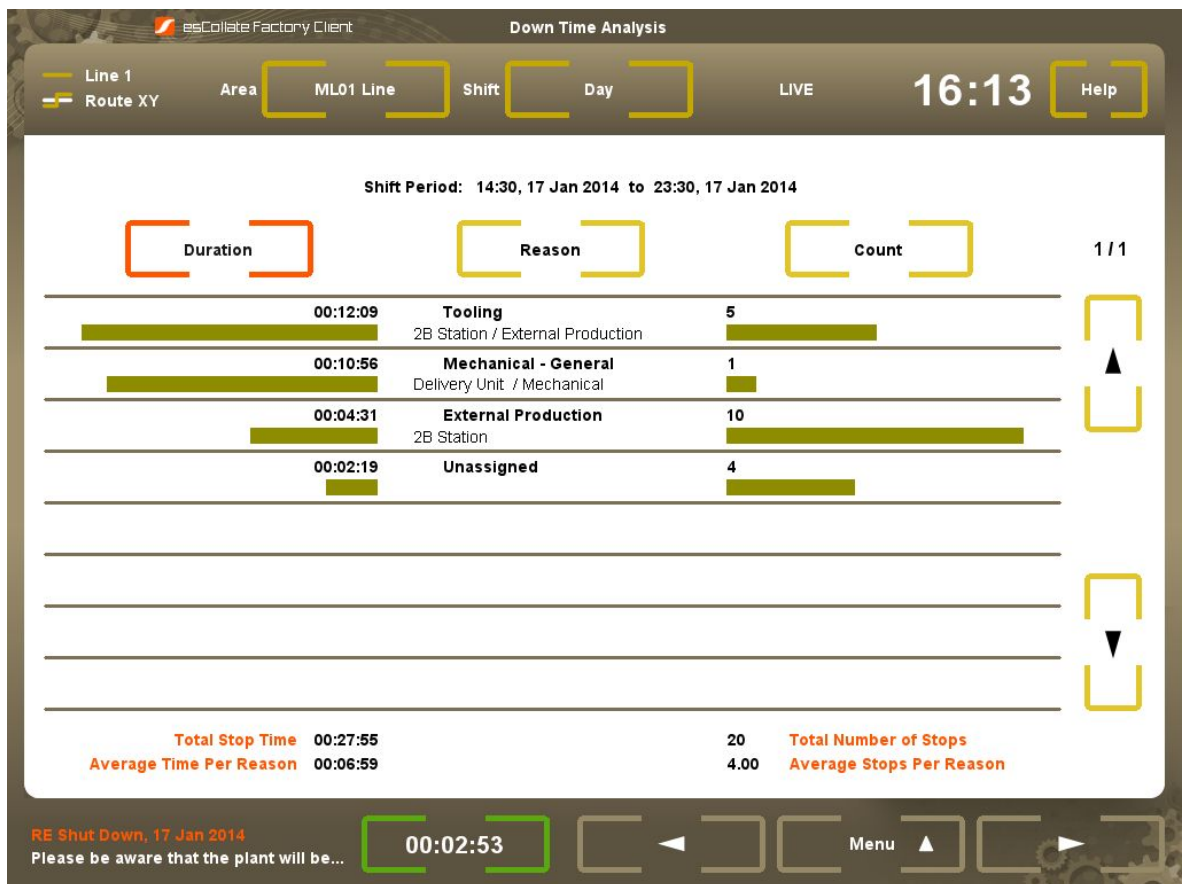
The Factory Client application will automatically collect down time events as they occur and list them on the down time Entry screen. If there was a reason supplied electronically then it will be displayed, otherwise "Unassigned" will be displayed, until a reason is selected.

The Down Time Entry screen removes the requirement for factory employees to record when a stop

occurred and the duration of the stop. In many cases the reason is also automatically collected. This means the factory employee can focus on why the stop occurred and how they might respond to it.

The reason for the down time event can be selected by drilling down through a multi-level selection process that allows the user to assign a down time reason to the limit of their knowledge.

As down time events occur they are displayed on the Down Time Analysis screen. The Down Time Analysis screen groups the down time events for the selected shift. This summary provides a clear insight into the major causes of down time, both by accumulated time and by frequency.



Importantly, it also highlights the amount of "Unassigned" down time. When first moving from a manual down time collection system there is often some surprise at the amount of down time associated with short and previously undocumented stops.

Production Analysis

An important step towards a lean manufacturing style of operation is for factory employees to be intimately involved with, and take responsibility for, production outcomes. The Production Schedule screen provides a detailed insight into the performance of each production activity. This information provides an objective basis for discussion between factory employees, front line management and technical support.

esCollate Factory Client **Production Schedule**

Line 1 Area **ML01 Line** Shift **Day** **RECORDED** **16:13** Help
 Route XY 12076

Shift Options ▾ Shift Period: 06:00, 16 Jan 2014 to 14:30, 16 Jan 2014 Previous Shift Next Shift

03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00

◀ Move Move ▶ Start Now Finish Now ◀▶ ▶▶ ▶▶▶

Activity	Production	Line Route	Line 1	Code	T76889E	Progress	6,312 / 8,000
Anchored	Yes	Batch	T6787E	Product	Toffee Fruit Confectionary - (SE) Strawberry Tart 115gX12		
Selection	1/3	Num of Batches	36	No Data	00:01:34	Run	<input type="radio"/> OEE <input checked="" type="radio"/>
Start	06:30, 16 Jan 2014	Status	Signed off (JanF)	Up Time	00:57:35	OEE	45.20%
Duration	2:00	Number of Stops	4	Down Time	00:13:00	Availability	25.20%
Finish	08:30, 16 Jan 2014	Prod Count M	2,932.00	Average Rate	112.06	Performance	32.80%
Planned Qty	3,000 / 8,000	Reject Count M	39.00	Target Rate	114.89	Quality	64.10%

Activity Parts ▲ Information Insert Activity Options ▲ Remove Manual Entry ▲

RE Shut Down, 17 Jan 2014
 Please be aware that the plant will be... **00:02:53** Menu ▲

The Production Schedule screen both displays the schedule for the selected shift and allows the factory employee to adjust the start and finish times of each activity so that accurate information is collected.

One significant benefit for factory employees is the reduced amount of paper work required to be completed and the automatic calculation and real time feedback on key performance parameters. Planners and production managers also get up to date information on production progress that allows them to make better informed decisions.

Communication

An important aspect to improving production performance is good communication between factory employees, front line management and technical support. The Factory Client application supports good communication not only by providing objective data and analysis, but through the provision of the Message Board screen.

The screenshot displays the 'Message Board' interface within the 'esCollate Factory Client'. The top navigation bar includes 'Line 1', 'Route XY', 'Area ML01 Line', 'Shift Day', 'LIVE', '16:13', and a 'Help' button. The main content area is organized into three columns:

- Recent Messages (1 / 1):** A list of messages including 'RE Power Outage', 'Power Outage' (highlighted), 'RE Extruder Electrical', 'Wall for Midas 45's', and 'Extruder Electrical'.
- Original Message:** A message from John Murphy dated 17 Jan 2014.
- Message Details:**
 - Subject:** Power Outage
 - To:** ML01 Line
 - From:** John Murphy
 - Date:** 17 Jan 2014
 - Time:** 10:33
 - Content:** 'There is a scheduled power outage on Monday 12 Feb 14 at 10.00 that will affect the operation of Midas and Schumag production lines. This outage is expected to last for 35 minutes. Any questions please advise. Cheers Aaron Marshall Production Supervisor'.

At the bottom of the screen, there are navigation buttons for 'New Message' and 'Reply Message', and a status bar showing 'RE Shut Down, 17 Jan 2014' and a timer '00:02:53'.

The Message Board screen allows employees to share information and ideas on production issues.

The Message Board screen allows issues to be raised publicly and as they occur, rather than waiting for meetings or an opportunity to talk with someone. The Message Board also facilitates learning between shifts and work teams as information is shared.

Topic and Training Help

The Factory Client has been designed to be straight forward to operate. Understanding is required however in the interpretation of information and the behaviour of certain functions, such as the Auto-Move characteristics of Unanchored Activities within the Production Schedule screen.

A document style help system is available to assist the user in gaining a full understanding of the Factory Client application. It is recommended that this content also be used for training purposes, ensuring consistency of messages and familiarity with the help system layout.

