

7th ASAM US Workshop



Cummins Field Performance Analytics

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10/29/2014



FPA System Overview

The Field Performance Analysis (FPA) System is an integrated platform that enables engineers to analyze the performance of field units that have been fitted with dataloggers in order to:

- ✓ Characterize system performance
- ✓ Develop & verify designs
- ✓ Identify & troubleshoot issues

The screenshot displays the FPAConsole USER CONSOLE interface. At the top, it shows 'Total Units: 1340' and 'Total Data: 17.0TB'. The main area is divided into several panels:

- Fleet:** A list of fleets including 'DemoFleet1' and 'DemoFleet2'.
- Dashboard:** A section for generating a fleet dashboard with 'FleetPlotFaults' and controls for 'Plot Start', 'Plot End', 'Pareto Start', and 'Pareto End' (all set to 121101, 141101, 140101, and 141101 respectively). It includes buttons for 'Create Plot', 'Status', and 'View PNGs'.
- Individual Unit:** A list of units with 'F_Davis_2912' selected. It shows a list of unit identifiers and their status. A 'Trend Plot' section is visible with 'Group - Overview Top 13' selected. It includes 'Plot Start' and 'Plot End' controls (both 121101 and 141101) and buttons for 'Create Plot' and 'Status'.
- Day File:** A list of day files with 'F_Davis_2912_PPP_090101.mat' selected. It includes a 'Generate Day Plot' section with 'Plot Start' and 'Plot End' controls (both 121101 and 141101) and buttons for 'Create Plot' and 'Status'.
- Day Plot:** A section for generating a day plot with 'Group - PFS Specific' selected. It includes a list of plot types and buttons for 'Create Plot', 'Status', and 'Edit Plot'.

At the bottom, there is a 'QUICK TIP' section with a search bar and a 'Plot Guide' button.



FPA System Overview

FPA is built on **trend analysis** and **data visualization**, and is embedded with system knowledge that enables efficient and proactive analysis.

It is highly scalable in three dimensions

- ✓ Types of platforms & applications
- ✓ Types of features
- ✓ Types of users



FPA System Overview



Cummins ECM (Electronic Control Module)

J1939

Datalogger

>500 parameters
@1Hz
>30MB per day



Wireless Gateway

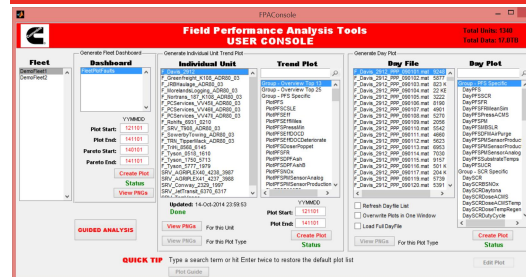
Raw Data (.csv)

Day File Generation

Day Files (.mat)

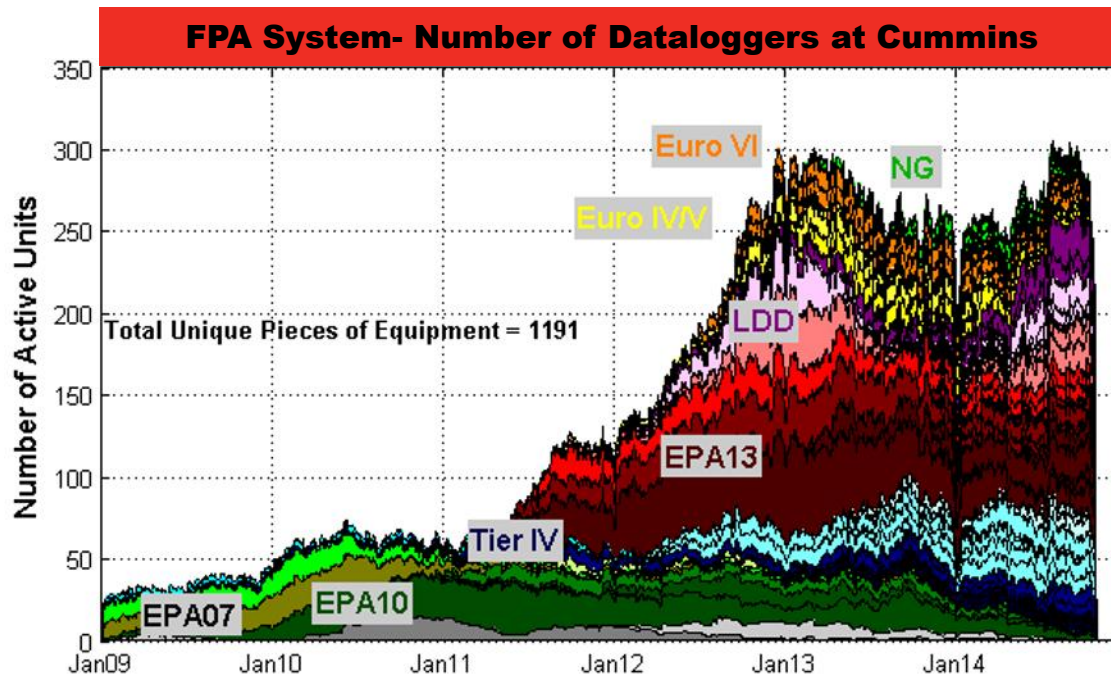


FPA System



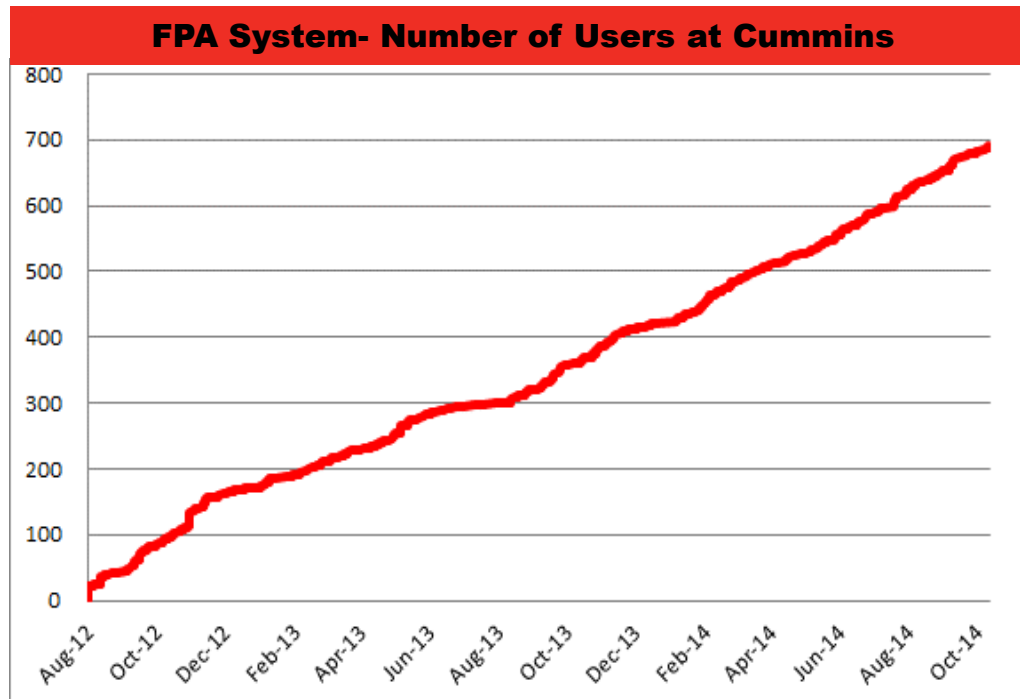
FPA System Overview

- Internal and external customer applications
- >50 unique engine-aftertreatment platforms
- >2 million hours and 50 million miles of data
- >1000 datalogged units



FPA System Overview

- >700 users across Cummins
- Intranet Wiki access for non-Matlab users
- Multiple host-sites around the world



FPA System Overview

The screenshot displays the FPAConsole application window, titled "Field Performance Analysis Tools USER CONSOLE". The interface is divided into several panels:

- Top Right:** Summary statistics: "Total Units: 1340" and "Total Data: 17.0TB".
- Left Panel (Fleet):** A list of fleet names: "DemoFleet1" and "DemoFleet2".
- Dashboard Panel:** Includes a "Generate Fleet Dashboard" button, a "FleetPlotFaults" list, and controls for "Plot Start" (YMMDD: 121101), "Plot End" (141101), and "Pareto Start" (141101). It features "Create Plot", "Status", and "View PNGs" buttons.
- Individual Unit Panel:** Shows a list of units under "F_Davis_2912", including "F_Greenfreight_K108_ADR80_03" and "F_Tyson_0518_1610". It includes an "Updated" timestamp and "View PNGs" buttons.
- Trend Plot Panel:** Displays a "Trend Plot" for "Group - Overview Top 13" with a list of plot types like "PlotPFSS" and "PlotPFSCSLE". It has "Plot Start" (121101), "Plot End" (141101), and "Create Plot" buttons.
- Day File Panel:** Lists "Day File" entries such as "F_Davis_2912_PPP_090101.mat" and "F_Davis_2912_PPP_090102.mat". It includes checkboxes for "Refresh Dayfile List", "Overwrite Plots in One Window", and "Load Full DayFile".
- Day Plot Panel:** Shows a "Day Plot" for "Group - PFS Specific" with a list of plot types like "DayPFS" and "DayPFSFR". It has "Create Plot" and "Status" buttons.
- Bottom:** A "QUICK TIP" section with a "Plot Guide" button.

Live Demo

