



Pratt & Whitney Canada

Une société de United Technologies / A United Technologies Company



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MonitorTM

User Guide and Reference Manual

Pratt & Whitney Canada - DPHM Group

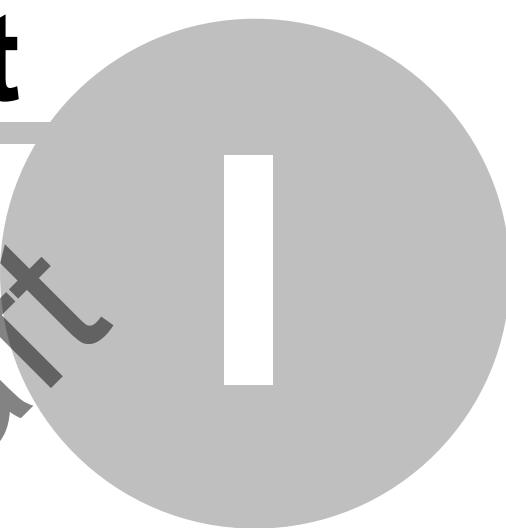
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Table of Contents

Part I MonitorTm Help Manual	6
1.1Overview	6
1.2Export Classification	6
1.3What's New	6
1.4....Hardware Requirements	10
1.5....Software Requirements	11
1.6....Program Installation	11
1.7Program Version	12
1.8Printing a hard copy of manual	13
Part II Accessing MonitorTm Functions	15
2.1Starting and Closing the Program	15
2.2Main Program View	15
Part III Communicating with the Monitor	20
3.1Sync to Aircraft Function	20
3.2....Retrieve Log Files Function	20
3.3....Configure Unit Function	23
3.4....Monitor Status Function	25
3.5....Test Monitor Transmission Function for FAST	26
3.6Test Monitor Transmission Function for MFAST	31
3.7Live Data Function	33
3.8Communication Settings Function	34
3.8.1...Accessing	34
3.8.2...Auto-Detection	34
3.8.3...Manual detection	34
3.9View/Change Monitor Parameters	37
3.9.1...View/Change Monitor Parameters for ATR42/ATR72 application	37
3.9.2...View/Change Monitor Parameters for CARAVAN application	37
3.9.3...View/Change Monitor Parameters for other applications	37
3.10....Expert Command Mode Function	42
3.11Get Micro Server Logs	44

3.12....FAST Factory Reset	44
3.13....Delete Non-Transmitted Logs	45
3.14....Wi-Fi Configuration	46
3.15....WI-FI Configuration for MFAST	47
Part IV Communicating with Webserver	50
4.1....Sync to Webserver Function	50
Part V Analyzing Data	53
5.1Convert Log Function	53
5.1.1...General convert log function	53
5.1.2...Q200/Q300/ATR42/ATR72 convert log function	53
5.1.3..Q400 convert log function	53
5.1.4...AW139 convert log function	53
5.1.5...680A convert log function	53
5.1.6...Caravan convert log function	53
5.1.7...EPEC Convert Log function	53
5.2....View Data in GBSLite Function	57
Part VI Monitor TM Auto-Update	60
6.1Monitor TM Auto-Update	60
Part VII Additional Information	62
7.1Changing MonitorTm preferences	62
7.2....Printing	63
7.3....Troubleshooting	63
7.3.1...View Session Log Function	63
7.3.2...View Saved Monitor Status Function	63
7.3.3...Communication Troubleshooting	63
7.3.4...GBSLite Analysis Troubleshooting	63
7.3.5...Sync to Webserver Troubleshooting	63
7.4....FAST USB GSE Cable Driver Installation	66
7.5....MFAST USB GSE Cable Driver Installation	67

Part



Draft I

MonitorTm Help Manual

1 MonitorTm Help Manual

1.1 Overview

MonitorTm is the Transfer Module program used to communicate with [FAST Monitor](#)^[10] allowing the user to

- [Synchronize data with the Aircraft](#)^[20]
- [Synchronize data with Webserver](#)^[50]
- [View Monitor Status](#)^[25]
- [View Live Data](#)^[33]
- [View/Change Monitor Parameters](#)^[37]
- [Configure the FAST Monitor](#)^[23]
- [Retrieve Log Files](#)^[20]
- [Convert Log File Data](#)^[53] for [analysis using GBSLite](#)^[57]
- [Retrieve Micro-Server logs](#)^[44]
- [Reset FAST box to factory](#)^[44]

1.2 Export Classification

The MonitorTM software export classification is as per the following:

Export Control Classification			(X) if Applicable
Contains no Technical Data			()
Not Subject to the EAR pursuant to 15 CFR 734.7(a)(1) or Not Subject to the ITAR pursuant to 22 CFR 120.11 (NSR)			()
Jurisdiction and Classification based on Physical Location of the Item. * Additionally, refer to the classification under the local export regime where the item is located, as provided in the grid	Location	Regulations	
		EAR	ITAR
	Outside U.S.*	NSR	NSR
	U.S.	9D991	NSR
	EIPA (ECL)	DPA (CG)	
	Canada	NSR	No

1.3 What's New

What's new in MonitorTM Version 3.8

- ATR42/72 exceedances detection updated.
- TBM910/930 new Garmin versions supported (20.51, 20.87 and 20.85).
- King Air B200/B300 Full flight data processing supported.

- Pilatus PC12-47E Full flight data processing supported.

What's new in MonitorTM Version 3.7

- View/Change parameters function: current value display corrected.

What's new in MonitorTM Version 3.6

- Q400 EMU converter 1505HI detection updated.

What's new in MonitorTM Version 3.5

- Updated MonitorTM functions for MFAST (HTTP protocol).
- Support AW139 V6 configuration.
- Support Q200/Q300 with additional propeller Overtorque Events.
- Updated Q400 EMU converter for 1505HI event detection.
- Support FAST full flight data processing for King Air B200/B300.
- Support FAST full flight data processing for Pilatus PC12-47E.

What's new in MonitorTM Version 3.4

- Application updated to restore 32 bit operation systems compatibility (All functionalities except "Convert log" function)
- Updated event detection for Q200/Q300 and M600

What's new in MonitorTM Version 3.3

- Updated Q200/Q300 exceedances, trace and snapshot capture
- Improved Mission enhancements and filtering Q200/Q300.
- Support enhanced mission and filtering for Daher
- Updated filtering logic for ATR42/72
- Updated AW139 Exceedance and Fault detection
- Updated filtering logic for Q400
- Updated filtering logic for CARAVAN
- Updated trend filtering logic for F7X
- Updated trend filtering logic for F8X
- Support FAST for PIPER .
- Support [Test Monitor Transmission](#)^[31] for EPECS
- Support [Wi-Fi Configuration](#)^[47] EPECS
- In service issue adressed

What's new in MonitorTM Version 3.2

- Support FAST for Daher TBM .
- Upgrade MonitorTM compatibility with new SFTP Server
- New feature to change Daher A/C serial Number
- In service issue addressed
- Support Configure Unit for EPECS

What's new in MonitorTM Version 3.1

- Support MFAST for EPECS.
- Support FAST for ATR42/72 FDAU V3.
- New feature to manually check for Monitor TM version upgrade

- Application upgrade for 64 bit support and Tablet Windows 8 Pro.

What's new in MonitorTM Version 3.0

- Support FAST for ATR PBMS and RSN.
- Support FAST for ATR42/72 FDAU V2b.
- Support FAST for King Air B200/B300.

What's new in MonitorTM Version 2.9

- Support FAST for ATR Propeller Balance.
- Support FAST for King Air B200/B300 and generic ETM conversion
- Support MicroFAST Full Flight Data Conversion
- Support Q400 and ATR42/72 OOOI events
- PW150A EMU converter updated : missing traces extracted

What's new in MonitorTM Version 2.8

- Latitude conversion issues addressed
- Windows 10 compatibility

What's new in MonitorTM Version 2.7

- Support FAST for Dassault Falcon 8X conversion.
- Support FAST for Cessna Latitude 680A Phase 2 (enhanced cruise monitoring)
- Support FAST for AW139 Phase 2 (APAC)
- Support FAST for Q400 propeller vibration monitoring
- Support enhanced filtering of Q400 trend events
- [Wi-Fi Configuration](#)⁴⁶ for data offload
- Improved [View Live Data](#)³³ performance
- Improved communication for FAST Monitor communication.

What's new in MonitorTM Version 2.6

- In service issues addressed.

What's new in MonitorTM Version 2.5

- Support FAST for Cessna Latitude 680A EDU conversion.
- Support enhanced filtering of Caravan trend events
- Support new FOQA cleaning process
- Improved GUI performance, especially for Windows 8.1.

What's new in MonitorTM Version 2.4

- ATR42/72 conversion update for ARINC label decoding

What's new in MonitorTM Version 2.3

- Support FAST for AW139
- Support FAST for Q400 Phase 2 (1505HI, MTOP Monitoring, etc.)
- Enhanced [Retrieve Log Files Function](#)²⁰.

What's new in MonitorTM Version 2.2

- Support FAST for ATR42/72 aircraft.
- New "Delete Non-Transmitted Logs" password protected function.

What's new in MonitorTM Version 2.1

- Enhancements to Q400 data conversion.
- Improved communication for configuring the FAST Monitor.
- Full flight data conversion options simplified.

What's new in MonitorTM Version 2.0

- New drivers to support Windows 8.
- New "[FAST Factory Reset](#)"⁴⁴ function.
- New "[Get Micro Server Logs](#)"⁴⁴ function.
- Improved Sync to Aircraft.
- Improved data conversion.

What's new in MonitorTm Version 1.8

- Support for Cessna Caravan aircraft:

New "Retrieve Log Files" interface, New "View/change Monitor Parameter" interface to display Engine/Flight cycles and creep information.

- Improved test monitor transmission function.

What's new in MonitorTm Version 1.7

- Data conversion function for Q300 application timestamp fixed.

What's new in MonitorTm Version 1.6

- Data conversion function for Q300 application
- [Preference](#)⁴² "Tag Data Transmitted" is not ON by default.
- Successful data conversion of files with multiple legs (error codes 17 and 18)

What's new in MonitorTm Version 1.5

- Data conversion function for Q400 EMU and QAR files
- Support of new FAST embedded software v1.1.0
- Improve Convert Log function user interface for more flexibility

What's new in MonitorTm Version 1.3

- Data conversion function improved for LJ60 application
- Data conversion performance improved

What's new in MonitorTm Version 1.1

- Windows 7 32-bit and 64-bit support
- Updated communications to monitor
- Updated user messages
- Removed transparent function
- Added [View/Change Monitor Parameters](#)³⁷ function
- Updated F7X event list
- Updated synchronization procedure to synchronize to Webserver

What's new in MonitorTm Version 1.0

First release of the program including the following functions:

- [Synchronize data with the Aircraft](#)^[20]
- [Synchronize data with WebECTM](#)^[50]
- [View Monitor Status](#)^[25]
- [View Live Data](#)^[33]
- [Configure the FAST Monitor](#)^[25]
- [Retrieve Log Files](#)^[20]
- [Convert Log File Data](#)^[53] for [analysis using GBSLite](#)^[57]
- Support for F7X aircraft
- Support for LJ60 aircraft

1.4 Hardware Requirements

Communicating with Monitor Functions

- For FAST Monitor, connection via GSE USB cable on J3 connector
- For MFAST Monitor, connection via GSE USB cable on J2 connector (USB mini-B)

FAST Monitor Radio frequency radiation exposure Information:

“This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation”.

“Changes or modifications not expressly approved by the Pratt & Whitney Engine Services could void the user’s authority to operate the equipment”

“The integrated radio modules [IC: 7830A-PLS62W & IC: 5969A-TIWI101] on this device has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.”

WiFi antenna: Single element, 50 ohms, vertical/omnidirectional, RPSMA, Dipole, Freq Rng: 2.4-2.5GHz, 1.5dB gain @ 2.4GHz or equal.

Cellular antenna: Single element, 50 ohms, Linear, omnidirectional, SMA, VSWR:2.1,

Frequency range/Gain: 698-960MHz 1.5dB, 1710-2170MHz 3.0dB, 2500-2700 4.5dB or equal.

To comply with FCC rule parts 2.1091 / ISED RSS 102 RF exposure requirements for mobile transmitting devices, this device and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 30 cm (~ 12 inches) from all persons (and must not be co-located or operating in conjunction with any other antenna or transmitter).

1.5 Software Requirements

All Installations:

- Windows 7, Windows 8, Windows 8.1, Windows 8.1 Pro or Windows 10
- Windows 64bit operation systems (All functionalities)
- Windows 32bit operation systems (All functionalities except "Convert log" function)
- Microsoft Internet Explorer 6.0 or above
- PDF Reader

Tablet Installations:

- Windows 8 Pro 64bits

Communicating with Webserver

- Internet Access

Optional:

- GBSLite Diagnostic Module for data analysis on PC

1.6 Program Installation

Initial Installation

To install MonitorTm for the first time, launch the set-up program and follow instructions.

The default location for installation is C:\GBS-PWC however; when GBSLite is already installed on the PC, the default installation location will automatically be configured to the GBSLite installation directory. If GBSLite is to be installed after MonitorTm is installed, it should be installed in the same location as MonitorTm

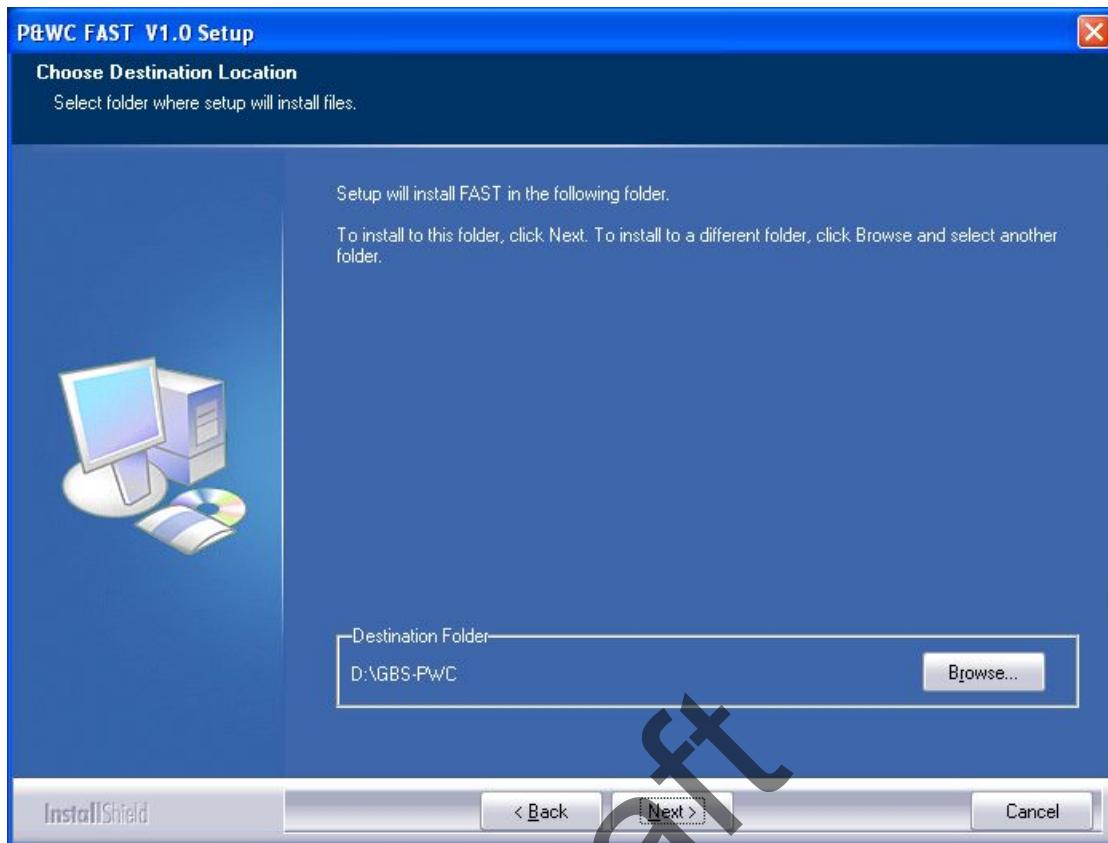
Automatic Updates

When the program starts, it verifies if there is a new version available. If an update exists, the program will indicate that an update is available and to perform [Monitor TM Auto-Update](#) in the Help Menu .

Message:

Software update available – Perform Monitor TM Auto-Update in Help Menu

Whenever MonitorTM synchronizes with the Web and an update is available, the user will be prompted to download the new version. If the user selects to download the new version, it will be installed at next program startup with user required to follow on screen instructions

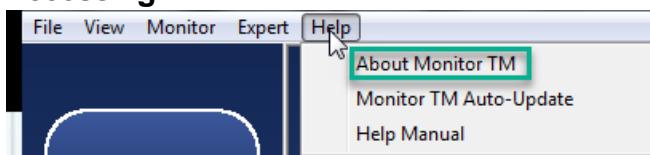


A shortcut will be installed on the desktop

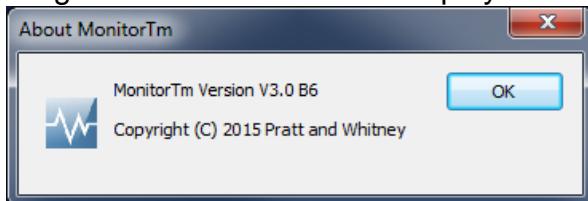


1.7 Program Version

Accessing:



Program version information displayed



1.8 Printing a hard copy of manual

Accessing:



Upon selection, the PDF Help Manual will be displayed

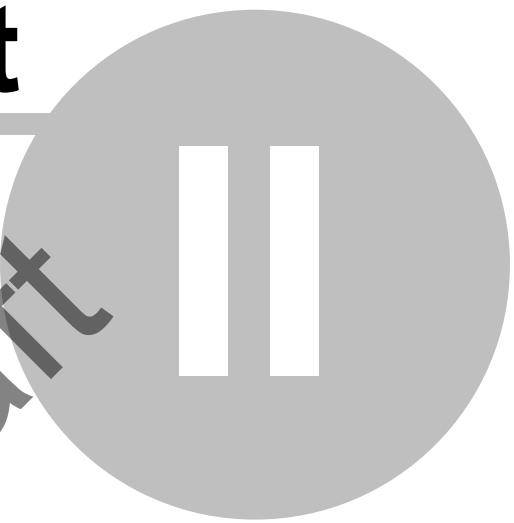
Adobe Acrobat is required. See [Software Requirements](#)¹¹ for details

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MonitorTm Help Manual

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Accessing MonitorTm Functions

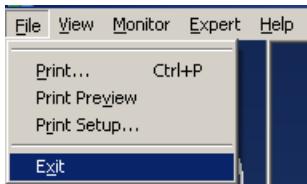
2 Accessing MonitorTm Functions

2.1 Starting and Closing the Program

To start the MonitorTm program, double click on the MonitorTm desktop icon



To close the MonitorTm program use or

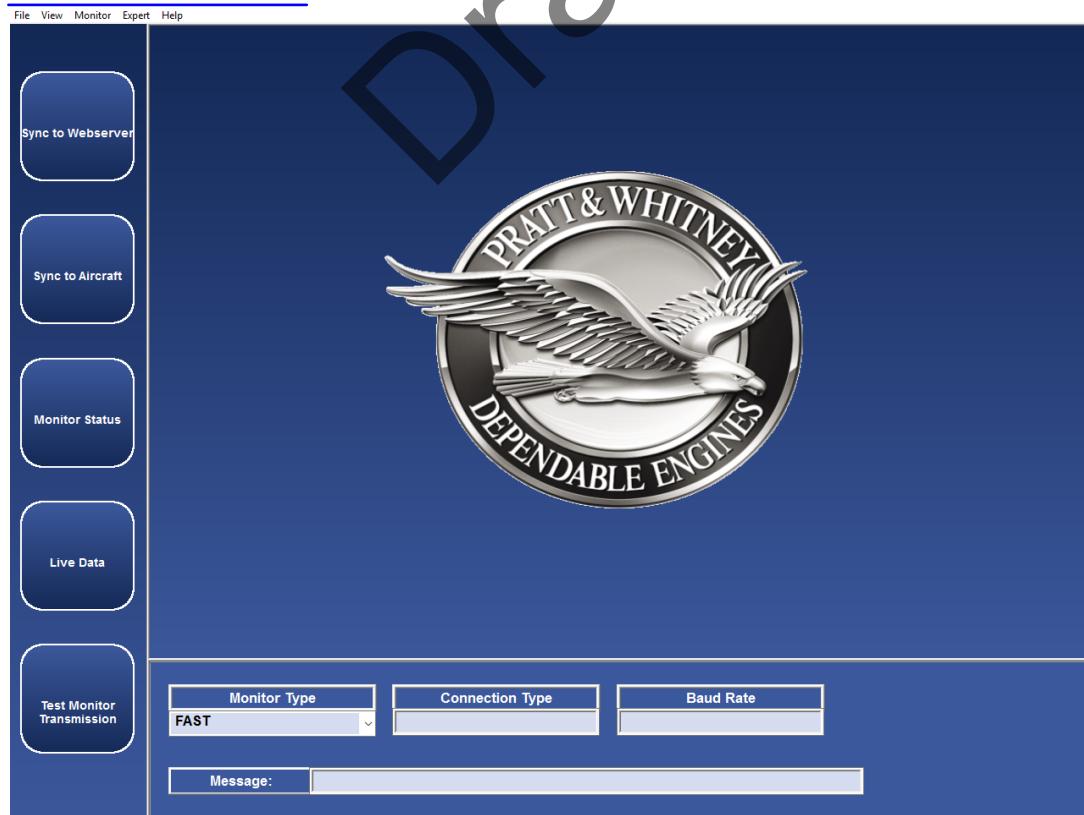


2.2 Main Program View

Functions in the MonitorTm Main Program View can be accessed in two different ways

The Side Bar: Large buttons with the most commonly used functions

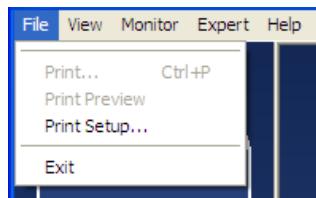
[Sync to Webserver](#)^[50], [Sync To Aircraft](#)^[20], [Monitor Status](#)^[25], [Live Data](#)^[33], [Test Monitor Transmission](#)^[26].



The Menu Bars: contain side bar functions as well as other functions

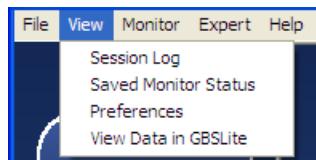
The File Menu has the following functions available:

[Print](#)⁶³, [Print Preview](#)⁶³, [Print Setup](#)⁶³, [Exit](#)¹⁵



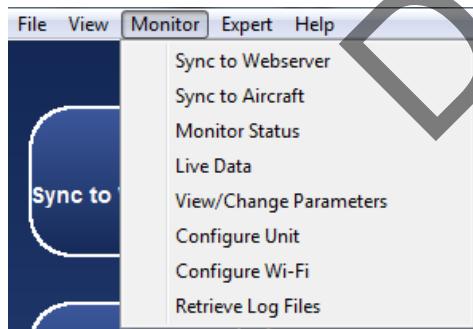
The View Menu has the following functions available:

[Session Log](#)⁶³, [Saved Monitor Status](#)⁶⁴, [Preferences](#)⁶², [View Data in GBSLite](#)⁵⁷



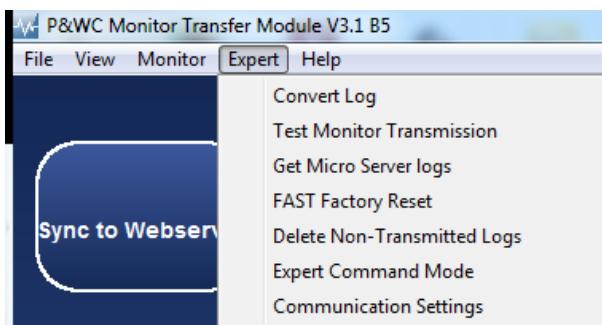
The Monitor Menu has the following functions available:

[Sync to Webserver](#)⁵⁰, [Sync to Aircraft](#)²⁰, [Monitor Status](#)²⁵, [Live Data](#)³³, [View/Change Parameters](#)³⁷, [Configure Unit](#)²⁰, [Retrieve Log Files](#)²⁰



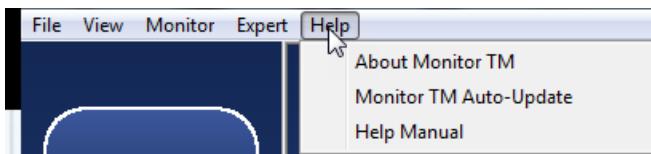
The Expert Menu has the following functions available:

[Communication Settings](#)³⁴, [Expert Command Mode](#)⁴², [Convert Log](#)⁵³, [Test Monitor Transmission](#)²⁶, [Get Micro Server Logs](#)⁴⁴, [FAST Factory Reset](#)⁴⁴



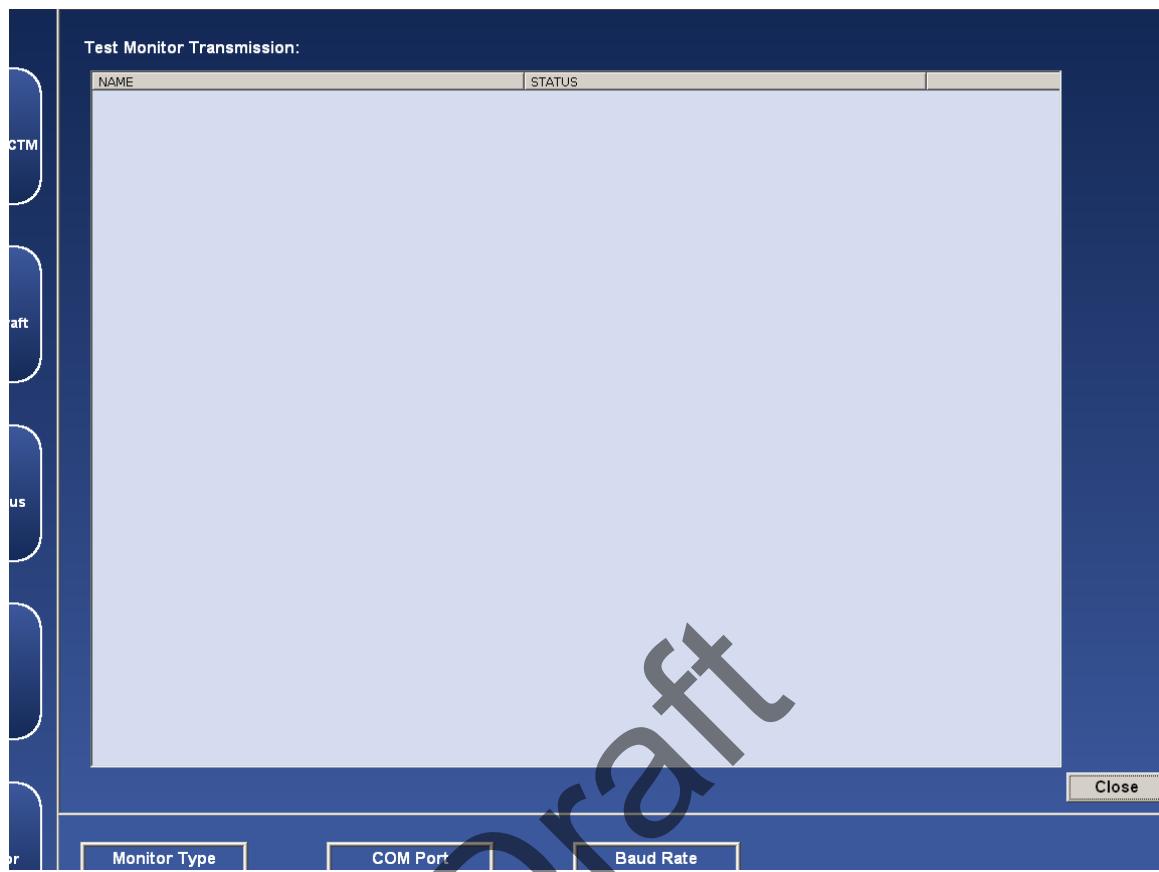
The Help Menu has the following functions available:

[About Monitor](#)^[12], [Monitor TM Auto-Update](#)^[60], [Help Manual](#)^[13]



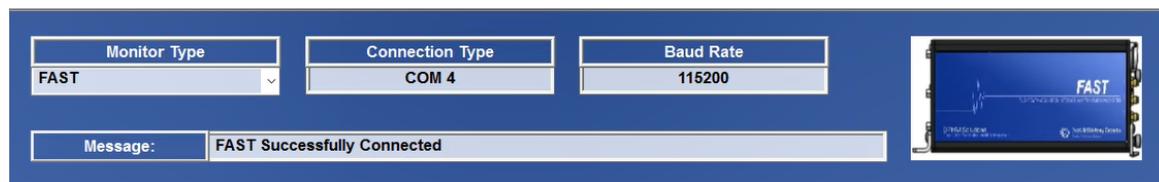
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Functions are always performed in the main area



Communication settings and status messages are always displayed in the lower area

When connected to the monitor, a photo of the monitor is displayed



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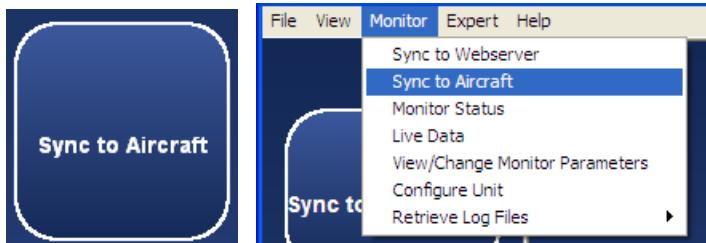
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Communicating with the Monitor

3 Communicating with the Monitor

3.1 Sync to Aircraft Function

Accessing:



The Sync to Aircraft function is used to download log files from the monitor to the pc and to upload configuration files from the pc to the monitor

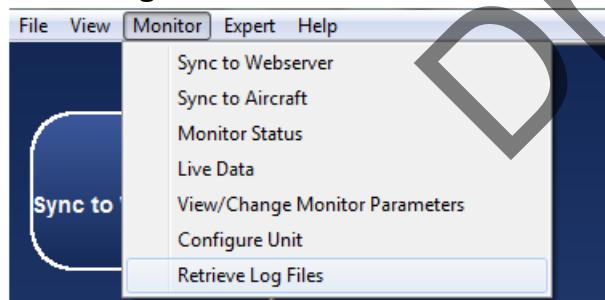
This function automatically performs the following 2 functions

1. [Retrieve Log Files Function](#)^[20]
2. [Configure Unit Function](#)^[23]

Refer to individual function descriptions for further details

3.2 Retrieve Log Files Function

Accessing:



This function retrieves log files from the monitor for the purpose of analyzing the data locally on the computer or to transfer data to the P&WC Web server.

The files to be retrieved can be selected by the user and download time is indicated. The column header check box can be used to select all log files.

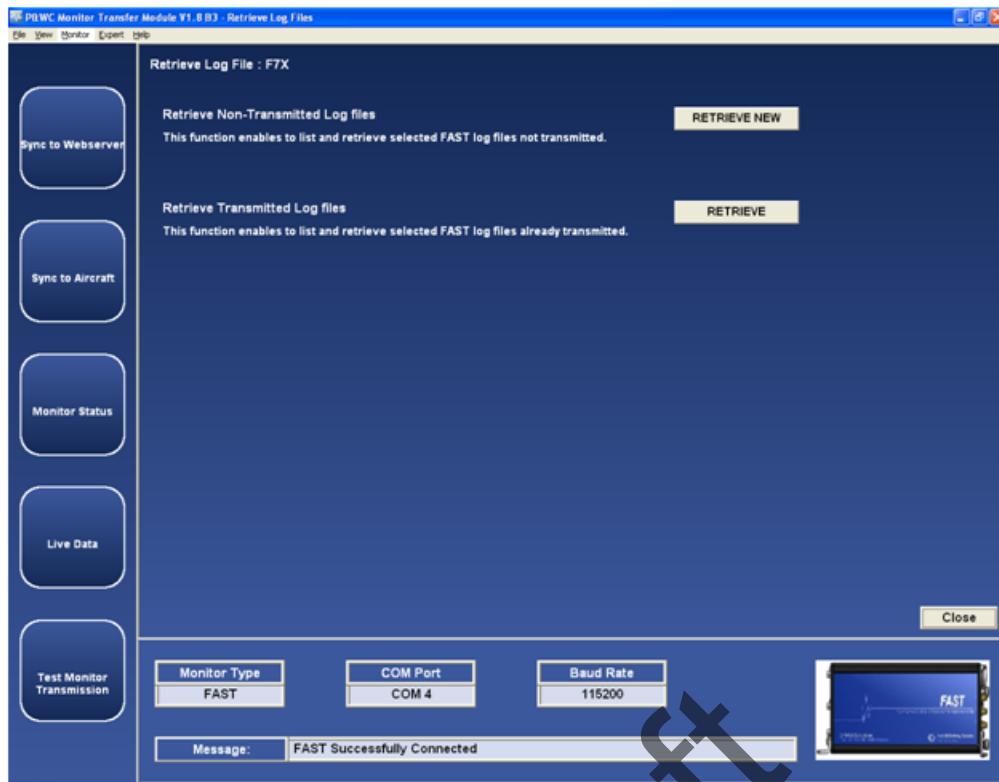
When the estimated retrieval time is less than a configurable limit, all files will be retrieved without requiring user selection. Refer to [Changing MonitorTm Preferences](#)^[22] for details

By default, retrieving logs from the monitor does not modify their transmitted status in the monitor (i.e. the monitor will still upload them to the web via GSM cellular). Refer to [Changing MonitorTm Preferences](#)^[22] for details

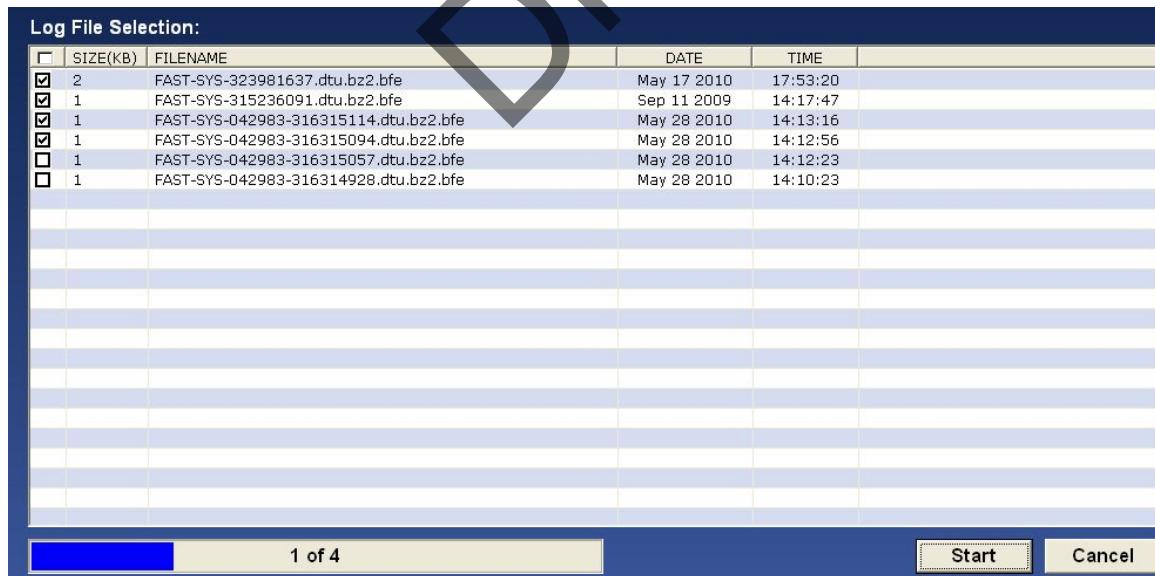
For the Caravan application and all FAST serial number 45xxxx, the user can either retrieve transmitted or not transmitted log files for ETM and Full Flight data files. See the screenshot below:



For other applications, the user can either retrieve transmitted or non transmitted log files.



After selection, the user can check boxes of desired files to be retrieved and click the start button to start the process. A retrieve progress status will be shown.

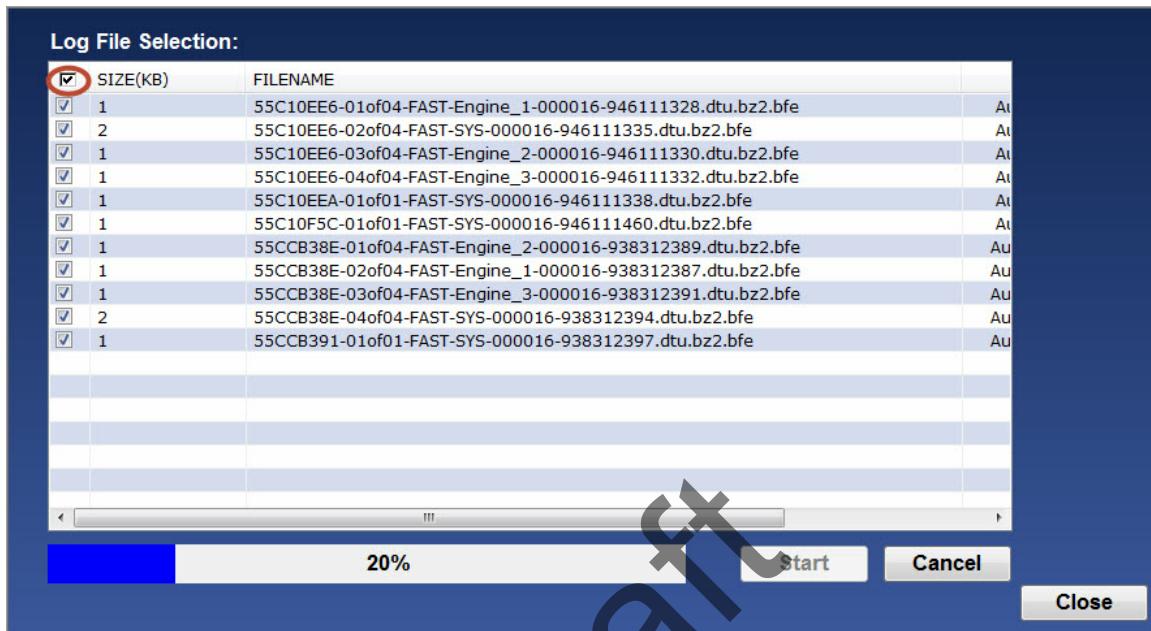


For FAST system containing Micro Server Software version 2.9 or higher (refer to PW_VER field in the [Monitor Status Function](#)^[25]), the download time is reduced when all log files are selected for download.

To retrieve all log files, select the checkbox on the top left in the Log File Selection

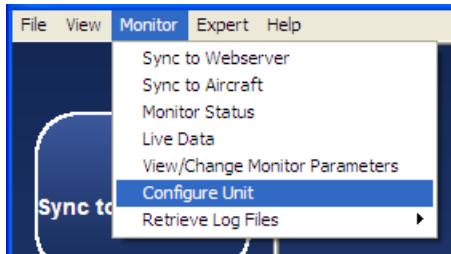
screen. The download process will be displayed in seconds.

Note: MonitorTM download all files packaged in a TAR format using Open Source Software Windows TAR library where distribution is managed by license terms as per link <http://creativecommons.org/licenses/by-sa/3.0/legalcode>



3.3 Configure Unit Function

Accessing:



This function is used to reconfigure the monitor settings when they need to be modified

This function uploads configuration files from the computer to the monitor

Configuration file versions in the monitor are compared with configuration file versions on the computer

When the configuration file versions on the computer are more recent than those in the monitor, the program will proceed with the configuration of the monitor

Configuration of the Unit :

The configuration file on your laptop is a newer version than the one in the unit.

0 of 2

When the configuration file versions on the computer are the same or older than those in the monitor, the user must choose to proceed with the configuration of the monitor.

Configuration of the Unit :

Warning : The configuration file on your laptop is the same as the one in the unit.

Do You still want to proceed ?

Yes

No

After the files are uploaded into the monitor, the monitor will reboot. This should take approximately 1 minute.

3.4 Monitor Status Function

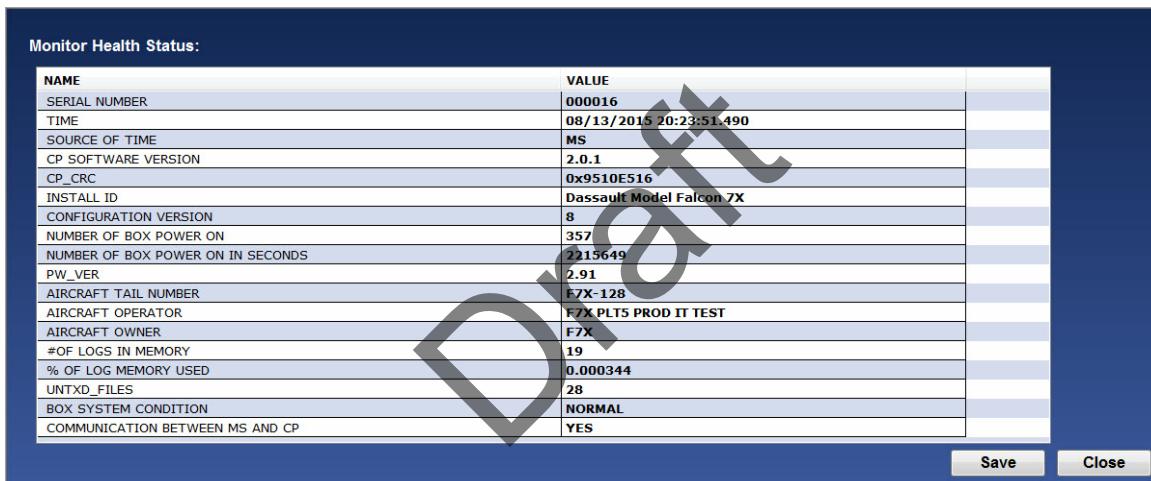
Accessing:



This function provides an overview of the status of the monitor and the status is updated continuously as long as the function is selected.

The status can be saved to an xml file or printed via File>Menu/Print.

The saved status can be viewed via the [View Saved Monitor Status Function](#)^[64]



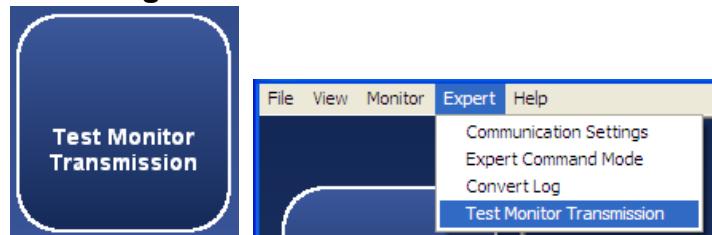
The following are the possible status messages that can be seen as well as recommended actions to take

Displayed Name	Description
Serial Number	FAST Box serial number
Time	FAST Box time of day
Source of Time	<p>Source that FAST syncs to for time of day clock</p> <p>LOCAL : Time is synchronized to the FAST box</p> <p>REMOTE : Time is synchronized to the EEC (Electronic Engine Controller)</p> <p>Note: This option is not available on all applications</p> <p>MS : Time is synchronized to the ground server</p>
CP Software Version	The CP (Control Processor) software version
CP CRC	The CP (Control Processor) software CRC (Cyclic Redundancy Check)

Install ID	Installation ID field of the FAST Box from the loaded configuration
Configuration Version	The loaded configuration version
Number of Box Power On	The total cumulative number of times the box has been powered on
Number of Box Power On In Seconds	The total cumulative number of seconds the box has been powered on
PW VER	Micro server software version
Aircraft Tail Number	The aircraft tail number field stored in the configuration
Aircraft Operator	The aircraft operator field stored in the configuration
Aircraft Owner	The aircraft owner field stored in the configuration
# of Logs in Memory	The total number of logs in memory that are pending upload to the Micro-Server Compact Flash
% of Log Memory Used	The percentage of log memory used
UNTXD_FILES	Number of non transmitted files
Box System Condition	<p>The box system condition</p> <p>NORMAL</p> <p>CAUTION</p> <p>FAULT</p> <p>If fault or caution status, please perform the Expert Commands function^[42]: Recent Faults to obtain a list of the last 10 faults and call P&WC Customer First Center.</p> <p>If the problem persists, download system logs using Retrieve Log Files function^[20]</p>
Communication Between MS and CP	<p>Indicates if communication between the Micro-Server processor and Control processor is running</p> <p>YES : Communication between Micro-Server Processor and Control Processor is running</p> <p>NO : not necessarily a problem and can occur during a box power up</p> <ul style="list-style-type: none"> - Try closing the function, wait 2 minutes; and then retry the Monitor Status function - If NO still displayed, call P&WC Customer First Center

3.5 Test Monitor Transmission Function for FAST

Accessing:



This function verifies that the monitor can transmit data to the Web server successfully

Test Monitor Transmission:	
NAME	STATUS
SYSTEM CONDITION	PASS
WEIGHT ON WHEELS CONDITION	PASS
ON GROUND TRIGGER	PASS
RECORD DATA TRIGGER	PASS
MICRO SERVER READY	PASS
GSM SIM CARD	PASS
GSM SIGNAL	PASS (-77DB)
VPN CONNECTION	PASS
UPLOAD STATUS	MOVELOGSTOGROUND 00%
TEST MONITOR TRANSMISSION STATUS	INPROGRESS

The following are the possible test status messages that can be seen as well as recommended actions to take

Displayed Name	Possible Values	Description	Recommended Action
System Condition	blank	System Condition verification is not yet complete	
	PASS	System Condition is OK	
	FAIL	System Condition is FAULT and cannot transmit through GSM	Please perform the Expert Commands function ^[42] : Recent Faults to obtain a list of the last 10 faults and call P&WC Customer First Center
Weight On Wheels Condition	blank	Weight on Wheels verification is not yet complete	
	PASS	WOW discrete input is TRUE	
	FAIL	WOW discrete input is FALSE and GSM cannot be enabled	Verify the resistance between J1 (harness connector) pin 15 and pin 2 or 3. At least one of them should be < 100 ohm.
On Ground Trigger	blank	On ground criteria verification is not yet complete	
	PASS	On ground criteria is being met	

	FAIL	On ground criteria is not being met and GSM cannot be enabled	1. Ensure engines are off and wait 2 minutes 2. Repeat Test Monitor transmission. If FAIL remains, perform Live Data Function ³¹ to verify validity of parameters. If any parameters are invalid, correct the problem. 3. Repeat Test Monitor transmission. If FAIL remains, perform Expert Command function ⁴² : show config and save/send to P&WC Customer First Center for review of show config and live data parameter values from step 2
Record Data Trigger	<i>blank</i>	Configurable data record triggers verification is not yet complete	
	PASS	Configurable data record triggers are inactive. FAST is not recording data	
	FAIL	Configurable data record triggers are active. FAST cannot upload log data while recording	1. Ensure engines are off and wait 2 minutes 2. Repeat Test Monitor transmission. If FAIL remains, perform Live Data Function ³¹ to verify validity of parameters. If any parameters are invalid, correct the problem. 3. Repeat Test Monitor Transmission. If FAIL remains, perform Expert Command function ⁴² : show config and save/send to P&WC Customer First Center for review of show config and live data parameter values from step 2
Micro Server Ready	<i>blank</i>	Micro-Server interface verification is not yet complete	
	<i>InProgress ##%</i>	FAST waiting for Micro-Server interface to become ready. This can be displayed for up to 2 minutes	
	PASS	Micro-Server interface is ready for use	
	FAIL	Micro-Server interface is not ready for use	Repeat test one more time. If the test fails again, perform Expert Command function ⁴² : Micro-Server Status and contact P&WC for

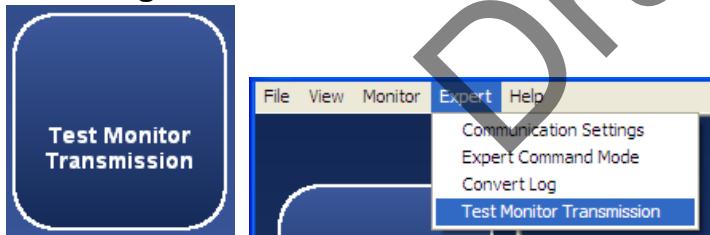
			support
GSM Sim Card	<i>blank</i>	GSM SIM card verification is not yet complete	
	<i>InProgress</i> ##%	FAST waiting to detect and read the SIM card. This can be displayed for up to 3 minutes	
	PASS	SIM card is detected and card ID detected	
	FAIL	FAST not able to read the SIM card ID	<ol style="list-style-type: none"> 1. Verify that the SIM card is installed properly, cycle box power 2. Repeat Test Monitor Transmission function. If FAIL remains, remove and re-insert the SIM card, cycle box power. 3. Repeat Test Monitor Transmission function. If FAIL remains, remove SIM card and test in a cellular phone of the same network provider (i.e. AT&T, Rogers, or unlocked, ...) 4. Repeat Test Monitor Transmission function. If FAIL remains, contact P&WC Customer First Center for further support
GSM Signal	<i>blank</i>	GSM signal strength verification is not yet complete	
	<i>InProgress</i> ##%	FAST waiting to connect to a GSM network. This can be displayed for up to 5 minutes	
	PASS - ###dB	FAST can connect to GSM network. Signal Strength displayed (dB)	Preferred to see -95db or greater (i.e. -60 is good). Try relocating aircraft if signal strength is poor (i.e. out of hangar, or different airport) and repeat Test Monitor Transmission function.
	FAIL	FAST was unable to connect to a GSM network within the expected time	<ol style="list-style-type: none"> 1. Verify the account is active with network provider (i.e. AT&T, Rogers, etc..) 2. Repeat Test Monitor Transmission function. If FAIL remains verify you are in cellular range by removing SIM card and testing in a cellular phone of the same network provider. (need to cycle box power after reinserting in FAST box)

			3. When in cellular range, repeat Test Monitor Transmission function, verify antenna is connected to FAST box (GSM connector) 4. When antenna is connected, repeat Test Monitor Transmission function. If FAIL remains, contact P&WC Customer First Center for further support
VPN Connection	blank	VPN Connection verification is not yet complete	
	InProgress ##%	FAST waiting to establish VPN connection to ground server. This can be displayed for up to 5 minutes	
	PASS	FAST established VPN connection to the ground server	
	FAIL	FAST unable to establish VPN connection to ground server within expected time	1. Verify that a data plan is activated with the cellular network provider. If no data plan, activate data plan and repeat Test Monitor Transmission function. 2. If FAIL remains, verify GSM using GSM Signal Strength indication above (i.e. PASS -###dB). If GSM Signal Strength is too low, try to correct the problem and repeat Test Monitor Transmission function. 3. If FAIL remains, contact P&WC Customer First Center for further support
Upload Status	blank	Upload Status verification is not yet complete	
	MoveLogsT oMS	FAST is moving log data from control processor to Micro-Server	If this message is seen for more than 5 minutes: 1. Perform Expert Command function ^[42] : Verbosity Normal to see messages 2. If messages beginning with "Upload" seen, wait for completion. Perform Expert Command function ^[42] : Verbosity Off and repeat Test Monitor Transmission function. 3. If this status is seen for more than 5 minutes again, or if no messages beginning with "Upload" seen, contact P&WC Customer First Center for support

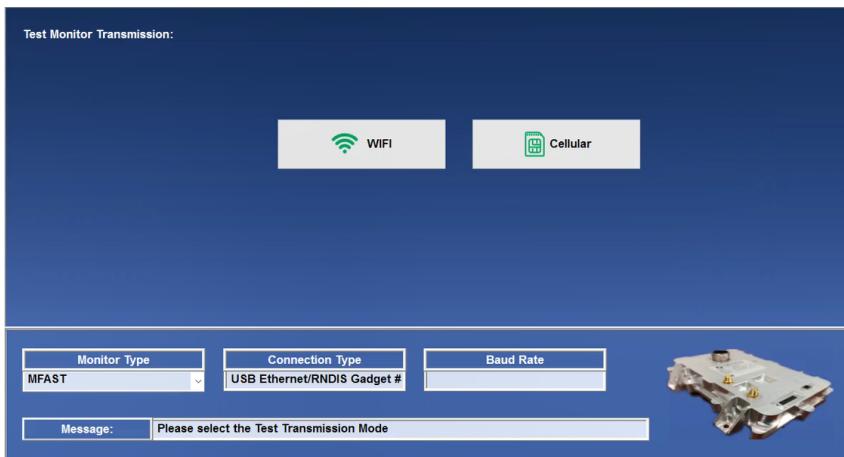
	MoveLogsT 0Ground##% %	FAST is moving logs from Micro-Server to Ground via GSM	If number is incrementing, wait for completion If number is not incrementing after a few minutes, contact P&WC Customer First Center for support
	PASS	FAST has moved all log files to ground server and verified	
Test Monitor Transmission Status	This Is The Final Overall Status of the Test Monitor Transmission function		
	Stopped	There has been no test activity since the last power-on	Cycle box power and repeat Test Monitor Transmission Function
	InProgress	running each step to verify log transmission to ground server	
	PASS	Test completed and successfully transmitted data to the ground	
	Fail: <FailReason>	Test stopped because one of the above statuses has failed	

3.6 Test Monitor Transmission Function for MFAST

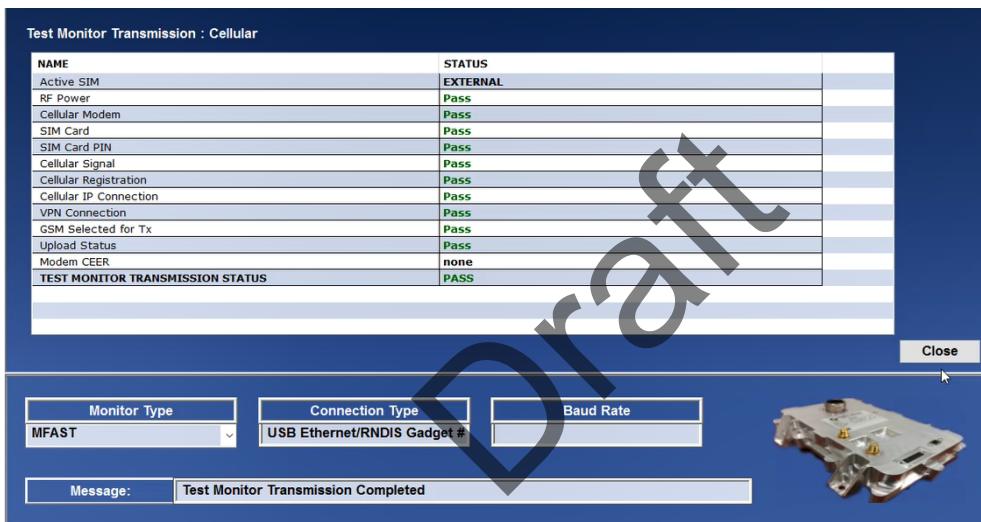
Accessing:



This function verifies that the monitor can transmit data to the Web server successfully by using one of the two options



Function using Cellular

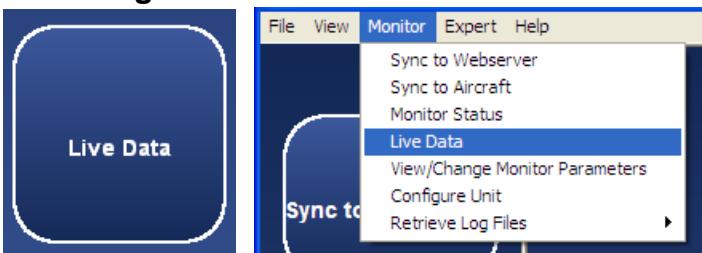


Function using WI-FI



3.7 Live Data Function

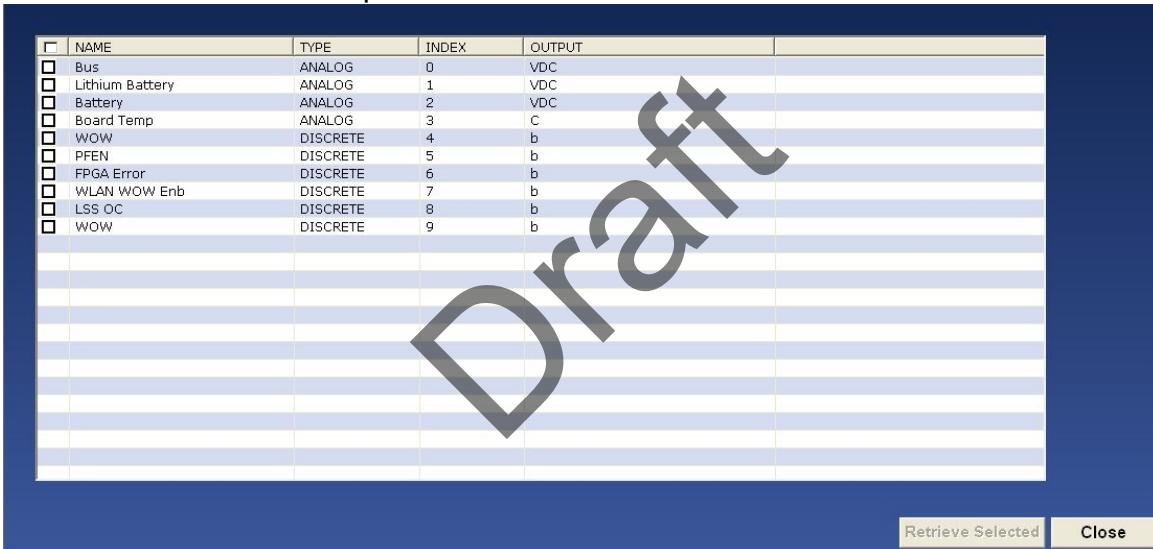
Accessing:



The Live Data function allows the user to view and record live data from the monitor's available data sensors.

The user must select the sensors to display using check boxes. The column header check box can be used to select all sensors.

Click Retrieve Selected to proceed

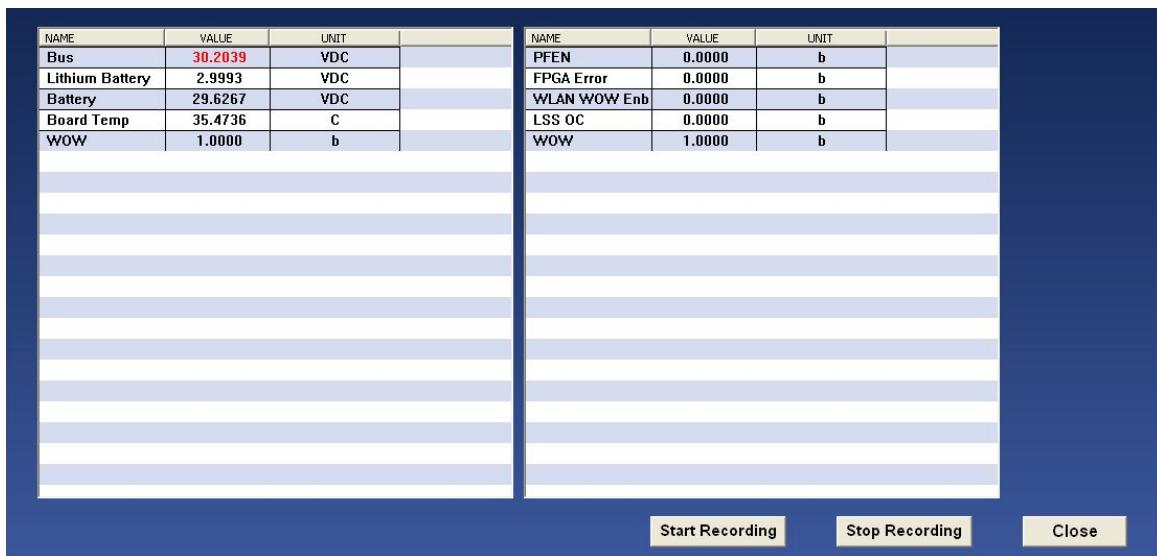


The values and units of selected sensors are displayed.

Any invalid sensors are displayed in red.

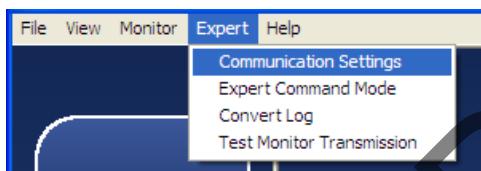
Start and Stop Recording buttons permit recording a sequence of live data.

Refer to the Analyzing Data section for analysis



3.8 Communication Settings Function

3.8.1 Accessing



The Communication Settings Function can be used for detecting and troubleshooting connection settings and contains two options. For troubleshooting guidelines, refer to [Communication Troubleshooting](#) 

3.8.2 Auto-Detection

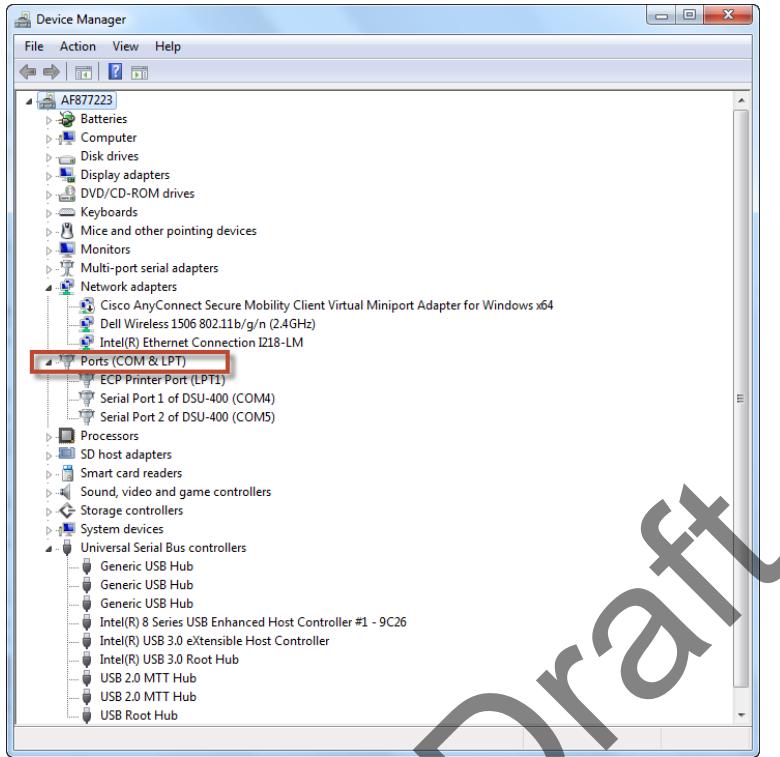
Automatically detects the Connection Type connected to the monitor by screening the available COM ports. Performed automatically prior to each function requiring communication with the Monitor.

Auto Detection:

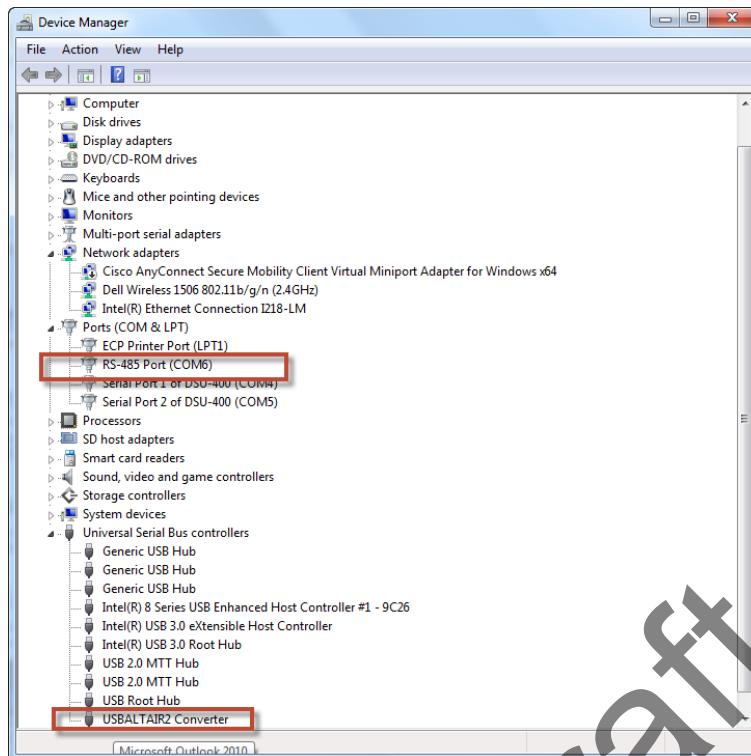
Connect

3.8.3 Manual detection

- Find the com port via Device Manager
- Disconnect FAST USB cable and Expand the Ports menu .

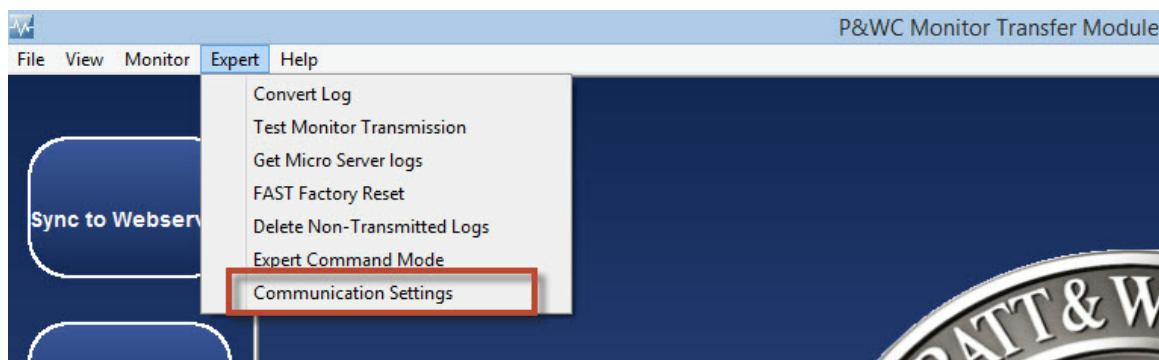


- Connect the FAST USB cable, the Ports will automatically update



Note: If the RS-485 Port (COMX) is not displayed, USB driver is not properly installed, please refer to [FAST USB GSE Cable Driver Installation](#).

- Open Monitor TM 
- Under Expert , select Communication Settings



- From Connection Type scrolling menu select the com port found previously (i.e : COM6)



- Click on **Connect**

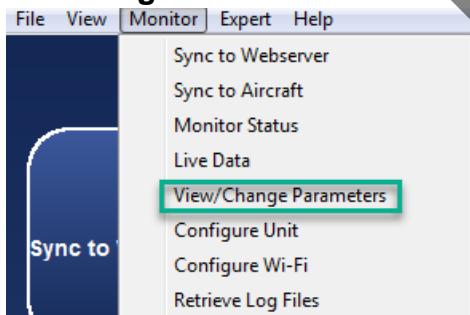
Communication settings are displayed in the Monitor Type, COM Port and Baud Rate fields.

Communication status is displayed in the Message field



3.9 View/Change Monitor Parameters

Accessing:



The View/Change Parameters function can be used to change parameters in your monitor.

3.9.1 View/Change Monitor Parameters for ATR42/ATR72 application

For ATR42/72 and AW139 applications, the function enables the user to view/change the fast box time and enter the engine serial number information. For ATR42/72 only, the user can also clear the engine serial number the engine serial number is available via the ARINC 429 data.

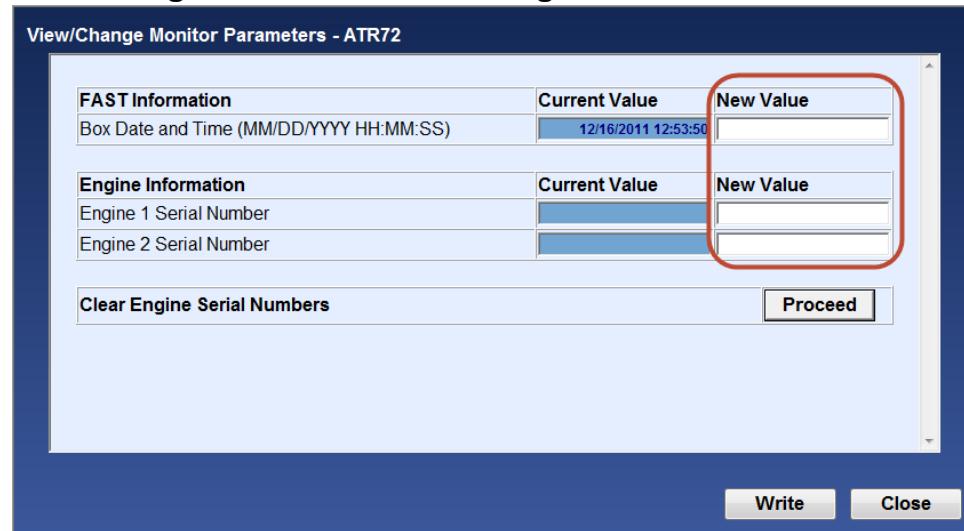
View/change FAST box time and engine serial number information

View/Change Monitor Parameters - ATR72

FAST Information	Current Value	New Value
Box Date and Time (MM/DD/YYYY HH:MM:SS)	12/16/2011 12:53:50	
Engine Information	Current Value	New Value
Engine 1 Serial Number		
Engine 2 Serial Number		

Clear Engine Serial Numbers **Proceed**

Write **Close**



After you enter the new values, select the write button.



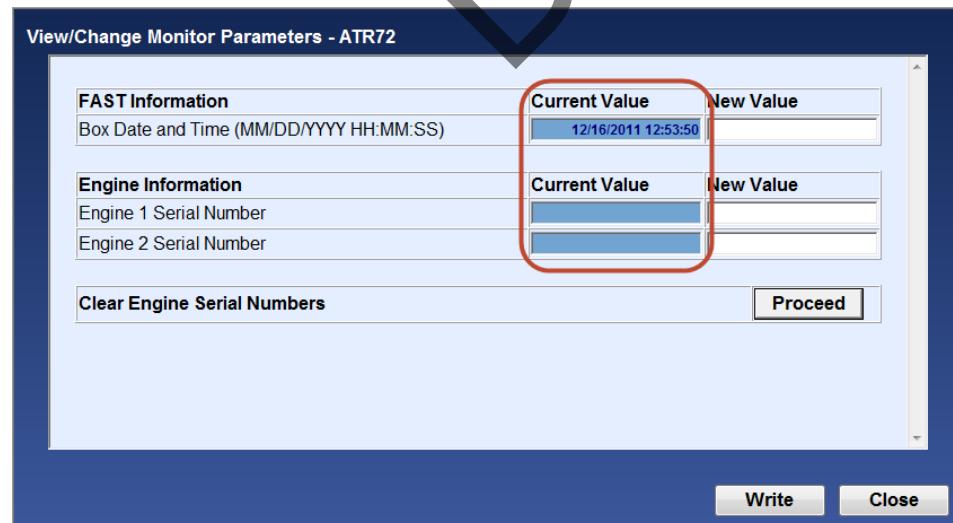
The new parameters values will be updated in the monitor and the Current Value column will be refreshed. Verify the current values are appropriately refreshed before closing.

View/Change Monitor Parameters - ATR72

FAST Information	Current Value	New Value
Box Date and Time (MM/DD/YYYY HH:MM:SS)	12/16/2011 12:53:50	
Engine Information	Current Value	New Value
Engine 1 Serial Number		
Engine 2 Serial Number		

Clear Engine Serial Numbers **Proceed**

Write **Close**



Click "Proceed" to clear the engine serial numbers stored in the FAST box.



3.9.2 View/Change Monitor Parameters for CARAVAN application

For Caravan application, the function enables the user to view/change the fast box time, engine serial number, flight/engine cycles and creep information. The user can also reset creep faults and CAS Previous Exceed messages.

View/change FAST box time, engine serial number, flight/engine cycles and creep information

View/Change Monitor Parameters - CARAVAN

FAST Information	Current Value	New Value
Box Date and Time (MM/DD/YYYY HH:MM:SS)	12/16/2011 12:59:06	
Engine Information	Current Value	New Value
Engine Serial Number (VAXXXX)	VA1234	
Cumulative Creep CT (%)	0.0000	
Cumulative Creep PT (%)	0.0000	
Cumulative Engine Run Time (hours)	0.0000	
Cumulative Engine Cycles	0	
Cumulative Flight Time (hours)	0.0000	
Cumulative Flight Cycles	0	

Draft

Write Close

After you enter the new values, select the write button.



The new parameters values will be updated in the monitor and the Current Value column will be refreshed. Verify the current values are appropriately refreshed before closing.

View/Change Monitor Parameters - CARAVAN

FAST Information	Current Value	New Value
Box Date and Time (MM/DD/YYYY HH:MM:SS)	12/16/2011 12:59:06	

Engine Information	Current Value	New Value
Engine Serial Number (VAXXXX)	VA1234	
Cumulative Creep CT (%)	0.0000	
Cumulative Creep PT (%)	0.0000	
Cumulative Engine Run Time (hours)	0.0000	
Cumulative Engine Cycles	0	
Cumulative Flight Time (hours)	0.0000	
Cumulative Flight Cycles	0	

Buttons:

Write Close

View/Reset creep faults:

Click “View Creep Fault” to display current creep faults:

Engine Creep Information

Buttons:

View Creep Fault **Reset Creep Fault**

A list of active creep faults is displayed, including creep fault type and date and time of occurrence. To reset creep faults, click “Reset Creep Fault”.

Engine Creep Information

Creep Faults = 1 (of 75 Max), Last Update =14:16:21 03/18/2013
01:CREEP_FAULT_RUN at 18:49:43 03/22/2013

Buttons:

View Creep Fault **Reset Creep Fault**

Creep faults will be cleared in the monitor and creep fault list refreshed.

Engine Creep Information

Creep Faults = 0 (of 75 Max), Last Update =18:50:57 03/22/2013

Buttons:

View Creep Fault **Reset Creep Fault**

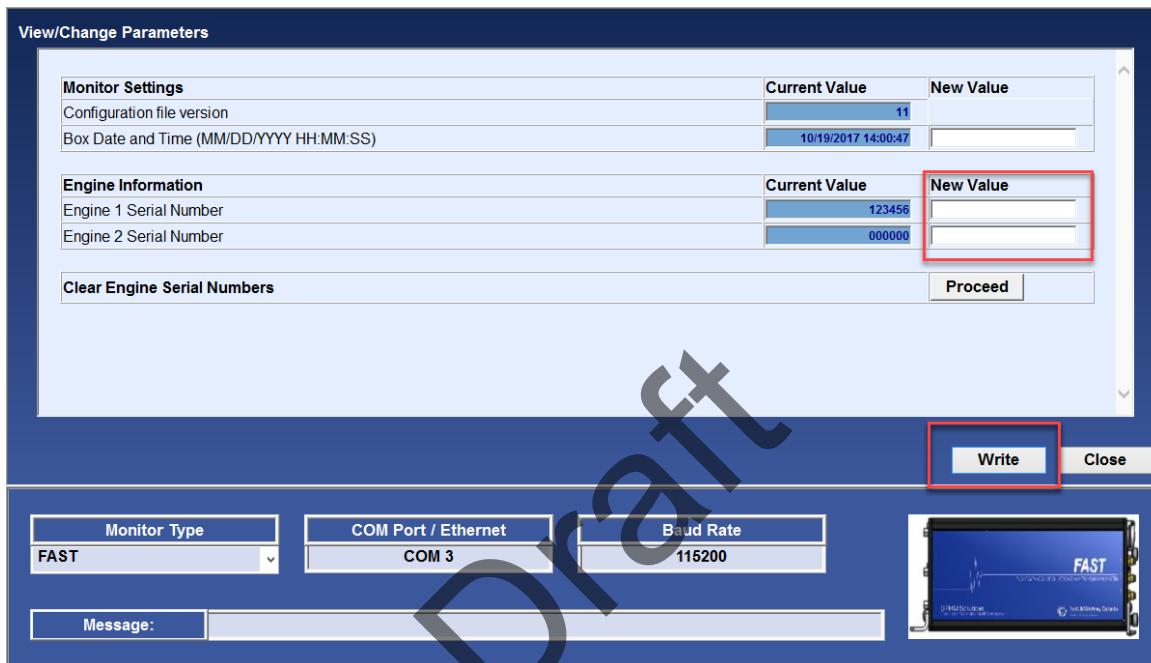
Click “Reset Prev Exceed” to reset Exceed messages from the crew-alerting system (CAS).

CAS Previous Exceed message **Reset Prev Exceed**

3.9.3 View/Change Monitor Parameters for other applications

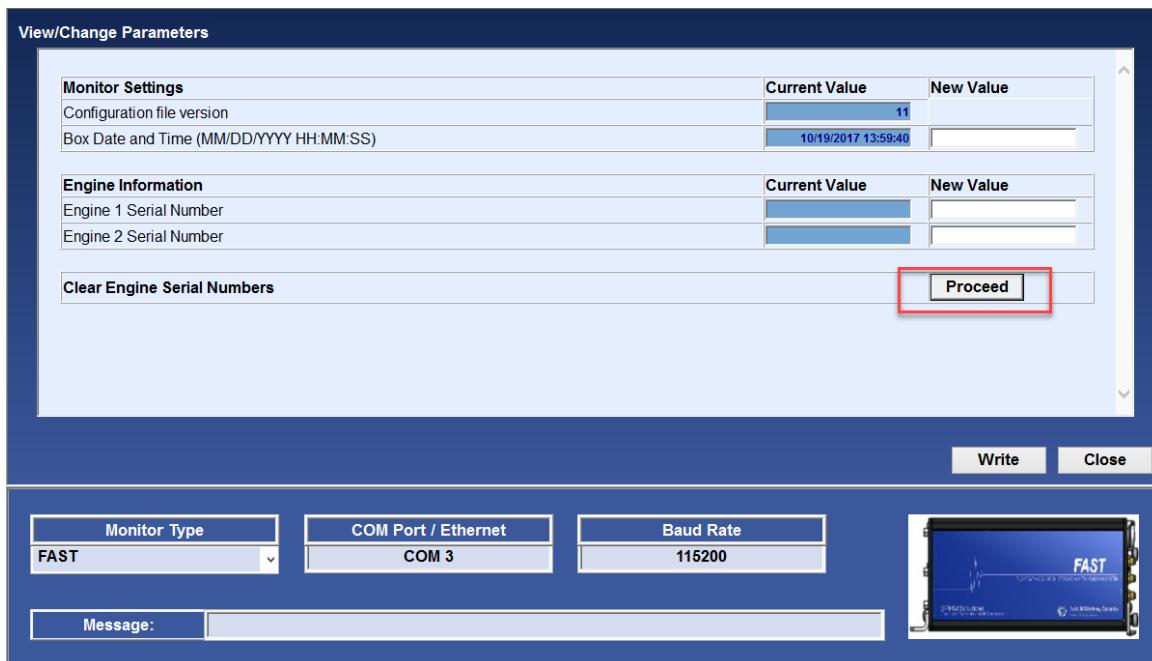
For other applications, the function enables the user to view the configuration Version and when applicable clear and enter the engine serial number information.

After you have entered the new value, select the "Write" button.



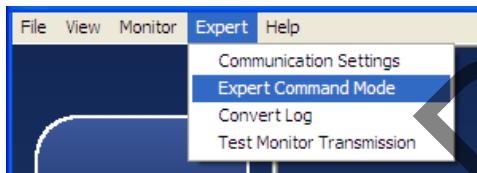
The new value will be written to the monitor and the Current Value column will be updated.

To clear the Engine serial number stored in the FAST Box click "Proceed"



3.10 Expert Command Mode Function

Accessing:



The Expert Command Mode function can be used to communicate with the monitor by sending commands and displaying monitor responses

The user can select commonly used expert commands from a menu

When the Send button is selected

- The monitor responses are displayed
- The session can be saved and printed



Selecting the Advanced button requires entering a password for advanced troubleshooting and permits typing any command. To obtain the password, contact P&WC Customer First center.



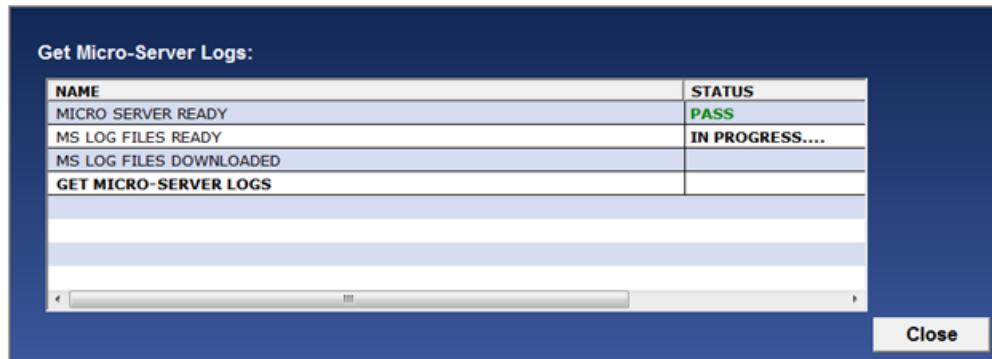
The program then permits writing to the actual command prior to clicking the Send button



3.11 Get Micro Server Logs

The Get Micro Server Logs function is used for advanced troubleshooting when instructed by P&WC personnel.

The function will automatically download all micro server logs to the users local computer.



To transfer the data to PWC for analysis, the user must perform the [Sync To Webserver](#)⁵⁰ function.

3.12 FAST Factory Reset

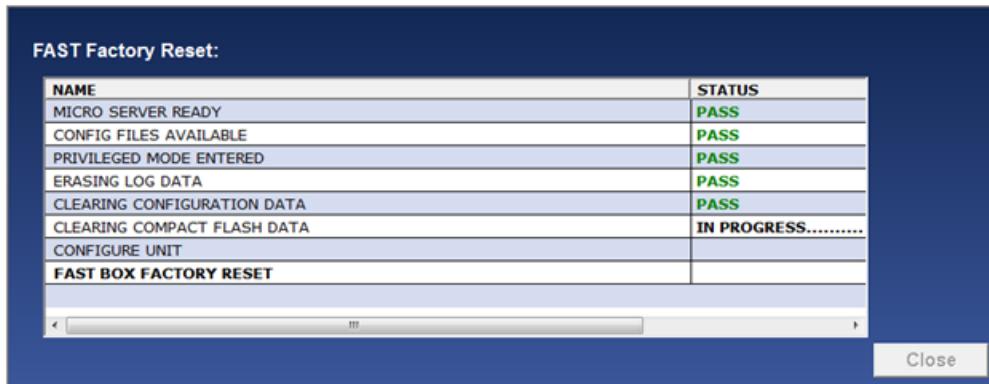
The FAST Factory Reset function is to be used for advanced troubleshooting when instructed to do so by P&WC personnel.

The FAST Factory Reset will delete all non-transmitted data from your FAST box and configure it to the latest configuration. **Once this function is started, it cannot be cancelled.**

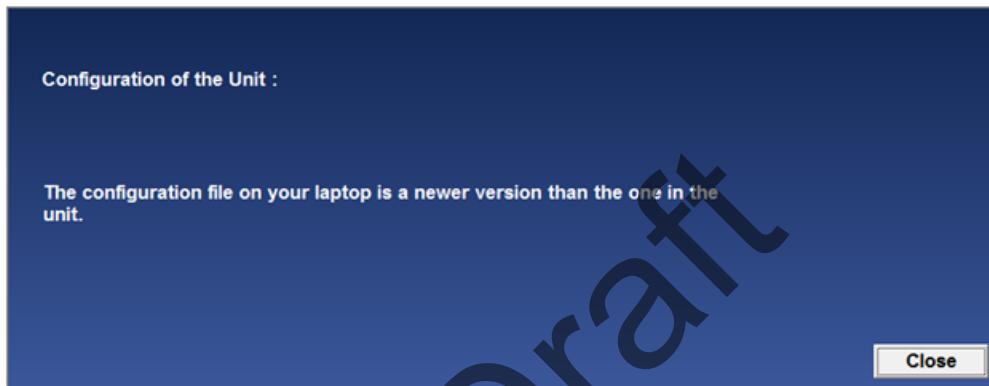
Selecting the FAST Factory Reset button requires entering a password. To obtain the password, contact P&WC Customer First center.

After the password is entered, the program will determine if the configuration files for the FAST box are located on the local computer. If the files are not available, please perform the Sync To Webserver function.

After the password is entered and the configuration files are available on the local laptop, the program will begin the reset function. During the reset it is not possible to navigate, or from the Factory Reset Screen.



At the end of the function, the program will reconfigure the box with the configuration files located on the local computer.

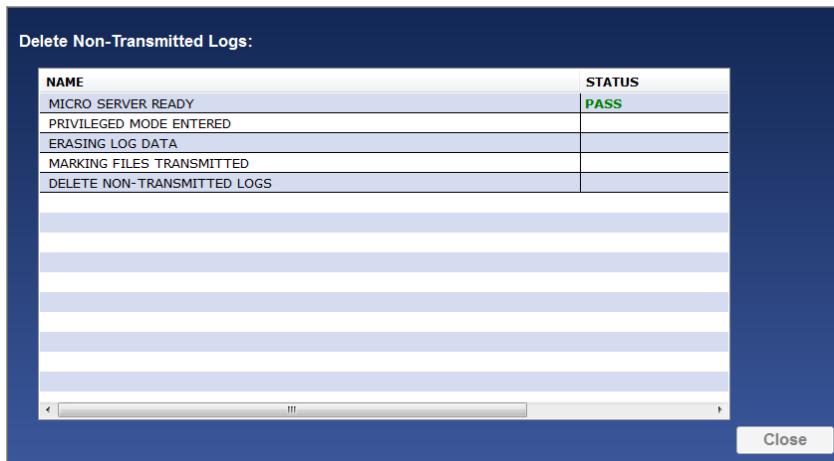


3.13 Delete Non-Transmitted Logs

The Delete Non-Transmitted Logs function may be used when instructed to do so by P&WC personnel. The function is used to erase all non-transmitted data in the FAST box. **Once this function is started, it cannot be cancelled.**

Selecting the Delete Non-Transmitted function requires entering a password. To obtain the password, contact P&WC Customer First center.

After the password is entered, the program will begin the erase function. During the erase function it is not possible to navigate from the Delete Non-Transmitted Logs screen.



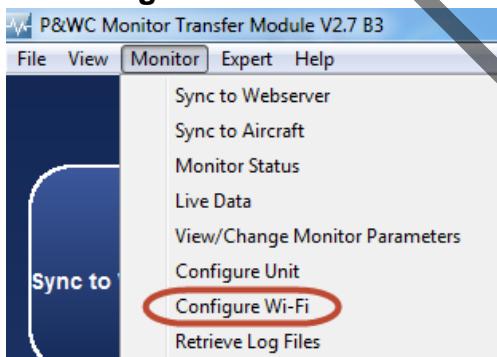
3.14 Wi-Fi Configuration

The FAST monitor revision E or higher is capable to offload data via Wi-Fi connection. The compatibility can be verified by using the [Monitor Status](#) function to confirm that the MSSIM version (PW_VER) is 3.0 or higher.

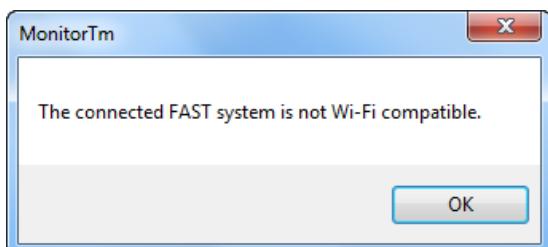
NUMBER OF BOX POWER ON IN SECONDS	154554
PW_VER	3.1
AIRCRAFT TATI NI IMMER	F7Y-128

For FAST to automatically connect to a Wi-Fi network, it must first be configured using MonitorTM and a pc connected via the GSE cable.

Accessing:



If the FAST is not compatible with Wi-Fi, the user will see the following error message.



Once connected the user will see a screen similar to the one below.

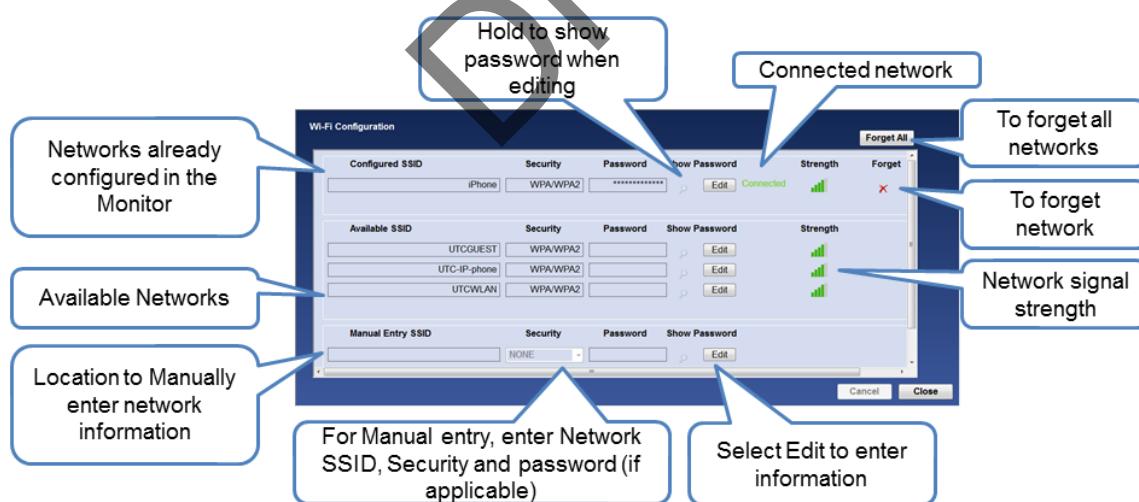
Already configured Wi-Fi networks are displayed with signal strength, if in range. If the FAST is already connected to a network, "Connected" will be displayed next to the appropriate configured network SSID. The user can remove (Forget) individual or all configured networks.

The passwords for already configured network SSIDs are not stored on the local computer. The user may enter a new password. Only when entering a password, the user can select the icon to view what is being entered. Only the FAST stores the network passwords. It is recommended that Forget All networks is done prior to FAST removal. If the FAST is returned to P&WC, the network passwords could be accessed by P&WC personnel.

Available networks are displayed with signal strength. Only available Wi-Fi networks that do not contain special characters or spaces will be available to connect. The user can enter a password for any available networks.

The user can manually enter a Network SSID, security and password. The user can enter one network at a time. SSID cannot contain special characters or spaces. Only networks with no security, WPA or WPA2 security are compatible.

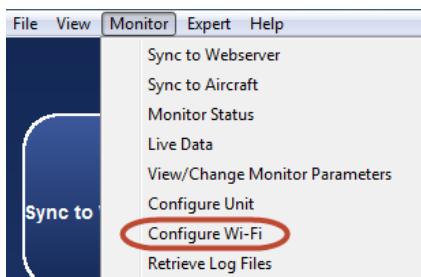
In all cases when the Edit button is selected, the user may cancel.



3.15 WI-FI Configuration for MFAST

For MFAST to automatically connect to a Wi-Fi network, it must first be configured using MonitorTM and a pc connected via the USB (RNDIS/Ethernet Gadget) cable.

Accessing:



Once connected the user will see a screen similar to the one below.

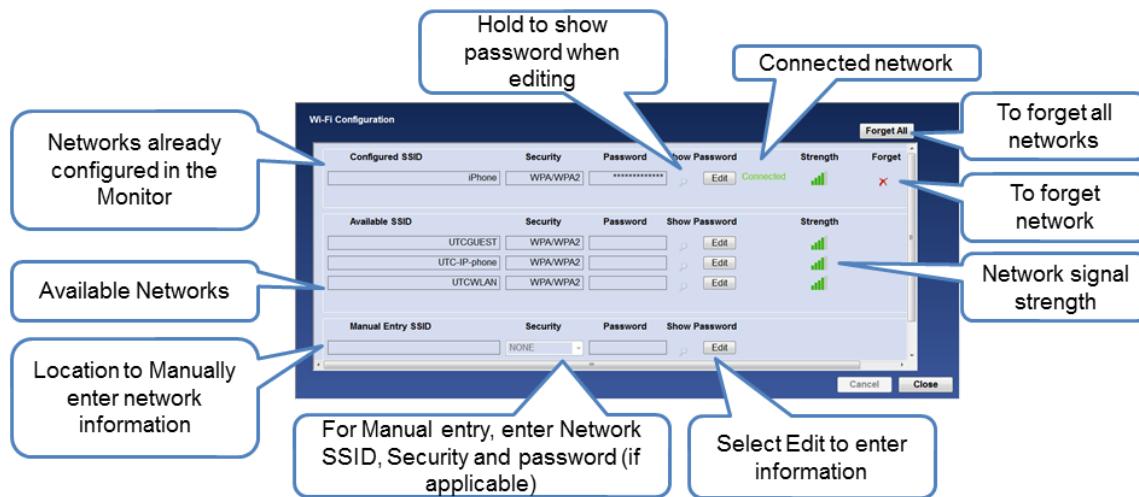
Already configured Wi-Fi networks are displayed with signal strength, if in range. If the MFAST is already connected to a network, "Connected" will be displayed next to the appropriate configured network SSID. The user can remove (Forget) individual or all configured networks.

The passwords for already configured network SSIDs are not stored on the local computer. The user may enter a new password. Only when entering a password, the user can select the icon to view what is being entered. Only the FAST stores the network passwords. It is recommended that Forget All networks is done prior to FAST removal. If the FAST is returned to P&WC, the network passwords could be accessed by P&WC personnel.

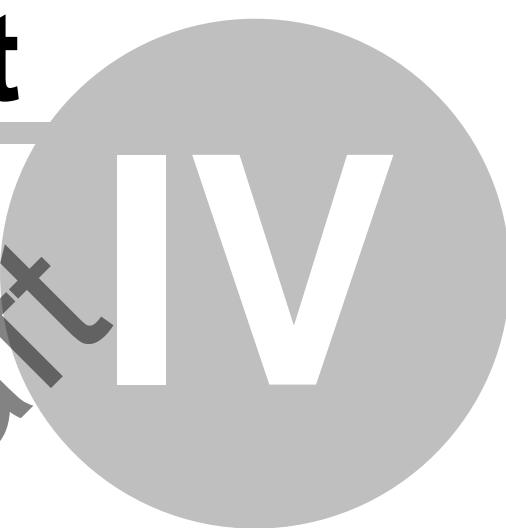
Available networks are displayed with signal strength. Only available Wi-Fi networks that do not contain special characters or spaces will be available to connect. The user can enter a password for any available networks.

The user can manually enter a Network SSID, security and password. The user can enter one network at a time. SSID cannot contain special characters or spaces. Only networks with no security, WPA or WPA2 security are compatible.

In all cases when the Edit button is selected, the user may cancel.



Part



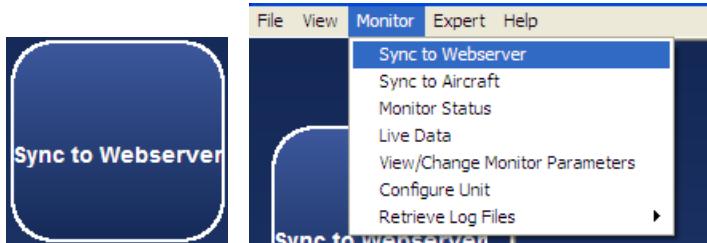
Draft IV

Communicating with Webserver

4 Communicating with Webserver

4.1 Sync to Webserver Function

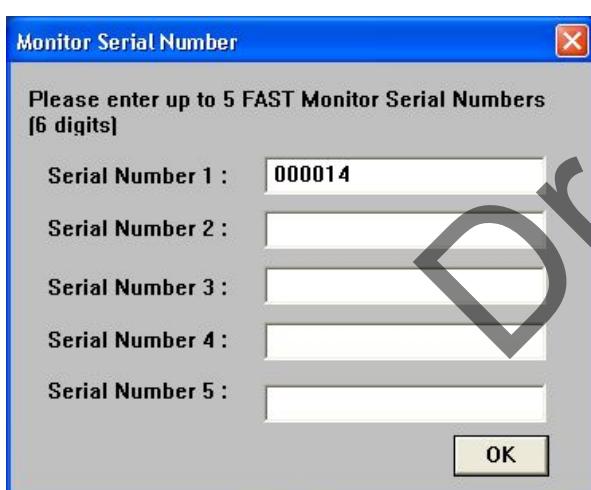
Accessing:



This function synchronizes the computer with the P&WC Webserver

- uploads log files to Webserver
- downloads configuration files to the pc
- downloads updates of the MonitorTm program

The user must manually enter the related monitor serial numbers.



The program will then transfer

- configuration files from the Webserver to the computer
- log files from the computer to the Webserver
- MonitorTm program updates from the Webserver to the computer if available

Sync to Webserver :

Transferring Configuration files from the Web to the laptop :

2 of 2

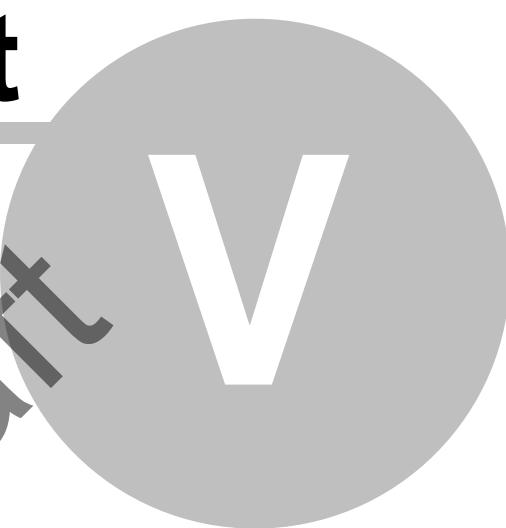
Transferring Log files from the laptop to the Web :

1 of 3

Draft

MonitorTm Help Manual

Part

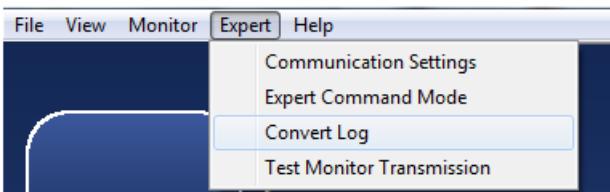
Draft  **V**

Analyzing Data

5 Analyzing Data

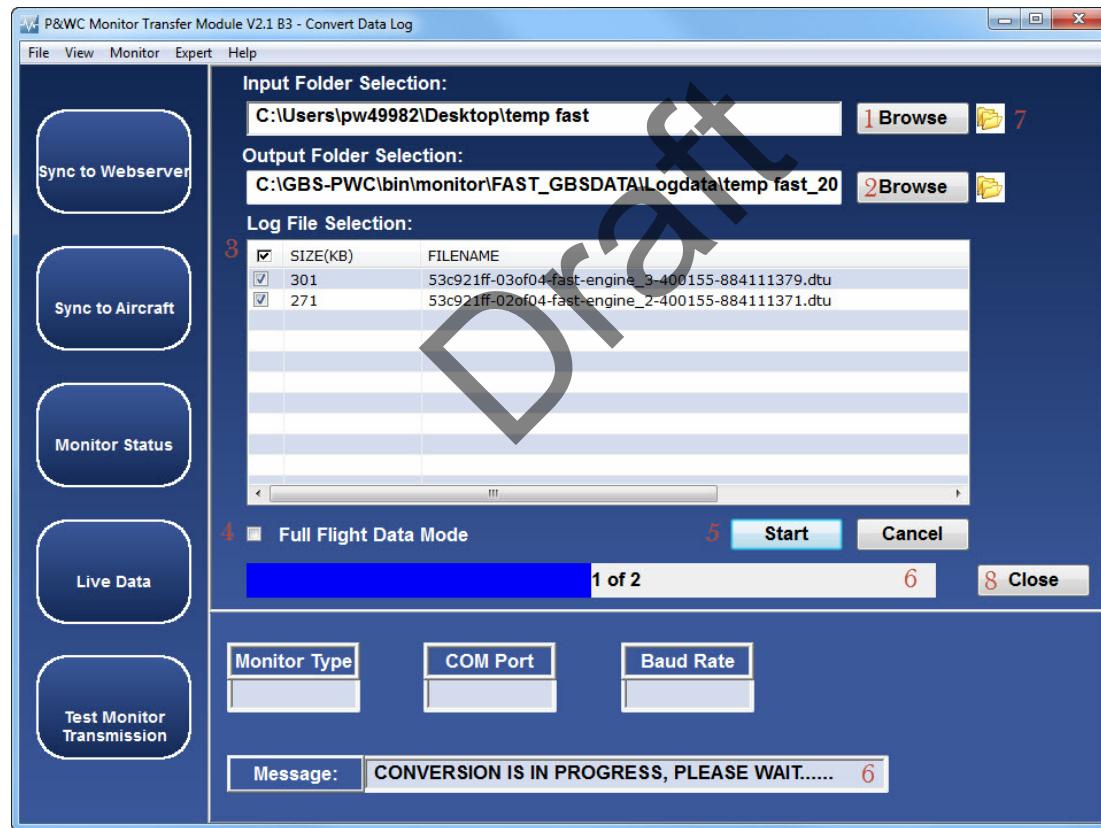
5.1 Convert Log Function

Accessing:



5.1.1 General convert log function

Prior to [analyzing data locally in GBSLite](#)⁵⁷, logs must be converted using the convert log function



1. The user must select the Input Folder Selection using the Browse button. The log files in the Input Folder will be listed. The user must select the log files to convert using check box next to the filename.
2. A unique Output Folder is proposed automatically. The user can modify the Output Folder location and name.

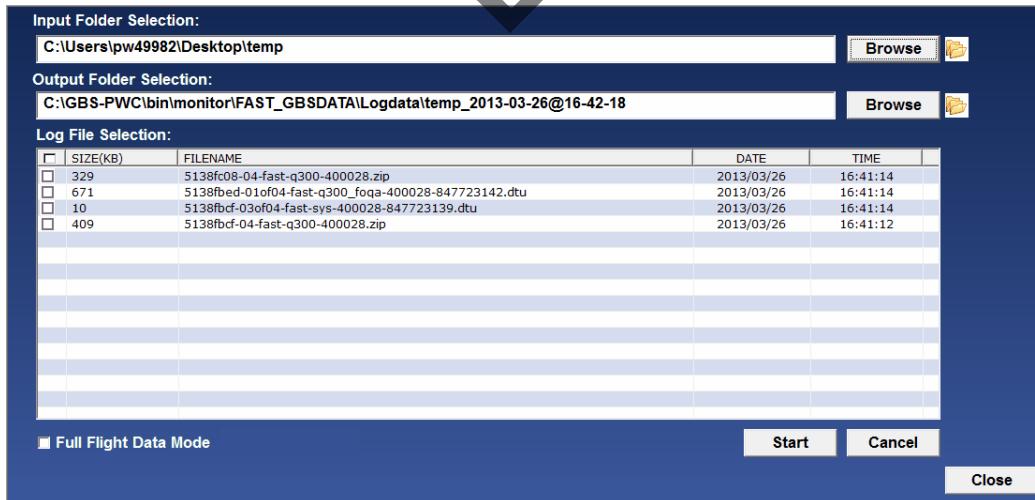
*Please note that the Output Folder must always be different than the Input Folder.

3. The column header check box can be used to select all log files.
4. If required, Full Flight Data Mode option is used for troubleshooting and full flight data analysis.
5. Click the Start button to begin conversion of selected files
6. When conversion has begun, conversion progress and status will be displayed.
7. The icon near the browse button can be clicked to open a Windows Explorer window of the selected path.
8. To exit the convert log function, press close.

5.1.2 Q200/Q300/ATR42/ATR72 convert log function

For the Q400/Q300/ATR42/ATR72 application, the program converts only zip files that regroups the complete set of 4 data files per sequence as listed in the example below:

- 4ff8f1b2-01of04-fast-q300_eec_1-* .dtu
- 4ff8f1b2-02of04-fast-q300_foqa-* .dtu
- 4ff8f1b2-03of04-fast-q300_eec_2-* .dtu
- 4ff8f1b2-04of04-fast-sys-* .dtu



Any incomplete zip file can only be converted in Full Flight Data Mode for troubleshooting analysis.

5.1.3 Q400 convert log function

For the Q400 application, the program converts only zip files that regroups the complete set of data files per sequence as listed in the examples below:

Set of 7 files – Full Flight and EMU data (Phase 2 with propeller monitoring):

- 53b22546-01of07-fast-q400_cds-* .dtu
- 53B22546-02of07-FAST-SYS-* .dtu
- 53b22546-03of07-fast-q400_foqa-* .dtu
- 53b22546-04of07-fast-q400_emu-* .dtu
- 53b22546-05of07-fast-q400_eec_1-* .dtu
- 53b22546-06of07-fast-q400_eec_2-* .dtu
- 53b22546-07of07-fast-q400_uib-* .dtu

Set of 6 files – Full Flight and EMU data (Phase 2):

- 53b22546-01of06-fast-q400_cds-* .dtu
- 53B22546-02of06-FAST-SYS-* .dtu
- 53b22546-03of06-fast-q400_foqa-* .dtu
- 53b22546-04of06-fast-q400_emu-* .dtu
- 53b22546-05of06-fast-q400_eec_1-* .dtu
- 53b22546-06of06-fast-q400_eec_2-* .dtu

Set of 4 files – Full Flight and EMU data (Phase 1):

- 53b22546-01of04-fast-q400_cds-* .dtu
- 53B22546-02of04-FAST-SYS-* .dtu
- 53b22546-03of04-fast-q400_foqa-* .dtu
- 53b22546-04of04-fast-q400_emu-* .dtu

Set of 3 files – Full Flight Only

- 53b93856-01of03-fast-q400_foqa-* .dtu
- 53B93856-02of03-FAST-SYS-* .dtu
- 53b93856-03of03-fast-q400_cds-* .dtu

Set of 2 files – EMU data Only:

- 53C26DC8-01of02-FAST-SYS-* .dtu
- 53c26dc8-02of02-fast-q400_emu-* .dtu

Any incomplete Q400 zip file can only be converted in Full Flight Data Mode for troubleshooting analysis.

5.1.4 AW139 convert log function

For the AW139 application, the program converts only zip files that regroups the complete set of data files per sequence as listed in the example below:

Set of 5 files – Full Flight with APAC:

- 53C26DC8-01of05-FAST-SYS-*.dtu
- 53c26dc8-02of05-fast-aw139_foqa-*.dtu
- 53c26dc8-03of05-fast-aw139_eec_1-*.dtu
- 53c26dc8-04of05-fast-aw139_eec_2-*.dtu
- 53c26dc8-05of05-fast-etm_aw139-*.dtu

Set of 2 files – Full Flight:

- 53C26DC8-01of02-FAST-SYS-*.dtu
- 53c26dc8-02of02-fast-aw139_foqa-*.dtu

Any incomplete AW139 zip file can only be converted in Full Flight Data Mode for troubleshooting analysis.

5.1.5 680A convert log function

For the 680A application, the program converts only zip files that regroups the complete set of data files per sequence as listed in the example below:

Set of 5 files – Full Flight and EDU data:

- 53C26DC8-01of05-FAST-SYS-*.dtu
- 53c26dc8-02of05-fast-680a_eec_1-*.dtu
- 53c26dc8-03of05-fast-680a_eec_2-*.dtu
- 53c26dc8-04of05-fast-680a_edu_1*.dtu
- 53c26dc8-05of05-fast-680a_edu_2*.dtu

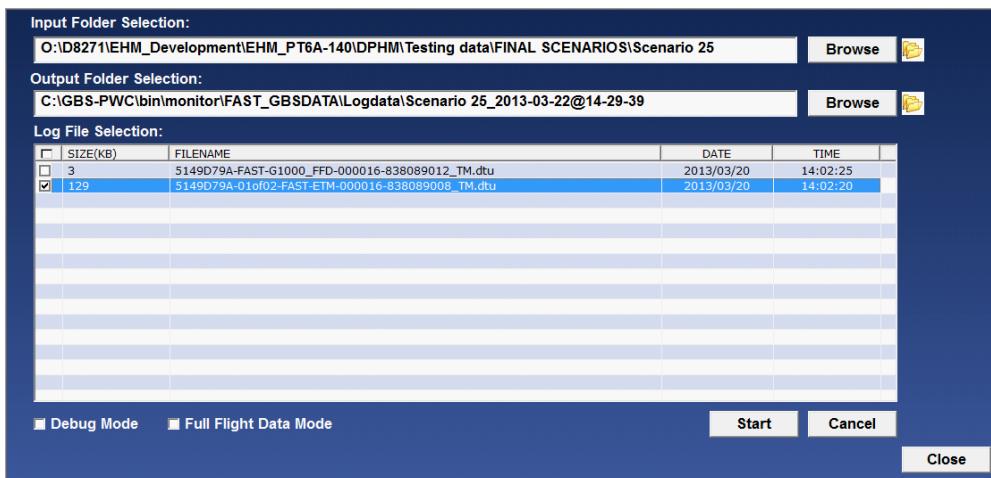
Any incomplete 680a zip file can only be converted in Full Flight Data Mode for troubleshooting analysis.

5.1.6 Caravan convert log function

For the Cessna Caravan application, the program can convert:

- An ETM file which contains engine exceedance, event, trend and creep information.
- A Full Flight data file (*G1000_FFD*) which contains full flight data of engine parameters.

The ETM file must be converted into GBS standard file for analysis in GBSLite, as listed in the example below:



The Full Flight data files (*.G1000_FFD*) can be converted in Full Flight Data Mode to analyze full flight data in GBSLite.

5.1.7 EPEC Convert Log function

For the EPECS application, the program converts DTU* files in Full Flight Data Mode for analysis.

Note* :This function is in development

5.2 View Data in GBSLite Function

Accessing:



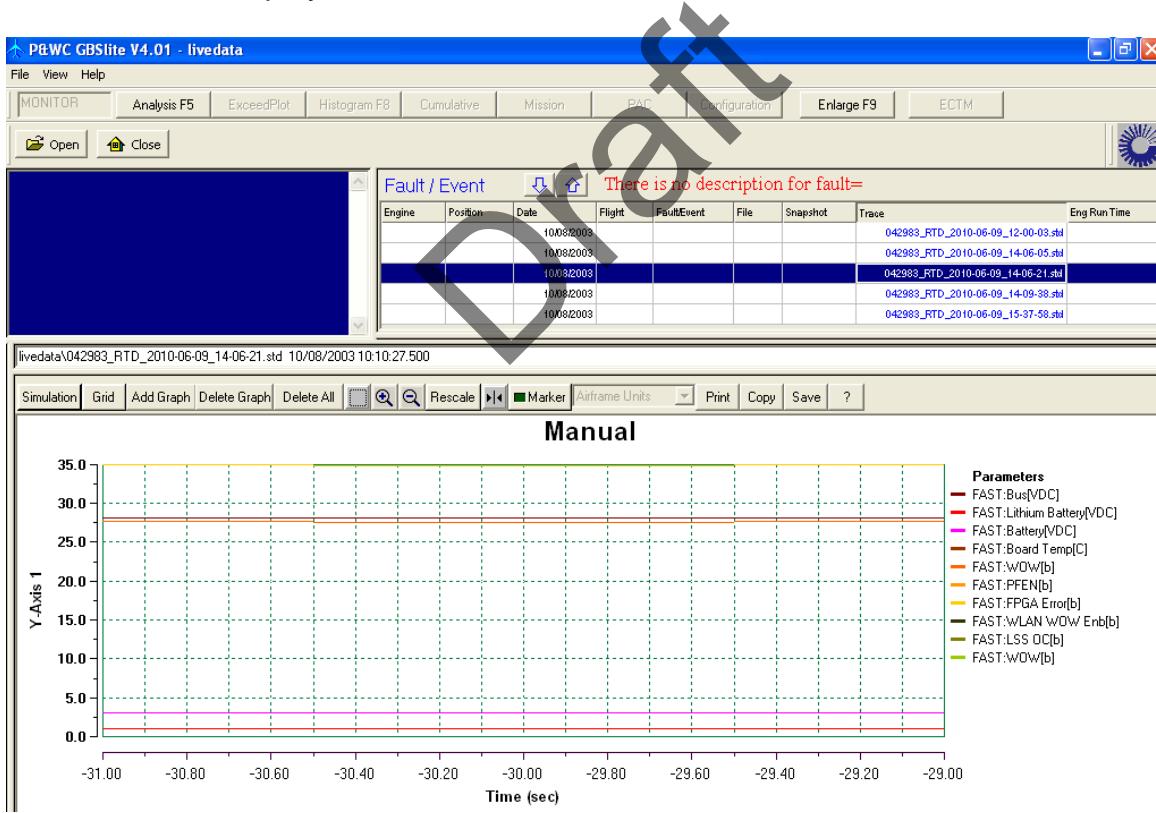
Opens [Live Data](#)³³ recordings and [Converted Log Data](#)⁵³ for analysis in GBSLite by selecting the desired folder.

Please refer to GBSLite Help Manual for additional information



The user must select the folder where the data has been converted. This can be under Liverdata, Logdata or any other location.

The data will be displayed in GBSLite



Part



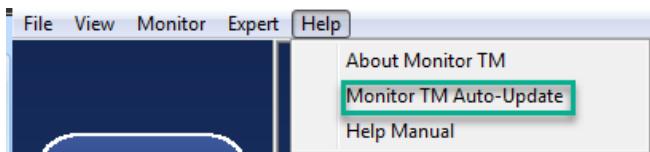
Draft VI

Monitor TM Auto-Update

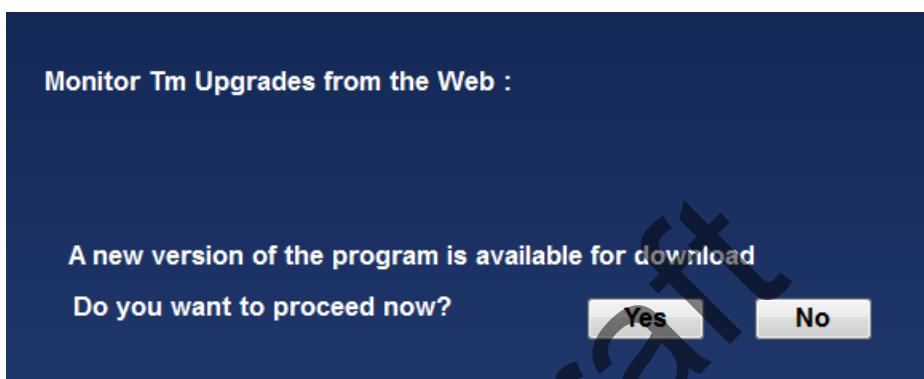
6 Monitor TM Auto-Update

6.1 Monitor TM Auto-Update

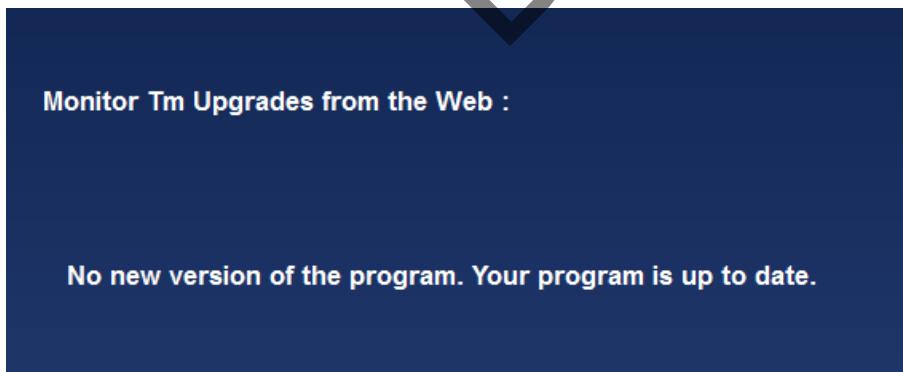
Accessing:



If an update exists, the program will indicate that an update is available and will need to follow the instructions



If no update exists, the program will indicate that your program is up to date.



Part



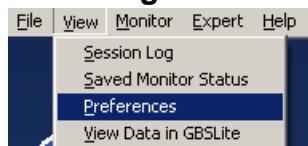
Draft VII

Additional Information

7 Additional Information

7.1 Changing MonitorTm preferences

Accessing:



The Preferences function is available to customize the retrieve log files settings

Tag Data Transmitted:

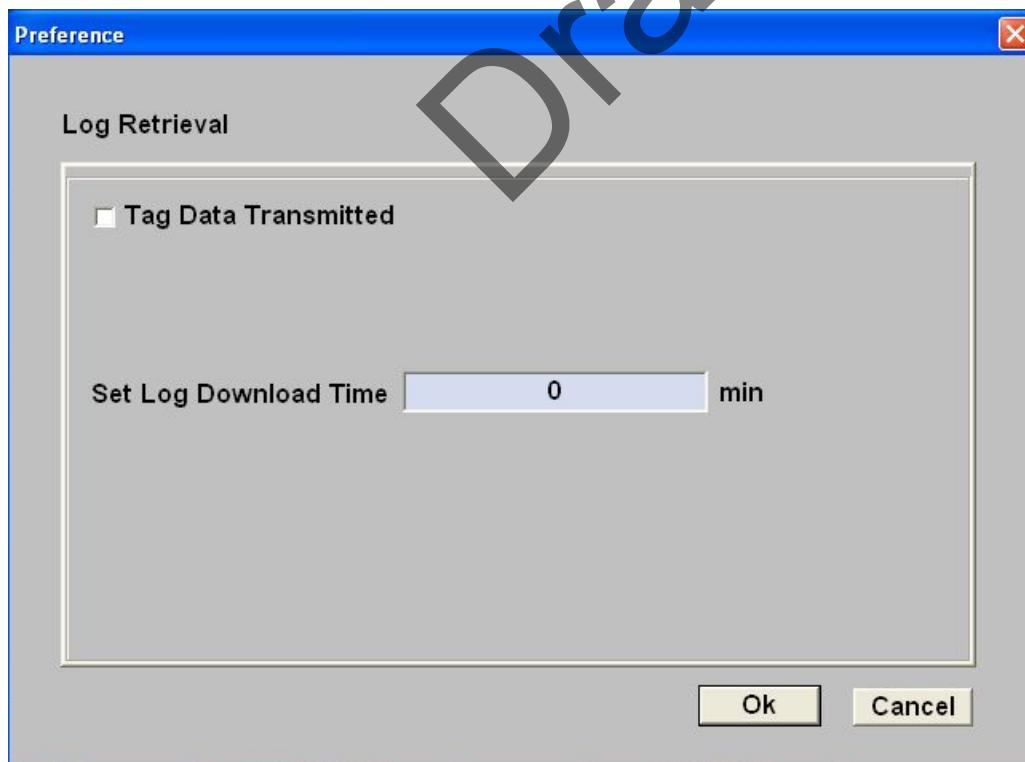
When checked, the files retrieved by the program will be tagged as transmitted

- It is the **user's responsibility** to send the data to the Web via the [Sync to Webserver Function](#)^[50].

When unchecked, the files retrieved will be transmitted to the Web via GSM at next available transmission.

Log Download Time:

In the [Retrieve Log Files Function](#)^[20], when the download time to retrieve log files is below this value, the program will retrieve all log files without requiring user selection



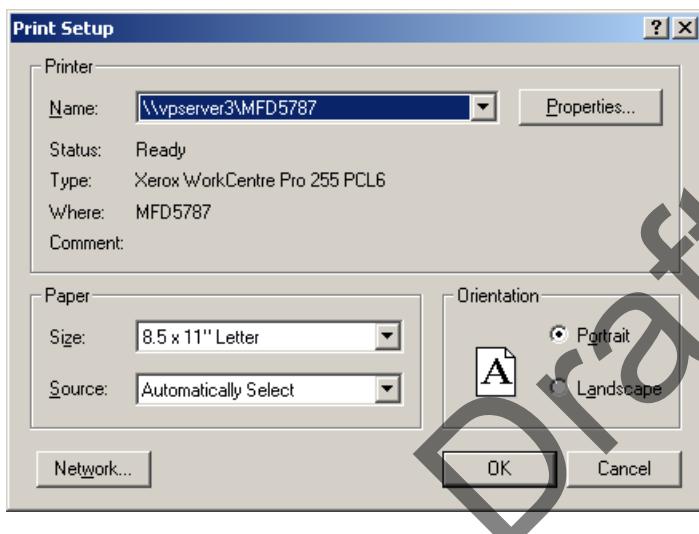
7.2 Printing

Accessing:



Print and Print Preview can be used whenever a function is being performed

Print Setup allows the user to change the printing options such as orientation and paper size



7.3 Troubleshooting

7.3.1 View Session Log Function

Accessing:



All actions performed while using MonitorTM are recorded automatically in a session log file for troubleshooting purposes.

Session logs can be displayed by filtering the 4 different categories available and can be printed under File Menu/Print.

<input checked="" type="checkbox"/> User Actions <input type="checkbox"/> Monitor Actions <input type="checkbox"/> WebServer Actions <input checked="" type="checkbox"/> Error			
TYPE	DATE	TIME	MESSAGE
User Action	2010/06/09	15:33:13	Clicked : LogDataRetrieval->Close
User Action	2010/06/09	15:33:09	1 Log Files Downloaded
User Action	2010/06/09	15:33:08	Downloaded : FAST-SYS-042983-316315114.dtu.bz2.bfe
Error	2010/06/09	15:33:08	Unable to retrieve log file :
User Action	2010/06/09	15:33:05	msfx.get_file=[CP_FILES]FAST-SYS-042983-316315114.dtu.bz2.bfe
User Action	2010/06/09	15:32:58	msfx.get_file=[CP_FILES]FAST-SYS-042983-316315114.dtu.bz2.bfe
User Action	2010/06/09	15:32:57	Downloading... Please Wait.....
User Action	2010/06/09	15:32:57	Clicked : LogDataRetrieval->Start

Close

7.3.2 View Saved Monitor Status Function

Accessing:



View previously saved [Monitor Status function](#) sessions

Please refer to the [Monitor Status Function](#) section for a description of the possible status messages and recommended actions

NAME	VALUE
SERIAL NUMBER	000001
TIME	01/08/2004 14:30:33.010
SOURCE OF TIME	LOCAL
CP SOFTWARE VERSION	2.0.12.TXTST DEMO 08102010
CP_CRC	0x93E317C9
INSTALL ID	
CONFIGURATION VERSION	1
NUMBER OF BOX POWER ON	227
NUMBER OF BOX POWER ON IN SECONDS	395657
AIRCRAFT TAIL NUMBER	N353UA
AIRCRAFT OPERATOR	United Technologies Lab
AIRCRAFT OWNER	United Technologies
#OF LOGS IN MEMORY	7
% OF LOG MEMORY USED	0.000131
BOX SYSTEM CONDITION	FAULT
COMMUNICATION BETWEEN MS AND CP	YES

7.3.3 Communication Troubleshooting

Please follow the steps listed below to troubleshoot problems you may have while communicating with the Monitor

- Cycle Monitor Aircraft Power / Monitor power

Ensure lights are seen on the monitor

Perform Communication Settings Function ([Auto-Detection^{\[34\]}](#))

Message: FAST Successfully Connected

- Retry the original function. If problem persists, contact cfirst@pwc.ca

Message: Connection not successful on any available ports

- Problem Not Yet Solved. Proceed to next Step

- Ensure cable is inserted properly to the monitor J3 connector and to the PC

Perform Communication Settings Function ([Auto-Detection^{\[34\]}](#))

Message: FAST Successfully Connected

- Retry the original function. If problem persists, contact cfirst@pwc.ca

Message: Connection not successful on any available ports

- Problem Not Yet Solved. Proceed to next Step

- Disconnect Cable from the PC

Perform Communication Settings Function ([Manual Detection^{\[35\]}](#))

Message: FAST Successfully Connected

- Retry the original function. If problem persists, contact cfirst@pwc.ca

Message: Connection not successful on any available ports

- Problem Not Yet Solved. Contact cfirst@pwc.ca

If problem persists, contact Customer service at Pratt & Whitney Canada
cfirst@pwc.ca

7.3.4 GBSlite Analysis Troubleshooting

Please follow the solution listed below to troubleshoot problems you may have while performing GBSlite analysis

Error Message	Description	Solution
There is no fault file in this directory Please select a	There is no viewable data in the selected folder	Make sure you are opening the correct folder. Refer to View Data in GBSLite Function^[57]

different directory Directory is empty. Please select a different directory		
System error. Missing GBSlite configuration files. Program will terminate	GBSlite is installed without MonitorTm.	Install MonitorTm. Refer to Program Installation ^[11]
A GBSlite program is already running	Tried to start GBSlite program while already running.	Click GBSlite program button on the Windows taskbar

7.3.5 Sync to Webserver Troubleshooting

If you see the error message below, your system may not be able to communicate with the MonitorTM servers.



Confirm that you can access the internet.

You may need to add the site "dphmsftp.pwc.ca" (without quotes) to your firewall's safe list.

In addition the proxy parameters can be edited to include the following:

Address: dphmsftp.pwc.ca

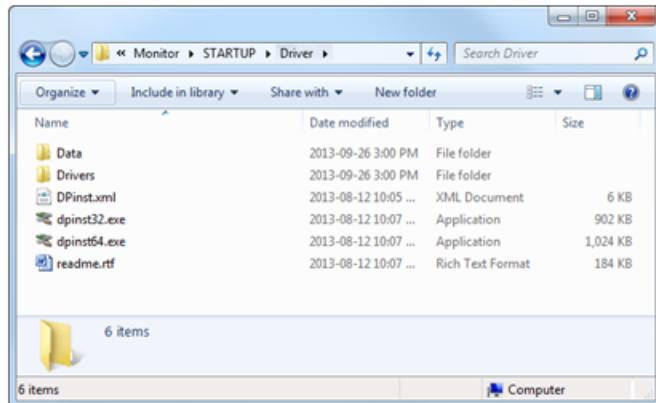
Port: 22

Contact your IT department for additional help.

7.4 FAST USB GSE Cable Driver Installation

Driver installation can be done before or after inserting the USB cable into your PC's USB port.

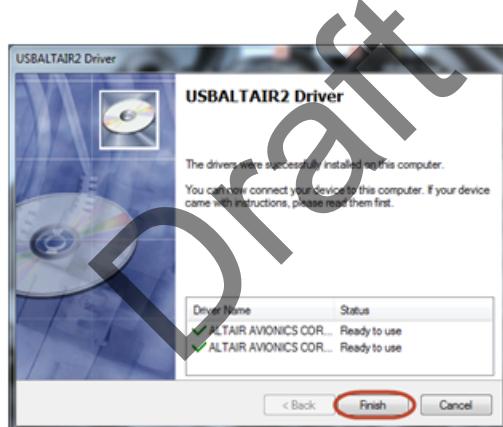
1. Prior to hardware installation admin rights on the PC will be required.
2. With MonitorTM installed, open Windows explorer to "Driveletter:\GBS-PWC\bin\Monitor\STARTUP\Driver".



3. Depending on your operating system, double-click dpinst32.exe for 32-bit version of Windows or dpinst64.exe for 64-bit version of Windows.

Note: If you are using 32-bit operating system, dpinst64.exe cannot be opened.

4. Follow the onscreen instructions. Select the “Finish” button to complete the driver installation.



7.5 MFAST USB GSE Cable Driver Installation

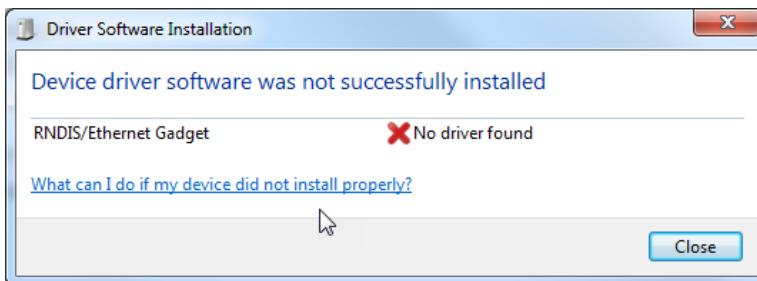
Driver installation is done after inserting the USB cable into your PC's USB port.

1. Prior to hardware installation admin rights on the PC will be required.
2. Power the MFAST and wait 1 Minute

Note: The MFAST USB interface presents a network interface to the host PC

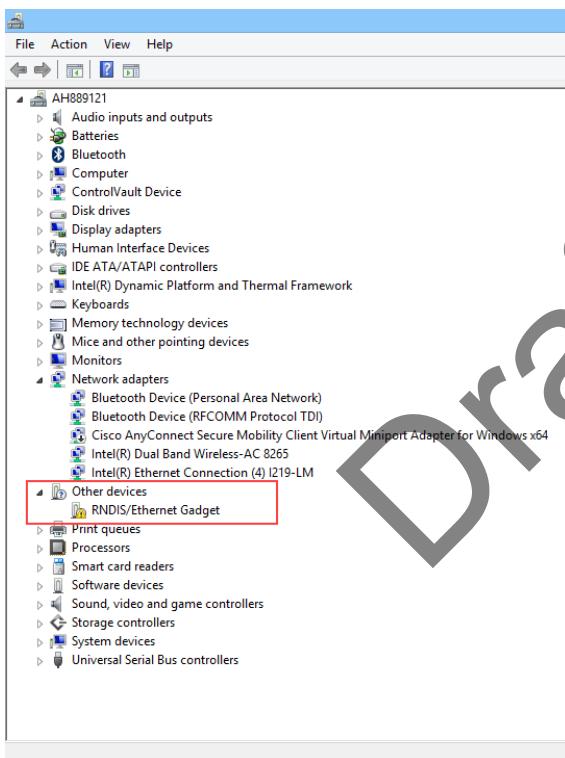
3. Depending on your operating system, please follow the below instructions

For Windows 7 , the OS will automatically search for the RNDIS driver and will display the following message:

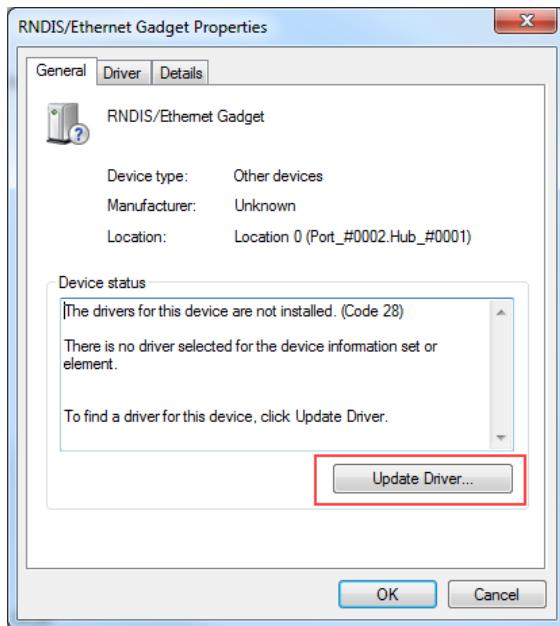


For Windows 8 and above :

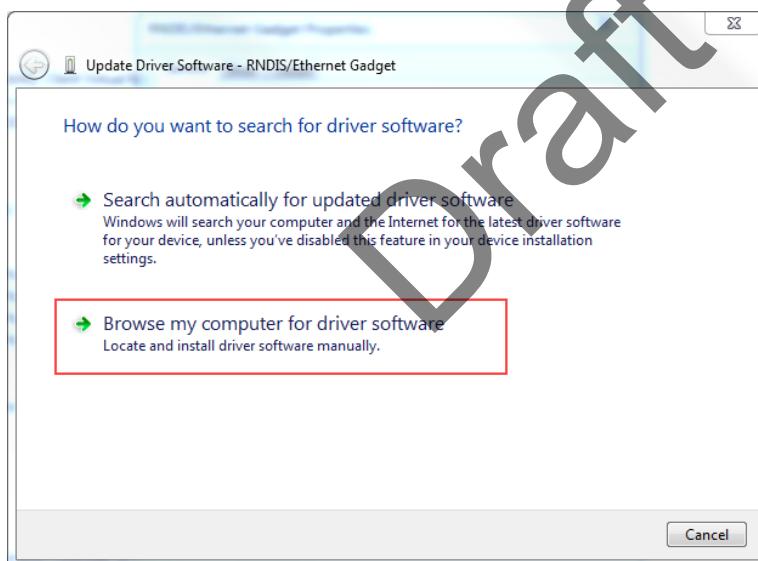
- Go to Device Manager
- Find the RNDIS/Ethernet Gadget under "Other Devices"



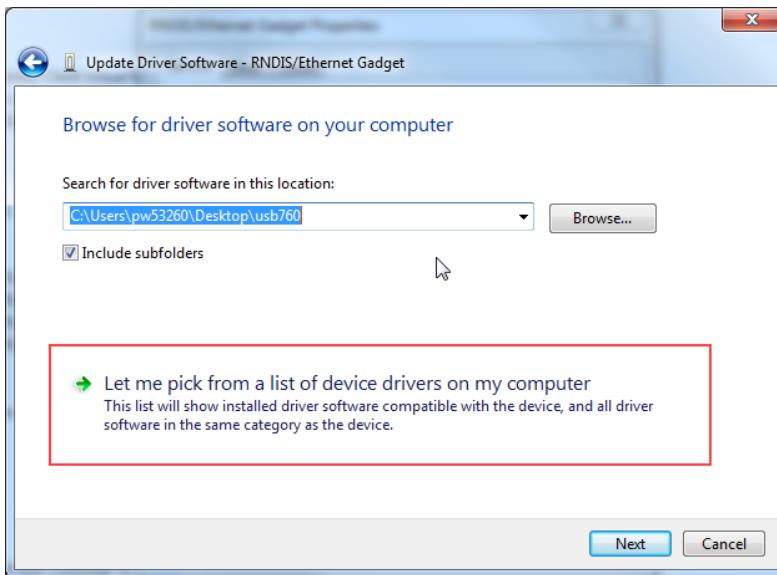
- Once here Right click on the RNDIS/ETHERNET Gadget and select **Update Driver**



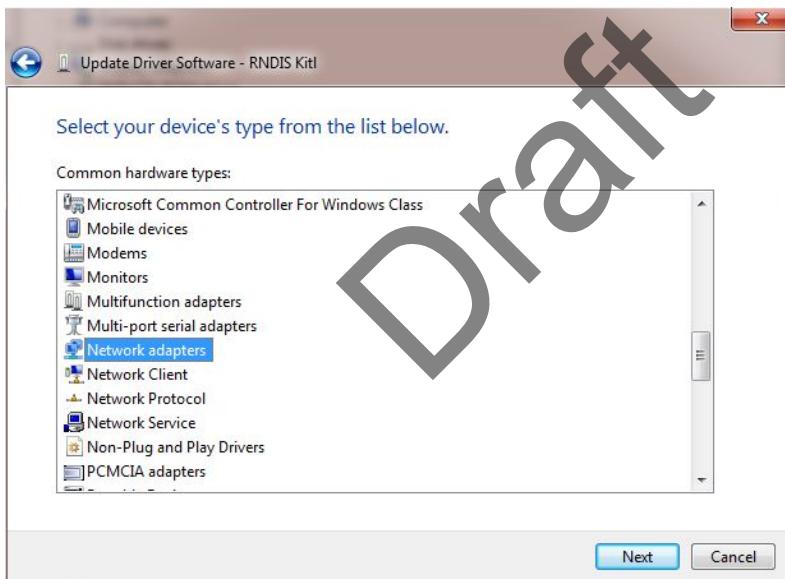
- Choose "**Browse my computer for driver software**"



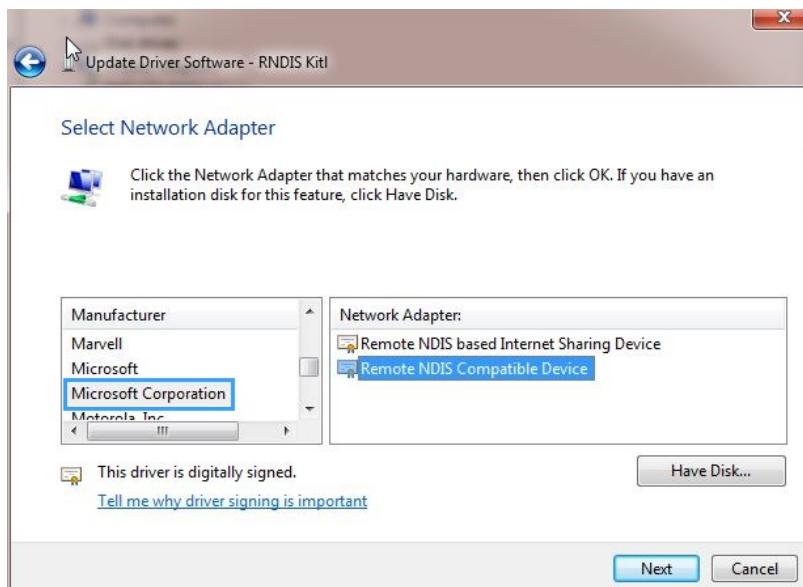
- Select "**Let me pick from a list of device drivers on my computer**" and click **next**.



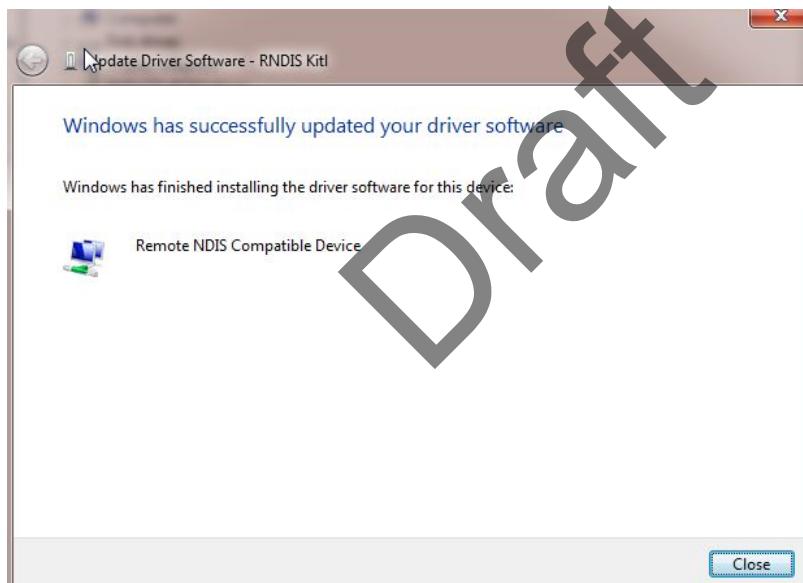
- Once prompt select "**Network Adapters**"



- In the Select Network Adapter window, select Microsoft Corporation



- Select Remote NDIS compatible Device and click next



4. Driver is now installed and ready to be use .

