Forward T Software

FDImageUpdater



Program for Organizing Dynamic Data Update in Titles

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User's Guide

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Table of Contents

Introduction6
General Information7
General Information on Program71. Purpose, Scope of Application72. Sources of Data83. Scheme of Program Use83.1. Output of Data From One Source83.2. Successive Output of Data Received From9Different Sources93.3. Simultaneous Output of Data Received From9Different Sources93.4. Use of Title Object With TSF_IU Script (ImageUpdater)9
Used Terms and Symbols111. Procedure of Image Updating112. Project113. Resulting Graphic File124. Task125. Types of Tasks136. Duration of Task Execution137. Region File (Template)148. Requirements to Regions Used in FDImageUpdater149. Used Signs15Image in Resulting Graphic File161. Content of Image162. Text With Data162.1. Structure162.2. Design173. Size of Image184. Updating of Resulting Image19
Program Interface
Launching and Finishing of Program Work.221. Ways of Program Launch.222. Format of Command Line.223. Finishing of Program Work.23Program Interface.241. Main Window24

2. Commands of the Main Menu	
3. Table for Displaying of Tasks List	
4. Buttons for Working with Tasks List 5. Buttons to Control Project Execution	
·	
Preview Window	27
Task Settings Wizard	
Modes of User Interface	29
Modes of Program	30
Working with Program	31
General Workflow of Working With the Program	31
Customizing of Program Settings	32
Creation of a New Project	33
Opening of Recently Created Project	36
Editing of Project Settings	37
1. Editing of Target Graphic File Settings	
2. Editing of Task Settings	37
Control Over Image Updating	39
Creation of Tasks of Different Types	41
1. Pause	
1.1. Purpose	
1.2. Features 1.3. Creation of Task	
2. Text	
2.1. Purpose	
2.2. Data Source	
2.3. Features	43
2.4. Creation of Task	44
3. Time	
3.1. Purpose	
3.2. Source of Data	
3.3. Features 3.4. Creation of Task	
4. Web	
4. Web	
4.2. Source of Data	
4.3. Creation of Task	
5. SensorEx	
5.1. Purpose	57
5.2. Source of Data	57
5.3. Features	
5.4. Text File for Substitution	58



5.5. Creation of Task	
Sensors and Weather Stations	
General Information	
 Working With Sensors and Weather Stations	
4. Oregon Scientific Weather Station	
Stationusing Weather OS	
6. Tundra Sensor	
Data Received from Weather Station	
Data Received from Weather Station	
Recording of Data on Weather Into a Text Fie	
106 1. General Information	
3. Recording of Data on Temperature, Pressure, Humidity107	

Introduction

The FDImageUpdater program is designed to form a content of graphic file automatically basing on data received from different sources.

The program deals with the following data sources:

- specially prepared text files;
- temperature sensors and weather stations;
- website pages;
- PC system time.

Data from source is transmitted into graphic file in a text form. Design of image and text is specified by user.

The program can appeal to different data sources in specified time periods and output these data into one file.

Use of the FDImageUpdater program with other programs from the Forward T Software set provides:

- organazing of output on air information that is changed timely, for example, air temperature;
- organizing of output on air information from different sources in turn and locate it in one place on the screen, for example, current time and air temperature.

General Information

General Information on Program

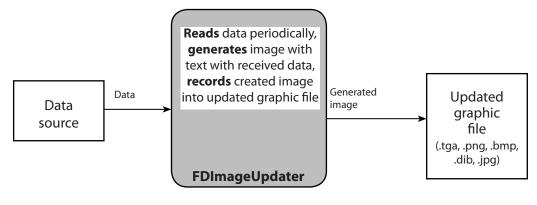
1. Purpose, Scope of Application

The FDImageUrdater program is used with other programs from the Forward T Software set to output on air dynamcally changed information received from data sources.

For example, using the program you may organize output of information on time and temperature in titles (1).



The main purpose of the program is to generate and output periodically image into graphic file. The image includes a text with information received from some data source.



2. Sources of Data

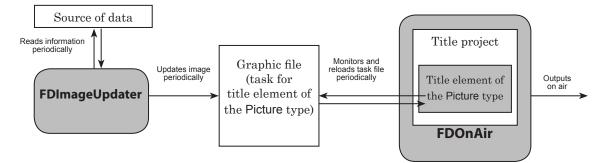
The FDImageUpdater program deals with the following sources of data:

- text file;
- website;
- source of time:
 - PC system time;
 - SLTimeServer;
- temperature sensors:
 - IRT 5920;
 - Tundra 73;
 - Stream Labs USB_MS_RS485
 - RMM-4095;
- weather stations:
 - HeavyWeather (models: WS2308, WS2310, WS2315; WS3610);
 - Oregon Scientific (models: WMR100, WMR200);
 - Davis Instruments (Vantage Pro2).

3. Scheme of Program Use

3.1. Output of Data From One Source

Picture below presents a general scheme of output on air information received by FDImageUpdater program from one source of data.



Complete the following to organize working of the above described scheme:

- 1. Customize creation and output of image with information received from necessary data source into a concrete graphic file in the FDImageUpdater program.
- 2. Create and save title project in the FDTitleDesigner program. The project must contain title element of the Picture type. Specify graphic file as a task for the title element. The FDImageUpdater program must be customized so that to update indicated graphic file.
- 3. Load created title project into FDOnAir.
- 4. Start a process of image updating in the FDImageUpdater program.
- 6. Start data playback in the FDOnAir program. The FDImageUpdater must work in mode of image updating during output of title project on air.

3.2. Successive Output of Data Received From Different Sources

One FDImageUpdater program instance can output data only from one source at once. Though, one project created for image updating may include tasks for a successive appeal of the program to different data sources.

For example, it is possible to get and output data received from PC system time during 30 seconds, then during the next 30 seconds to get and output data from weather station. In this case using one title element time and data on weather are successively displayed in the same place on the screen.

3.3. Simultaneous Output of Data Received From Different Sources

If you need to output data received from different sources simultaneously then you must work with a corresponding quantity of FDImageUpdater program instances.

For example, if it is needed to output data on both time and temperature simultaneously then 2 title elements of the Picture type must be present to output the data. Image for each of the elements must be generated by a separate FDImageUpdater program instance.

3.4. Use of Title Object With TSF_IU Script (ImageUpdater)

In cases when it is necessary to output data received from different sources simultaneously we recommend working with title objects with the TSF_IU script.

Title object with script is a title object where script assigned to this object controls its elements.

Note: Description of libraries of title objects with script see in the «Scripted title objects with open source code» and the «Scripted title objects without source code» user's guides.

Work of script applied to TSF_IU script object is similar to work of the FDImageUpdater program.

Use of TSF_IU script object at output of data on air does not require launching of the FDImageUpdater program.

One title project may contain several title objects with the TSF_IU script.

More information on use of title object with the TSF_IU script you can find in the «Scripted title object with open source code» user's guide.

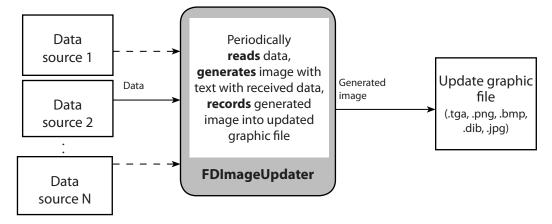
Used Terms and Symbols

1. Procedure of Image Updating

Procedure of image updating denotes a periodic implementation of the following steps (see picture below) by the FDImageUpdater program:

- 1. Reading of information from data source.
- 2. Generating of image that contains a text with received data.
- 3. Output of generated image into a graphic file.

When all described above items are implemented data sources can be changed at specified time periods.



2. Project

Project is a set of settings for working of program that are necessary for updating of image into a concrete graphic file.

The project includes:

- settings of a target graphic file (name and image size);
- tasks. Each task has settings of parameters for working with one data source. Quantity of tasks is not limited.

You can create and edit the project in the FDImageUpdater program. The project is saved into a text file with s4i extension.

Only one project can be opened and used in one launched FDImageUpdater program instance simultaneously.

3. Resulting Graphic File

Resulting graphic file is a file into which one the FDImageUpdater program periodically outputs generated image after its updating.

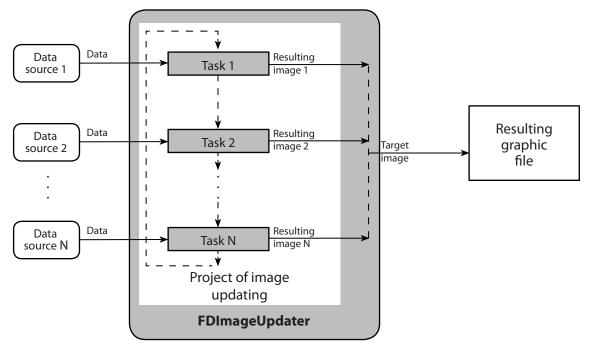
Files of the following formats can be used as a result graphic file: TGA; PNG; BMP; DIB; JPG.

4. Task

Task is a set of program settings used for generating of image with information received from a concrete source.

You must create several tasks to organaze a successive output of information into a graphic file from different sources.

When image is being updated the program successively, in a cycle executes project tasks.



5. Types of Tasks

There are different types of tasks to deal with different types of data sources.

The table below presents all existing types of tasks and corresponding data sources.

Type of task	Data source
Pause	_
Text	Text file (*.txt)
Time	Source of time
Web	Website page
SensorEx	Temperature sensor, weather station

6. Duration of Task Execution

Duration is one of the parameters that must be specified during configuration of project task (for all types of task).

Duration is a time period when program functions with specified data source in the task. During this period of time the program outputs into updated graphic file images generated according to the settings of the task that is being executed.

Example:	 For organazing of a successive output of the following information in titles: current time, during 10 sec; outside temperature (data is received from temperature sensor compatible with program), during
	 15 sec; «output nothing» during 30 sec
	it is necessary to create a project in the FDImageUpdater program including 3 tasks:
	• Task 1 for generating of image with time information. Type of task is Time; Duration is 10 sec;
	• Task 2 for generating of image with information on outside temperature. Type of task is SensorEx; Duration is 15 sec;
	• Task 3 to «output nothing». Type of task is Pause; Duration is 30 sec.



7. Region File (Template)

Region file is a graphic file with rgn extension.

The file is created by user in the Forward Titling program included in the Forward T Software set. Description on dealing with Forward Titling program you can find in «FDTitle program (Forward Titling). Creation of Titles» user's guide.

Region is an image that is in region file.

Region is a full-color and multilayer image with alpha channel.

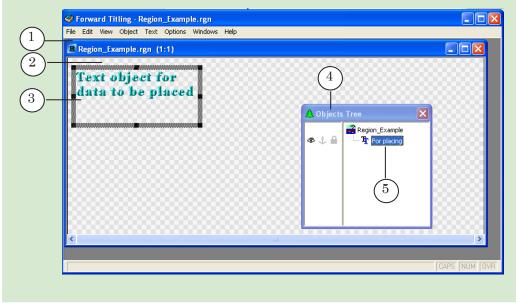
In FDImageUpdater program regions are used as templates for generating images.

8. Requirements to Regions Used in FDImageUpdater

Region that is used as a template in FDImageUpdater must necessarily include at least one text object (Text box). At updating of image text with output data is placed into this text object.

Example: Picture below presents Forward Titling program window. The Region_Example.rgn region (1) is located in working space of the window. The region is designed with a transparent filling (2) with a text object (3) over it.

The Object Tree window (4) displays name of text object specified by user – For placing (5).



Name of a text object is used in FDImageUpdater program to indicate an object where output data must be placed.

Text in region of text object during generating of an image is fully replaced by text with output data.

Example: Picture below presents an image with title overlay that displays information on weather.



For generating of this image in FDImageUpdater a region with a transparent filling is used. There is one text object located over transparent filling.

Picture below shows ForwardTitling program window with opened region used in this example.



Text «00» located in text object of region at generating of image in FDImageUpdater program is replaced by text with information on temperature.

9. Used Signs

Click denotes clicking left mouse button.

Right-click denotes clicking right mouse button.

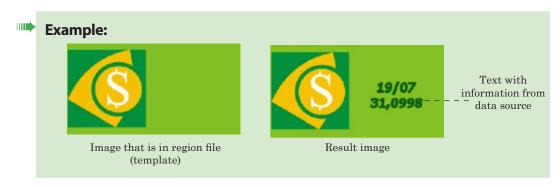
Image in Resulting Graphic File

1. Content of Image

Image in resulting graphic file is an image that is generated by FDImageUpdater program and is output into updated graphic file at execution of a procedure of image updating.

Design of resulting image is specified by content of a region file that is used as a template of generated image.

Besides image that is in region file resulting image also has text with information received from data source.



2. Text With Data

2.1. Structure

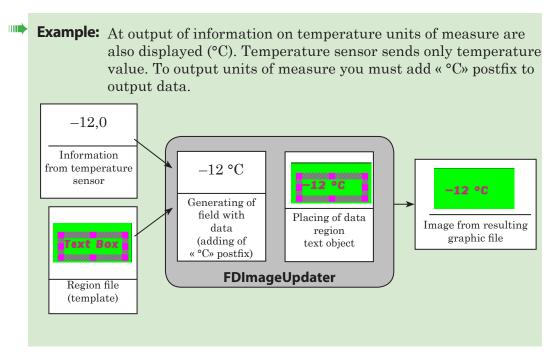
Generally text with data that is output in resulting image has the following structure:

<Prefix><Text with information received from data source><Postfix>,

where

- Prefix is a text that is automatically added before text with data at generating of a resulting image;
- Postfix is a text that is automatically added after text with data at generating of a resulting image.

Prefix and postfix are specified by user at customizing of image updating procedure. Their presence is not obligatory.



2.2. Design

In resulting image text with output data is rendered according to style specified in text object of a region used for data placing (font, effects list, etc.).

2.3. Format of Data Displaying

The program provides with a possibility of customizing a format of displaying of data received from the following sources:

• temperature sensors and weather stations – it is possible to select format of displaying of numerical values.

For example, +26,7 temperature can be output in resulting image in one of the following ways:

- «26»;
- «26,7»;
- «+26»;
- «+26,7».
- time source:
 - 12- or 24-hour format (for example, «05:10» or «17:10»;
 - at output of time in 12-hour format:
 - add «AM/PM» after time value (for example, «05:10 PM» or «05:10»);
 - output time value that is less than 10 with a leading zero or without it (for example, «5:10» or «05:10»);
 - select separator that is put between hours and minutes values («:», «-», «;», «/», «,»).

3. Size of Image

Width and height of resulting image are specified by user at customizing of a project.

Minimal size of output image is 10×10 , maximal size is 2048×2048 pixels.

It is also possible to work with regions which sizes do not correspond to size of a resulting image specified in project settings:

- if region size is smaller then resulting image is an image created basing on a region with added transparent fields along the edges proportionally (see Example below);
- if region size is larger then result image is an image created basing on a region with proprotionally cut edges (see Example below).

Example: Let us consider resulting images of different sizes created via FDImageUpdater program basing on one the same region (template).

Picture below presents image of used region. Size of the region is 256 x 138 pixels.



Table below presents resulting images of different size created basing on created region.

№	Region size	Size of resulting image specified by user, in pixels	Resulting image
1	256 x 138	256 x 138 (size of target image corresponds to template size)	19/07 31.0998
2	256 x 138	288 x 200 (size of resulting image is larger than template size) Transparent background is marked by grey-and-white squares on the picture.	19/07 31,0998
3	256 x 138	192 x 100 (size of resulting image is smaller than template size)	19/07 31,0998

4. Updating of Resulting Image

During a procedure of updating image in a resulting graphic file is updated periodically.

Starting to execute the next task of project the FDImageUpdater program generates image according to the settings of this task and records the image into a resulting file.

During time when task is being executed the program reads periodically data received from specified source in task and outputs into file again generated image with the last read data. Periodicity when program appeals to sources of different types is different.

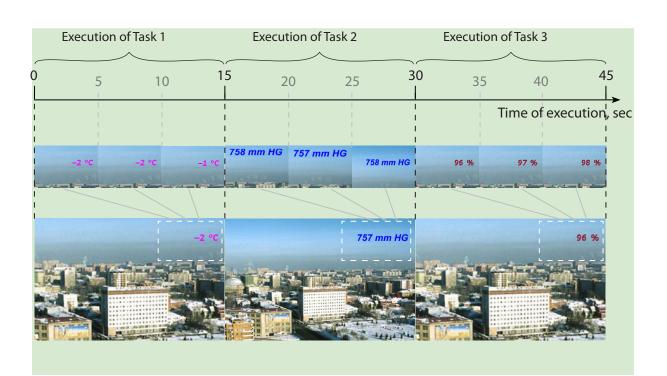
Image with the last data read from specified source is stored in resulting graphic file either till the next data reading or till start of execution of the next task of the project (depending on what happens firstly). **Example:** Let us consider an example of a project with 3 tasks to demonstrate a process of image updating. During execution of tasks images with the following information are output into update project file: temperature (Task 1); air pressure (Task 2); humidity (Task 3).

Let us consider the first cycle of tasks executing.

Table below presents a brief description of tasks. For moments of time that correspond to moments when data is updated received information and image generated basing on this information are shown.

Breif description of	Time		Information	Image in updated file	
task	from start of task execution	from start of execution of update procedure	from data source	(grey-and-black squares denote transparent background of image)	
Name: Task 1 Duration: 15 sec	0	0	-2	-2 °C	
Update every: 5 sec Postfix: °C	5 sec	5	-2	-2 °C	
	10 sec	10	-1	-1 °C	
Name: Task 2 Duration: 15 sec	0	15	757	757 mm HG	
Update every: 5 sec Postfix: mm HG	5 sec	20	757	757 mm HG	
	10 sec	25	758	759 mm HG	
Name: Task 3 Duration: 15 sec	0	30	96	96 %	
Update every: 5 sec Postfix: %	5 sec	35	97	97 %	
	10 sec	40	98	98.%	

Picture presents screenshots made in different time.



Program Interface

Launching and Finishing of Program Work

1. Ways of Program Launch

The program can be launched at opening of the ~\ImageUpdater\FDImageUpdater.exe file, where ~ denotes a full path to the folder where ForwardT Software set is installed.

To launch the program you can use:

- program shortcut located on desktop;
- the Start menu command:
 - Programs > ForwardT Software > Titles > Image Updater;
- command line.

When the program is launched its main window opens and the icon \diamondsuit appears in taskbar notification area.



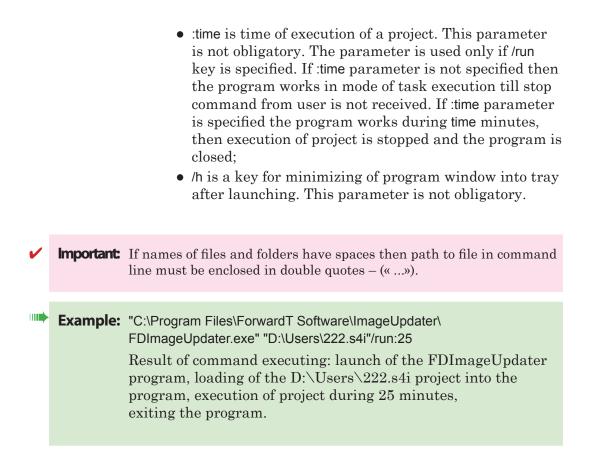
2. Format of Command Line

You can also launch the program from command line that has the following format:

"ProgramFile" ["ProjectFile"][/run[:time]][/h]

where:

- **ProgramFile** is a full path to the FDImageUpdater.exe file;
- ProjectFile is a full path to file of project. This parameter is not obligatory. If path to file is not specified then the last opened during the previous program session project is loaded into the program;
- /run is a key for automatic switching of the program into mode of execution after launching. This parameter is not obligatory. If the key is absent the program is launched in configuration mode;



3. Finishing of Program Work

You can finish working with the program via:

- the Exit button located in the main program window;
- the Exit button of the context menu of program icon.

Important: It is impossible to close the program via the ≥ button located in title bar of the main program window.

Program Interface

1. Main Window

At launching of the program its main window appears. Title bar of the main window displays name of the program and name of file of current project.

Target image file: C:\Pr	ogram Files\Forward	IT Software Samples\Cyan'	weather\40_160	_bottom.tga
Type Name	Duration	Region file		 Add
temp	00:01:30	40_160_bottom.rgn		
=•••				Edit
				Сору
				Delete
				Move up
				Move down
Description of selected ta:	ik:			
		vare Samples\Cyan\weathe ware Samples\Cyan\weath		
∟ □ Show preview window	Pr	repare Start	Stop	Exit

The main program window has the following elements:

- main menu (1) with commands to control projects files, opening of settings windows, etc.;
- line with displayed full name of resulting graphic file of current project (2);
- table for displaying of a list with tasks for current project (3);
- information area for displaying of data on settings of selected task (4);
- buttons for editing of a tasks list (5);
- check box to control preview window (6);
- buttons to control execution of procedure of image updating (7);
- the Exit button (8) to exit the program.

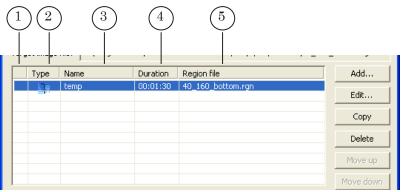
2. Commands of the Main Menu

The main program window menu consists of 2 submenus:

- File submenu with commands to control projects files;
- Settings submenu with commands to customize parameters.

Name	Purpose
File submenu	
New project	create a new project
Open project	open earlier created project from file
Save project	save project into file
Save project as	save project into file with another name
Settings submenu	
Project settings	open the Project settings window
Program settings	open the Program settings window

3. Table for Displaying of Tasks List



The following information on project tasks is displayed in table column headers:

- (1) is a mark that displays current state of task (is displayed only in a ready mode and in mode of execution);
- Type (2) is a pictogram that indicates type of a task;
- Name (3) is a name of file;
- Duration (4) is a duration of task execution;
- Region file (5) is a name of region file used in task.

4. Buttons for Working with Tasks List

File Settings Target image file: C:\Program Files\ForwardT Software Samples\Cyan\weather\40_160_bottom.tga						
Туре	Name	Duration	Region file	Add		
	temp	00:01:30	40_160_bottom.rgn	Edit		
				Сору		
				Delete		
				Move up		
				Move down		

The following buttons are used for working with tasks list:

- Add... button is used to create a new task. The task is added to the end of a list;
- Edit... button is used to edit parameters of selected task;
- Copy button is used to copy task. The copy of a task is added into a list after task that is being copied;
- Delete button is used to delete selected task;
- Move up button is used to move selected task one row up;
- Move down dutton is used to move selected task one row down.

5. Buttons to Control Project Execution



Control over a procedure of image updating is implemented via buttons located in the main program window:

- Prepare button is used to start automatic preparation of the program to execute tasks of project to switch into mode of preparation;
- Start button is used to start a procedure of image updating;
- Stop button is used to stop preparation or a procedure of image updating.

Preview Window

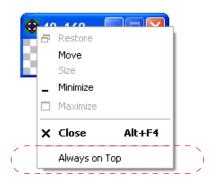
Preview window is an additional window of the FDImageUpdater program used for displaying of image that is output into a graphic file. The image is displayed in the window only when a procedure of image updating is being implemented.

Preview window is opened at putting of the Show preview window check mark in the main program window. Name of a graphic resulting file is displayed in title bar (1) of the main program window.



Size of a preview window adjusts automatically to size of a resulting image.

Select Always on Top in drop-down window menu for the window to be always placed over other windows.



The menu is opened by right-clicking title bar of a preview window.

Task Settings Wizard

 $Creation \ and \ editing \ of \ project \ tasks \ are \ implemented \ via \ Task settings wizard.$

Picture below presents Task settings wizard window, step 1 of 2.

	Task settings wizard -	Step 1 of 2		
	Select task nam		Type: Pause	
	General	Name: Untitled		 1
	Task information	Duration: 00:00:10 hh:mm:ss		
(2)		Type: Pause	•	– – (3)
1		1 1		
		۱ ۸ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ ـ		
		 Enter the task name Set the duration – the time (in the hour:minu the image must be held in the graphics file Set the task type for the final image generat *Text – data from the*.txt file *Pause – pause (empty screen) 		4
		<back nex<="" th=""><th>t> Finish Cano</th><th></th></back>	t> Finish Cano	

The Task settings wizard window has the following elements:

- information fields:
 - (1) is a field with information on actions implemented on the current step of Wizard, type and name of current task;
 - (2) is a list of steps to configure task parameters;
 - (4) is a field with information on customizing of parameters on the current step;
- elements to configure task parameters on the current step of Wizard (3);
- buttons to control work of Task settings wizard (5):
 - Back is for switching to the previous step of Wizard;
 - Next is for switching to the next step of Wizard;
 - Finish is for ith saved made configuration;
 - Cancel is for exiting Wizard without saving of made configuration.

Set of configured parameters and quantity of wizard steps are different for different types of tasks.

Modes of User Interface

The program has 2 modes of interaction with user:

- window mode (when the main program window is maximized);
- minimized mode (when the main program window is minimized and there is a program icon in taskbar notification area).



In a minimized mode control over program work is implemented via commands of a context menu that is opened by right-clicking the icon in taskbar.

Restore
About FDImageUpdater
Prepare
Start
Stop
✓ Show preview
Exit

Click the **c** or **c** icon to minimize the main program window.

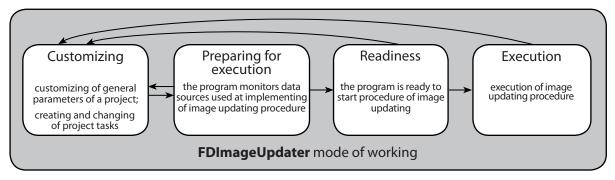
Click the \clubsuit icon to restore the main program window. The icon is located in taskbar notification area.

Modes of Program

The program has 4 modes of working:

- customizing;
- preparing for execution;
- readiness;
- execution.

The scheme below presents a brief description of the FDImageUpdater program modes of working with their all possible switchings.



Switching between modes can be implemented both on user command and automatically. Detailed description of modes switchings you can find in the Launch of Image Updating Procedure Section.

Working with Program

General Workflow of Working With the Program

- 1. Launch the FDImageUpdater program.
- 2. Customize parameters of program for further dealing with it.
- 3. Create new or load created earlier project of image updating in the progam.
- 4. Launch procedure of image updating (project).

Customizing of Program Settings

Program settings are customized in the Program Settings window that is opened via the Settings > Program Settings... menu command.

	Program Settings	×
	Language selection:	
(1)—	_ Default (English)	
-	Note: when the language is changed the application is automatically restarted.	
2		
	Show Save project file prompt message	
\bigcirc	Clear target image file when updating is stopped	
4	_ Time restriction on the task preparation: 15 🕂	s
	OK Cancel	

The Program Settings window has the following elements:

- Language selection (1) where you can select language of program interface;
- Show Save project file prompt message check box (2) if the mark is put then at opening of another project or at exiting the program the prompt on if is it necessary to save current project or not appears; if the mark is not put then no prompt appears and the last made changes of the project are not saved;
- Clear target image file when updating is stopped (3) if the mark is put then at stopping of updating procedure the program clears target file by recording an empty and transparent image into it; if the mark is not put then the image is rest in updated file (in this case rest image is the latest recorded image at project execution);
- Time restriction on the task preparation element (4) is a maximal time necessary for preparation of one task to be executed (during being of the program in the preparing mode). If during specified time the task is not prepared then at updating of image this task is not implemented.

The OK button is used to save settings and return into the main program window. At clicking of Cancel the window is closed without saving made comfiguration.



Creation of a New Project

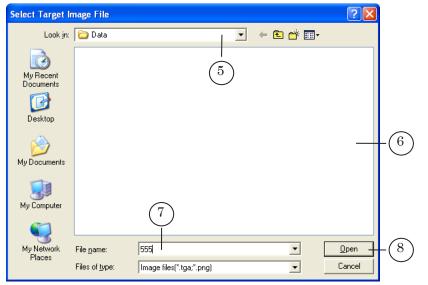
- 1. Select the New project... command in the File menu of the main program window.
- 2. The Create New Project window appears.

Create New Pro	ject				? 🛛
Savejn:	🗀 Weather		•	+ 🗈 💣 💷•	
My Recent Documents Desktop	weather.s4i		1		
My Documents					
My Computer	(2			3
My Network Places	File <u>n</u> ame: Save as <u>t</u> ype:	 ImageUpdater projec	st (*.s4i)	•	<u>S</u> ave Cancel

Complete the following in the Create New Project window:

- specify a folder where project file will be stored in the Save in drop-down list (1);
- specify name of file project in the File name field (2);
- click the Save button (3). The window is closed.
- 3. The Program Settings window appears automatically.
- 4. Click the Browse... button (4) in the Target image file group.

Project Settings	
Target image file Browse Output image size (pixels): Width: 200 📩 Height:	-4
OK Cancel	

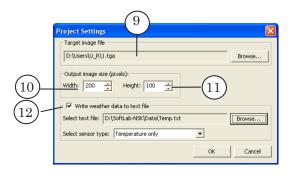


The Select Target Image File window appears.

Complete the following in the appeared window:

- select folder in the Look in drop-down list (5) where target image file of customized project is stored;
- specify name of a target graphic file:
 - select file in the list of files (6) if updated project file has already been created;
 - if the file is not created yet then specify its name and extension in the File name text field (7). The file will be created when the image is updated. If name extension is not specified then the file will have the tga extension automatically;
- click Open (8). The window closes.

A full path to the specified file is displayed in the Project Settings window in the Target image file field (9).



5. Specify width (10) and height (11) values in the Output image size (pixels) group of elements.

- 6. If it is needed put the Write weather data to text file mark (12) and customize corresponding parameters. Information on customizing you can find in the «Sensors and Weather Stations» section, «Recording of Weather Data Into a Text File» section.
- 7. Click OK.
- 8. Now the main program window has the following appearance:

FDImageUpdater "weather.s4i"							
File Settings							
Target image file: C:\Documents and Settings\Danilenko.M\Desktop\111001.tga							
F	Туре	Name	Duration	Region file		Add	
						Edit	
						Сору	
						Delete	
E						Move up	
						Move down	
De	scription of	selected task:					
					~		
<					×		
Г	Show pre	view window	Pre	epare Start	Stop	Exit	

- 9. Configure task for project. A workflow of creating of tasks you can find in the «Creation of tasks» section.
- 10. Save created project by selecting the Save project command in the File menu.



Opening of Recently Created Project

Complete the following to open a recently created and saved project:

- 1. Select Open project... command in the File menu.
- 2. Specify a folder and FDImageUpdater project file that is necessary to open in the appeared window.

Editing of Project Settings

1. Editing of Target Graphic File Settings

Editing of settings of a target image file and its size is implemented in the Project Settings window.

Project Settings	
Target image file	
Documents and Settings\Danilenko.M\Desktop	p\111001.tga Browse
Output image size (pixels):	
Width: 200 • Height: 100 •	
	OK Cancel

The window is opened by clicking Setitngs > Project settings... menu command.

2. Editing of Task Settings

Complete the following to edit project task settings:

1. Click line with task that you want to edit (1) in the table with a list of tasks in the main program window.

💠 FDImag	Updater "weat	her.s4i"		
File Setting:	;			
Target imag	e file: C:\Docume	nts and Setting	s\Danilenko.M\Desktop\111001.I	:ga
Туре	Name	Duration	Region file	Add
	Temperature	00:00:10	Region_Example.rgn	
	Pause	00:00:10		Edit
				Сору
				Delete
				Move up
				Move down
Description	of selected task:			
Type: Text Name: Tem				<u>^</u>

2. Click Edit... (2), the Task settings wizard window appears.

Task settings wizard -	Step 1 of 2				\mathbf{X}
Select task nam	e, duration	and type		lype: Pause Name: Pause	
<u>General</u> Task information	Name: Duration:	Pause 00:00:10	hhimmiss		
	Type: - Enter th - Set the		2	second format), during which	el

- 3. Open the Task settings wizard window where you can edit task parameters using the Next button (3).
- 4. Edit task parameters and then click Finish (4).

Task settings wizard -	Step 1 of 2	\mathbf{X}
Select task nam	e, duration and type	Type: Pause Name: Pause
General Task information	Name: (Pause) Duration: 00:00:10 hh:mm:ss Type: Pause - Enter the task name - Set the duration - the time (in the h the image must be held in the graphics	sur:minute:second format), during which file Next> Finish Cancel

The Task settings wizard window closes.

6. New task settings are displayed in the main program window.

FDImageUpdater "weather.s4i"					
File Settings	File Settings				
Target image file: C:\Documents and Settings\Danilenko.M\Desktop\111001.tga					
Туре	Name	Duration	Region file		Add
	Temperature Pause	00:00:10 00:00:10	R <u>egion Example.rgn</u>		Edit
					Сору
					Delete
					Move up
					Move down
Description of selected task:					
Type: Pause Name: Pause Duration: 00:00:10					
\ <				· _ /	
Show pre	view window	Pre	epare Start	Stop	Exit



Control Over Image Updating

A procedure of image updating is started only when image updating project is loaded into the program.

Complete the following to start procedure of image updating (execution of a project):

1. Click Prepare (1) in the main program window.

💠 F	🕈 FDImageUpdater "weather.s4i"					
File	File Settings					
Tar	Target image file: C:\Documents and Settings\Danilenko.M\Desktop\111001.tga					
	Туре	Name	Duration	Region file		Add
		Temperature Pause	00:00:10	Region_Example.rgn		Edit
						Сору
						Delete
						Move up
						Move down
Ty Na Du Re Da	Description of selected task: Type: Text Name: Temperature Duration: 00:00:10 Region file: C:\Documents and Settings\Danilenko. M\Desktop\Region_Example.rgn Data source: C:\Documents and Settings\Danilenko. M\Desktop\Temperature.txt					
Г	Show pre	view window	Pre	epare Start	Stop	Exit

2. The program switches into a mode of preparation for execution of tasks of a project.

The program implements a test scanning of data sources specified in task, checks presence of region files, etc. in this mode.

Task is not prepared to be executed if during time specified in the Program Settings window as Time restriction on the task preparation the program can not link with data source.

- 3. When preparation is complete the program switches to one of the following modes automatically:
 - readiness, if at least one of the tasks is prepared correctly;
 - customizing, if tasks can not be prepared.
- 4. If one or more tasks are prepared correctly the program is switched to the readiness mode.

Target image	Name	Duration	Is\Danilenko.M\Desktop\11100 Region file	-	Add
- × 🌆	Temperature	00:00:10	Region_Example.rgn		Add
	Pause	00:00:10			Edit
					Cop
					Dele
					Move
					Move
Description of Type: Paus	of selected task:				
Name: Paus	se .			<u>^</u>	
Duration: 0	0:00:10			~	

The Start and Stop buttons (2) are available in this mode.

The \times mark (3) in the table with tasks list marks tasks of the project that are not prepared for execution.

The program can be switched to one of the following modes from mode of readiness:

- mode of execution by clicking Start;
- mode of configuring by clicking Stop.
- 5. Click Start to launch a procedure of image updating.

The program switches to a mode of **execution**. In this mode the program updates image automatically. Tasks of a project that are prepared will be executed in this case.

The \blacktriangleright mark (4) in the table with tasks list marks the task that is being executed at the moment.

	💠 FDImagel	Updater "weathe	r.s4i"		
	File Settings				
	Target image	file: C:\Documents	and Setting	s\Danilenko.M\Desktop\111001.tga	
\bigcirc	Туре	Name	Duration	Region file	Add
(4)—	- > 🛅	Pause	00:00:10		r-in-
\bigcirc	×	Text_1	00:00:10	Region_Example.rgn	Edit
					Сору
					Delete
					Move up

6. Click Stop to stop executing of a procedure of image updating.

Creation of Tasks of Different Types

1. Pause

1.1. Purpose

Use of such tasks allows sustaining a pause among images that replace each other.

1.2. Features

At execution of the Pause task updating file stores an image that is a rectangle with a transparent filling.

1.3. Creation of Task

1. Click Add... in the main program window, the Task settings wizard - Step 1 of 2 window appears.

Task settings wizard - Step 1 of 2 🛛 🗙						
Select task nam	e, duration	and type			Type: Pause Name: Pause_1	
General	Name:	Pause_1			_	
Task information	Duration:	00:00:10	hh:mm:ss			
	Type:	Pause		-]	
	- Set the the image - Set the *Text	e must be he task type fo : – data from		s file		g which

Specify task type – Pause.

Enter task name in the Name field.

Specify duration of task execution in the Duration field.

2. Step 2.

Task settings wizard	- Step 2 of 2		×
Main task spec	ifications	Type: Pause Name: Pause_1	
General	Settings wizard will create ta	ask with the following specifications:	
Task information	Type: Pause Name: Pause_1 Duration: 00:00:10		<
		2	
	- Click Finish to accept the	current settings	<
	<	Back Next> Finish Cano	:el

Information on made configuration is displayed at this step. Click <Back in the Wizard window if it is necessary to change some settings specified at the previous step.

Click Finish if all settings are correct.

3. After clicking Finish work of Wizard is finished and the task will be added to the list with tasks displayed in the main program window.

🗘 FDImageUpdater "weather.s4i"						
File Settings	File Settings					
Target image file	Target image file: C:\Documents and Settings\Danilenko.M\Desktop\111001.tga					
	lame	Duration	Region file		Add	
<u> </u>	ause_1	00:00:10		_	Edit	
					Сору	
					Delete	
					Move up	
					Move down	
Description of se	elected task:					
Type: Pause Name: Pause_1 Duration: 00:00				~		
<				>		
Show preview	w window	Pre	pare Start	Stop	Exit	



2. Text

2.1. Purpose

Task of the Text type is used to output information from a text file.

2.2. Data Source

In tasks of the Text type data sources are specially prepared text files with the txt extension.

Each paragraph in the file must be in the following format:

object_name: line with symbols

where:

- object_name: is a name of a text object in region file where the data is put. After name of the object you must necessarily put a colon;
- line with symbols is an information to be output.

2.3. Features

- 1. You can vary information in a text file either manually or by means of a specific set of programs during execution of a procedure of image updating.
- 2. You can organize placing of data into several region text objects simultaneously (see an example).

Example: Picture below displays an image generated by FDImageUpdater as a result of execution of the Text type task ("grey-and-white" filling is used to denote a transparency).

Temperature	+32
Pressure	752 mm HG
Humidity	34%
	• •

This image was generated via region given below.

Forward Titling - Region1 Elle Edit View Object Text Options Windows Help
Temperature Object 4 A Objects Tree Pressure Object 5 Region I
Humidity Object 6 Trext Boxed Trext Boxed
The region (1) has 3 text objects for placing of data. Names of objects are: Text_box6 (2), Text_box5 (3), Text_box4 (4).
Picture below shows a prepared text file under the Data.txt name. The file is used as a source of data.
Data.txt - Notepad
Text_object4: +32 Text_object5: 752 mm HG Text_object6: 34%

2.4. Creation of Task

You must implement the following before configuring of a task of the Text type:

- create region file that is image template;
- create TXT file that is data source.

Creation of a task:

1. Click Add... in the main program window, the Task settings wizard – Step 1 of 2 window appears.

Task settings wizard -	Fask settings wizard - Step 1 of 2				
Select task nam	e, duration and type	Type: Pause Name: Untitled			
General Task information	Name: Untitled Duration: 00:00:10 hh:mm: Type: Pause - Enter the task name - - Set the duration – the time (in the image must be held in the (in the image must be held in the final *Text – data from the*.txt *Pause – pause (empty scr	n the hour:minute:second format), during which praphics file limage generation: file			
	<bac< th=""><th>K Next> Finish Cancel</th></bac<>	K Next> Finish Cancel			

The Name text field displays name of a task specified by default – Untitled. To specify another name clear the field and enter a new one.

Specify duration of task execution in the Duration field. During specified time period image will be updated according to settings of the given task.

Select type of task (Text) in the Type drop-down list. Steps for configuring will be displayed in the list of steps for this type of the task.

Task settings wizard -	Fask settings wizard - Step 1 of 4			
Select task name, duration and type		Type: Text Name: Information_1		
General Design Data Task information	Name: Information_1 Duration: 00:00:10 hh:mm:ss Type: Text • Enter the task name - Set the duration - the time (in the hthe image must be held in the graphic: • Set the task type for the final image *Text - data from the*.txt file *Pause - pause (empty screen)			
	<back< th=""><th>Next> Finish Cancel</th></back<>	Next> Finish Cancel		

Click Next> to continue.

2. Step 2



Click Browse... to open a standard dialog window and select region file used in the given task as an image template. Click Next> to continue.

3. Step 3

Fask settings wizard - Step 3 of 4				
Select a data so	urce and its settings	Type: Text Name: Information_1		
General Design Data Task information	Text file	Danilenko.M\Desktop\Data.txt		
	Specify the text file contain			

Click Browse... to open a standard dialog window and select text file used in the given task as a source of data. Click Next> to continue. 4. Step 4

Task settings wizard - Step 4 of 4 🛛 🔀			
Main task specif	ications	Type: Text Name: Information_1	
General Design Data Task information	Type: Text Name: Information_1 Duration: 00:00:10 Region file: C:\Documents and Data source: C:\Documents and	with the following specifications: d Settings\Danilenko.M\Desktop\Pause_1.rgn nd Settings\Danilenko.M\Desktop\Data.txt	
	Click Finish to accept the curr Click Finish to accept the curr		

Information on made configuration is displayed at this final step.

Click <Back in the Wizard window if it is necessary to change some settings specified at the previous step.

 $\operatorname{Click}\nolimits$ Finish if all settings are correct.

5. After clicking Finish work of Wizard is finished and the task will be added to the list with tasks displayed in the main program window.

💠 FD	FDImageUpdater "weather.s4i"					
File S	ettings					
Targel	t image l	file: C:\Document:	s and Setting	s\Danilenko.M\Desktop\11100)1.tga	
	Туре	Name	Duration	Region file		(Add)
	ð	Information_1	00:00:10	Pause_1.rgn		Edit
						Сору
						Delete
						Move up
						Move down
	Description of selected task:					
Name Durat Regio	Type: Text Name: Information_1 Duration: 00:00:10 Region file: C:\Documents and Settings\Danilenko.M\Desktop\Pause_1.rgn Data source: C:\Documents and Settings\Danilenko.M\Desktop\Data.txt					
<					>	
🗆 Sh	now prev	view window	Pre	epare Start	Stop	Exit



3. Time

3.1. Purpose

Tasks of the $\ensuremath{\mathsf{Time}}$ type are used to organize output of current time.

3.2. Source of Data

One of the following sources of time can be used in tasks of the Time type:

- PC system time;
- SLTimeServer system server for keeping and synchronizing of time. SLTimeServer is included in the Forward T Software products set. More detail on working with SLTimeServer you can find in the «SLTimeServer: Time Server» document.

3.3. Features

You can organize output of current time via tasks of the Time type in the hh:mm format.

There is a possibility of customizing format of time displaying:

- specify time format (12 or 24 hour format);
- select a separator that is put between hours and minutes («:», «.», «-», «.», «;»);
- enable/disable displaying of:
 - a leading zero in hours;
 - AM/PM indicator at output of time in 12-hour format.

3.4. Creation of Task

Create a region file before configuring of a task of the Time type.

Creation of task:

1. Click Add... in the main program window, the Task settings wizard - Step 1 of 2 window appears.

Task settings wizard -	Task settings wizard - Step 1 of 2				
Select task nam	e, duration and type	Type: Pause Name: Untitled			
General Task information	Name: Untitled Duration: 00:00:10 hh:mm:ss Type: Pause - Enter the task name - Set the duration – the time (in the the image must be held in the gratering must be held must be held in the gratering must be held	The hour:minute:second format), during which phics file hage generation:			
	<back< th=""><th>Next> Finish Cancel</th></back<>	Next> Finish Cancel			

Specify task type – Time.

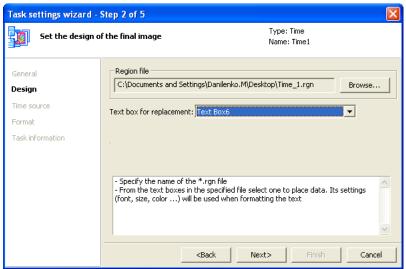
Enter task name in the Name field.

Specify duration of task execution in the Duration field.

Task settings wizard - Step 1 of 5				
Select task name, duration and type		type Type: 1 Name:	Time Untitled	
General Design Time source Format Task information	- Enter the ta: - Set the dura the image mus - Set the tak * Text - da		d format), during which	

Click Next> to continue.

2. Step 2



Click Browse... to open a standard dialog window and select region file used in the given task as image template.

Select name of region object where data will be placed in the Text box for replacement drop-down list.

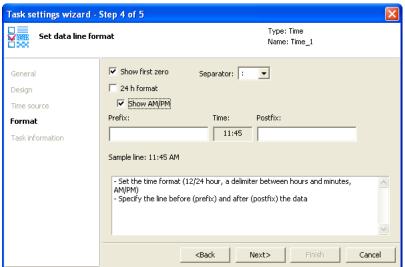
Click Next> to continue.

3. Step 3

Task settings wizard -	Fask settings wizard - Step 3 of 5 🛛 🛛 🗙		
	Type: Time Name: Time1		
General Design	Time source: System time		
Time source			
Format			
Task information			
	- Select time source		
	<back finish<="" th=""><th>Cancel</th></back>	Cancel	

Specify source of time in the Time source drop-down list. Click Next> to continue.





Customize format of time displaying by:

- putting the Show first zero mark to display zero before time values that have one number (for example, 05);
- putting the 24 h format mark to output time in 24-hour format. If the mark is absent then information on time is output in 12-hour format;
 - putting the Show AM/PM mark if time is output in 12-hour format to display AM/PM indicator (at midnight/past midnight);
- selecting in the Separator drop-down list a separator that is put between values of hours and minutes.

Enter text in the Prefix field that should be before output data in output image.

Enter text in the Postfix field that should be after output data in output image.

5. Step 5.

Task settings wizard - Step 5 of 5 🛛 🛛 🗙			
Main task specif	ications Type: Time Name: Time_1		
General Design Time source Format Task information	Settings wizard will create task with the following specifications: Type: Time Name: Time_1 Duration: 00:00:10 Region file: C:\Documents and Settings\Danilenko.M\Desktop\Time_1.rgn Text box for replacement: Text Box6 Prefix: Postfix: Time source: System time	<	
	Click Finish to accept the current settings Click Finish to accept the current settings Click Finish Click Finish	Cancel	

Information on made configuration is displayed at this step. Click <Back in the Wizard window if it is necessary to change some settings specified at the previous step.

 $Click \ {\sf Finish} \ if \ all \ settings \ are \ correct.$

6. After clicking Finish work of Wizard is finished and the task will be added to the list with tasks displayed in the main program window.

💠 FD Imagel	Jpdater "weath	er.s4i"		
File Settings				
Target image	file: C:\Document	s and Setting	s\Danilenko.M\Desktop\111001.tga	
Туре	Name	Duration	Region file	Add
<u> </u>	Time_1	00:00:10	Time_1.rgn	Edit
				Сору
				Delete
				Move up
				Move down
Description of selected task:				
Name: Time_1 Duration: 00:00:10 Region file: C:\pocuments and Settings\Danilenko.M\Desktop\Time_1.rgn Text box for replacement: Text Box6 Prefix: Postfix:				
<			2	
Show prev	view window	Pre	epare Start Stop	Exit



4.1. Purpose

Tasks of the Web type are used to organize output of information taken from a web page.

4.2. Source of Data

Source of data for tasks of the Web type is a website page.

Configuration necessary for receiving of data from a website is implemented in the SLWebTracker program. The settings are saved in file with the *.webtrackerproj extension that is a SLWebTracker project (information on dealing with the program you can find in the «FDWebTracker. User's Guide» document).

At configuring of Web tasks you should specify name of file of necessary SLWebTracker project in the FDImageUpdater program.

4.3. Creation of Task

You must create the following before configuring of a task of the Web type:

- region file that is a template of an image;
- the SLWebTracker project. Information on dealing with the program you can find in the «FDWebTracker. User's Guide» document.

Creation of task:

1. Click Add... in the main program window, the Task settings wizard - Step 1 of 2 window appears.

Task settings wizard - Step 1 of 2			
Select task nam	ne, duration and type	Type: Pause Name: Untitled	
General Task information	the image must be h	The time (in the hour:minute:second format), during which where the graphics file for the final image generation: mothe*t.tst file	

Specify task type – Web. Enter task name in the Name field. Specify duration of task execution in the Duration field.

Task settings wizard - Step 1 of 5					
Select task nam	e, duration	and type Type: Web Name: Rate_USD			
General	Name:	Rate_USD			
Design	Duration:	00:00:10 hh:mm:ss			
Data	Type:	Web			
Format		·			
Task information	- Set the the image - Set the *Text	he task name duration – the time (in the hour:minute:second format), during which e must be held in the graphics file task type for the final image generation: t. – data from the [*] .txt file use – pause (empty screen)			
		<back next=""> Finish Cancel</back>			

Click Next> to continue.

2. Step 2

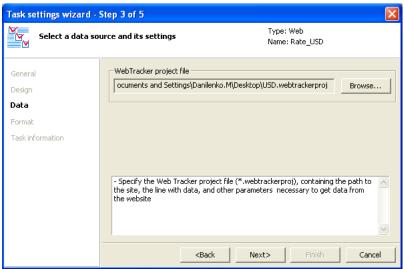
Task settings wizard - Step 2 of 5						
Set the design o	f the final image		Type: Web Name: Rate_USD			
General Design Data Format Task information	- Specify the name of - From the text boxes	, the *.rgn file	ect one to place data. Il	Browse		
		<back ne<="" th=""><th>ext> Finish</th><th>Cancel</th></back>	ext> Finish	Cancel		

Click Browse... to open a standard dialog window and select region file used in the given task as image template.

After selecting of the region file a list of all text objects names that are in the region appears in the Text box for replacement drop-down list.

Select the necessary one and then click Next> to continue.

3. Step 3



 $\label{eq:click-Browse} Click \ {\tt Browse}... \ to \ {\tt open} \ a \ {\tt standard} \ {\tt dialog} \ {\tt window} \ {\tt and} \ {\tt select} \ {\tt the} \ {\tt SLWebTracker} \ {\tt project} \ {\tt file}.$

Click Next> to continue.

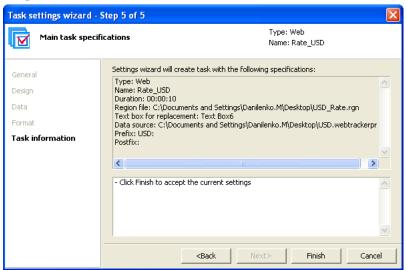
4. Step 4

Task settings wizard -	Step 4 of 5			
Set data line for	mat		Type: Web Name: Rate_USD	
General Design	Prefix:	Data:	Postfix:	
Data Format	Sample line: USD: WWW			
Task information	- Specify the line before (pre	fix) and after	(postfix) the data	<
	<ba< th=""><th>ack</th><th>Next> Finish</th><th>Cancel</th></ba<>	ack	Next> Finish	Cancel

Enter text in the Prefix field that should be before output data in output image.

Enter text in the Postfix field that should be after output data in output image.

5. Step 5



Information on made configuration is displayed at this step. Click <Back in the Wizard window if it is necessary to change some settings specified at the previous step.

Click Finish to finish creation of task.

6. The task is added to the list with tasks displayed in the main program window.

🔶 Fl) Imagel	Jpdater "weat	her.s4i"			
File	Settings					
Targ	et image	file: C:\Documer	nts and Setting	s\Danilenko.M\Desktop\11	1001.tga	
	Туре	Name	Duration	Region file		Add
	Ŵ	Rate_USD	00:00:10	USD_Rate.rgn		Edit
E						Сору
						Delete
E						Move up
						Move down
Desc	ription of	selected task:				
Nan Dur Reg Tex Dat	Type: Web Name: Rate_USD Duration: 00:00:10 Region file: C:\Documents and Settings\Danilenko.M\Desktop\USD_Rate.rgn Text box for replacement: Text Box6 Data source: C:\Documents and Settings\Danilenko.M\Desktop\USD.webtrackerpro; Prefix: USD:					
<						
 = 9	Show prev	view window	Pro	epare Start	Stop	Exit



5. SensorEx

5.1. Purpose

Tasks of the SensorEx type are used to output sensors and weather stations meters.

5.2. Source of Data

Tasks of the SensorEx type are used to output data received from the following sources:

- Temperature sensors:
 - IRT 5920;
 - Tundra 73;
 - Stream TPH:
 - RMM-4095 (Profitt Meteo Meter);
 - DIP Modular System;
- Weather stations:
 - HeavyWeather (models: WS2308, WS2310, WS2315; WS3610);
 - Oregon Scientific (models WMR100, WMR200);
 - Davis Instruments (Vantage Pro2).

The list of used sensors is expanded.

5.3. Features

1. The SensorEx line is displayed in the Type drop-down list only in that case if at least one sensor is plugged to PC, configured and ready to work.

Task settings wizard - Step 1 of 2					
Select task nam	e, duration and	tyne	Гуре: Pause Name: Untitled		
General Task information	Duration: 00: Type: Pau Pau Tex Wet Time Dat Sen - Enter the tas - Set the dura the image mus - Set the task *Text - da	se t b e e/Ime exorEx			
		Second Nexts	Cancer		

- 2. User specifies periodicity of reading data received from source.
- 3. At output of data into graphic file meterage of sensors can be adjusted to a specific value automatically.

4. Region that is a template may include any number of text objects.

Meterage of both one and several sensors also can be output into one text region object.

Order of distributing of output meterage among text region objects is specified at creating of a task.

5. When dealing with some sensors text files for substitution can be used.

5.4. Text File for Substitution

When dealing with some sensors there is a possibility to replace output numerical values by a special text in the FDImageUpdater program (see example).

Substitution text files are used to correspond received sensors values to output text.

Text file for substitution is a specially prepared text file (*.txt) that has a set of lines in the following format:

<Boundary value 1><space><Text for_substitution 1> <Boundary value 2><space><Text for_substitution 2>

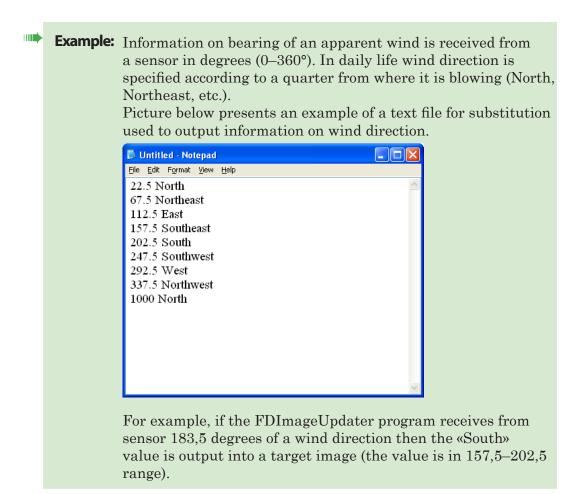
<Boundary _value N><space><Text for_substitution N>

where:

- <Boundary _value> is a maximal value of a scale range that corresponds to output <Text for_substitution>.
- <Text for_substitution> is a text that is output into a target image instead of a numerical value from spcified range.

Lines in substitution file must be put in an increasing order of Boundary_values, i.e. Boundary _value 1 must be less than Boundary _value 2, Boundary _value 2 must be less than Boundary _value 3, etc.

Principle of working with a substitution file is the following: value received from a sensor is successively compared with Boundary_values recorded in a substitution file beginning from the first file line. Text for_substitution from the first searched line is finally output into a target image. Boundary_value in this line must be greater than received numerical value.



5.5. Creation of Task

Preliminary preparation:

- 1. Plug a sensor (weather station) to PC and complete necessary configuration (see the Working with Sensors and Weather Stations section).
- 2. Create a region file used as an image template.
- 3. Create a text file for substitution if it is supposed to use a text file for substitution at data output.

Creation of task:

1. Click Add... in the main program window, the Task settings wizard - Step 1 of 2 window appears.

Task settings wizard	l - Step 1 of 2	
Select task n	ame, duration and type	Type: Pause Name: Untitled
General Task information	Name: Untitled Duration: 00:00:10 hh:m Type: Pause - Enter the task name - Set the duration – the time the image must be held in th - Set the task type for the fi *Text – data from the*. *Pause – pause (empty):	(in the hour:minute:second format), during which e graphics file nal image generation: xt file
	<8	ack Next> Finish Cancel

 $Specify \ task \ type-{\tt SensorEx}.$

Enter task name in the Name field.

 $\ensuremath{\mathsf{Specify}}$ duration of task execution in the Duration field.

Task settings wizard - Step 1 of 5 🛛 🔀				
Select task name, duration and		and type	Type: SensorEx Name: Temperature	
General	Name:	Temperature		
Design	Duration:	00:00:10 hh:mm:ss		
Sensors list	Type:	SensorEx	•	
Text boxes		,	_	
Task information	- Set the the image - Set the *Text	ie task name duration – the time (in the hour:m must be held in the graphics file task type for the final image gene : – data from the*.txt file e – pause (empty screen)	inute:second format), during which ration:	
		<back m<="" th=""><th>Next> Finish Cancel</th></back>	Next> Finish Cancel	

Click Next> to continue.

2. Step 2

Task settings wizard -	Step 2 of 5		×
Set the design o	f the final image	Type: SensorEx Name: Temperature	
General Design Sensors list	Region file D:\Users\U_R\reg_4.rgn		Browse
Text boxes Task information			
	- Specify the name of the *.rgn file		
	<back< th=""><th>Next> Finish</th><th>Cancel</th></back<>	Next> Finish	Cancel

Click Browse... to open a standard dialog window and select region file used in the given task as image template.

Select name of region object where data will be placed in the Text box for replacement drop-down list.

Click Next> to continue working.

3. Step 3

At this step you create a list of sensors which meterage must be output.

	Task settings wizard -	itep 3 of 5	
		Type: SensorEx Name: Temperature	(2)
1-	General Design Sensors list Text boxes Task information	# Sensor name Text file for replacement	Add sensor Edit sensor Move up Move down Delete sensor
		- Set sensor configuration - Set the data update period 	Cancel

List of sensors is displayed in the table (1).

Complete the following to add sensor to the list:

1. Click Add sensor (2) in the Task settings wizard, step 3 window.

The Add sensor window appears:

Add sensor					×
Select senso	ir:	PMM-409	95E temper	rature (C)	•
Use sensor v	value				
Format: #	•	Correcti		Subtract (-)	
Use text rep	lacement le for repl		value	Browse,,	,
Use image re	eplacemer	nt for sens	or value		
Text fi	le for repl	acement: -		Browse,,	,
			ОК	Cance	1

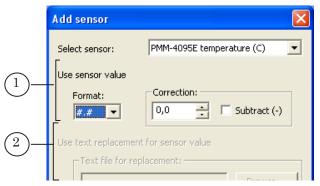
Select necessary sensor in the Select sensor drop-down list.

Add sensor	
Select sensor:	PMM-4095E temperature (C)
Use sensor value	PMM-4095E temperature (C) PMM-4095E pressure (mmHg) PMM-4095E humidity (%)
Format:	0,0 T Subtract (-)
Use text replacemen Text file for rep	
	Browse,

The Select sensor list has all sensors available for working. A set of included into the list sensors depends on the settings made at preliminary steps (see the Working with Sensors and Weather Stations section).



2. Customize format of presentation of sensor meterage in a target file.

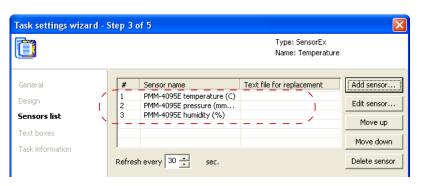


Depending on selected sensor one of two groups of elements becomes available to configure the format of sensor values displaying:

- Use sensor value (1) is information received from a sensor that is output as a numerical value. In this case:
 - select a format of data output in the Format drop-down list;
 - customize correction of values via the Correction group by specifying of a value in the text field. Put the Subtract mark to reduce output value till corrected value. If the mark is absent then output value is increased till corrected value;
- Use text replacement for sensor value (2) group of elements is used when a text from file for substitution is output into target file and the text corresponds to numerical value (for example, for wind direction not degrees are used but name of direction). In this case click Browse... to open a standard dialog window and select text file for substitution (detailed information on file for subsitution see above);
- 3. Click Ok to close the Add sensor window.

Name of added sensor is displayed in the table with a list of sensors.

Task settings wizar	d - Step 3 of 5	
	Type: SensorEx Name: Temperature	
General Design	# Sensor name Text file for replacement (1 PMM-4095E temperature (C))	Add sensor
Sensors list Text boxes		Move up
Task information	Refresh every 30 🐳 sec.	Move down Delete sensor



Repeat given above steps to select all necessary sensors.

Specify time period (in seconds) between each reading of data from a sensor in the Refresh every field. Click Next> to continue.

4. Step 4

Templates of text lines that are substituted into text objects of a region are created at this step of Wizard.

Table with a list of text objects names that are in a region file is displyed in the Wizard window (region file is specified at Step 2).

Task settings wizard - Step 4 of 5				
		Type: Sens Name: Unti		
General Design Sensors list Text boxes Task information	Text box name Text_5 Text_5 Text_4 Text_3 Test - Set value for text boxes - Press the Test button to		Set value Delete value	
		<back< th=""><th>Finish Cancel</th></back<>	Finish Cancel	

Complete the following to customize template of a line that is output into a concrete text object of region:

1. Right-click the line with name of a region text object (1) and click the Set value... button (2).

Task settings wizard -	Step 4 of 5		\mathbf{X}
	(1)	Type: Se Name: U	
General Design Sensors list Text boxes Task information	Text box name Text Box2 Text_5 Text_4 Text_3 Text_3 Test	Value	Set value Delete value
	- Set value for text boxes - Press the Test button to	check result	Finish Cancel

2. The following window appears.

	Set value	
	Value:	-3
(4a)—	Value line format: any_text_1<#1> any_text_2<#2>any_text_3<#3> where:	
44	any_text_N - your text <#N> - the sensor index from sensors list	-(4)
(4b)	Sensors list: <#1> PMM-4095E temperature (C) <#2> PMM-4095E pressure (mmHg) <#3> PMM-4095E humidity (%)	Ŭ
	OK Cancel	

The window has:

- the Value text field (3) used for output of a template of a value line;
- field with some explanations on forming of a line with value (4) that includes:
 - a description of line format (4a);
 - a list of sensors (4b). In this list you must specify index <#N> for each sensor (N = 1, 2, ... n, where n is a total number of sensors in the list).

Template of a line has the following format: Free_ext_1<#N₁>Free_text_2<#N₂> ... Free_text_n<#N_n>, where:

Free_text is an arbitrary text created by user. The text is
output into target image without modifyings;
<#N_' is an index of used sensor. Sensor meterage is
output in a target image instead of a tag with sensor</pre>

3. Specify line value in the Value text field.

index.

Set value	
Value: Temperature <#1> °C	
Value line format: any_text_1<#1> any_text_2<#2>any_text_3<#3> where: any_text_N - your text <#N> - the sensor index from sensors list Sensors list: <#1> PMM-4095E temperature (C) <#2> PMM-4095E temperature (C) <#3> PMM-4095E humidity (%)	
ОК Са	ancel

Click OK. The window is closed.

4. Created template of value line is displayed in the Value column of the Wizard window.

Task settings wizar	d - Step 4 of 5		
		Type: SensorEx Name: Untitled	
General	Text box name	Value	Set value
Design	Text Box2 Text_5		Delete value
Sensors list	Text_4		
Text boxes	Text_3	(Temperature <#1> °C)	
Task information	Test		
	- Set value for text bo		~

Click Test to test how created according to the template line looks like with sensor values. The line is displayed in the text field.

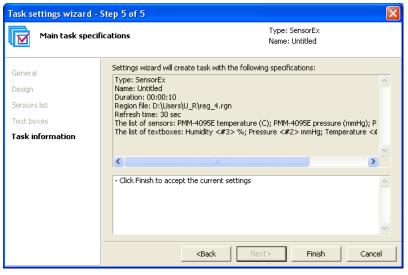
Fask settings wizard	- Step 4 of 5		X
		Type: SensorEx Name: Untitled	
General	Text box name	Value	Set value
Design	Text Box2 Text 5		Delete value
Sensors list	Text_4 Text 3	Temperature <#1> ℃	
Text boxes	TEXL_3	Temperature <#12 C	
Task information	Test (Temperatu	rre 25,3 °C }	
	- Set value for text boxes		~

Specify values for all text objects where it is necessary to output data.

Task settings wizard - Step 4 of 5 🛛 🔀				
		Type: SensorEx Name: Untitled		
General Design Sensors list Text boxes Task information	Text box name Text Box2 Text_5 Text_4 Text_3 Test	Value Humidity <#3> % Pressure <#2> mmHg) Temperature <#1> °C/	Set value	

Click Next> to continue.

5. Step 5.



Information on made configuration is displayed at this step. Click <Back in the Wizard window if it is necessary to change some settings specified at the previous step.

Click Finish to complete creation of the task.

6. The task is created. It is displayed in the list with tasks of the main program window.

ф F	FDImageUpdater "day_w.s4i"						
File	ile Settings						
Tar	Target image file: D:\Users\U_R\project_1.tga						
	Туре	Name	Duration	Region file	Add		
	B	Untitled	00:00:10	reg_4.rgn			
					Edit		
E					Сору		
E					Delete		
E					Move up		
					Move down		
Des	cription of	selected task:					
Na Du Re Re Th	Type: SensorEx Name: Unitiled Duration: 00:00:10 Region file: D:\Users\U_R\reg_4.rgn Refresh time: 30 sec The list of sensors: PMM-4095E temperature (C); PMM-4095E pressure (mmHg); PM The list of textboxes: Humidity <#3> %; Pressure <#2> mmHg; Temperature <#1						
×							
	Show preview window Prepare Start Stop						

Sensors and Weather Stations

General Information

1. Definition

Sensor (of temperature, pressure, humidity, etc.) is a device used for measuring of a concrete weather parameter that converts the measurement into a useful for being used signal. The sensor can be either a separate device or be included into weather station set.

Weather station is a device used for measuring of different weather parameters that includes a set of special sensors.

At the current moment the FDImageUpdater application supports the following weather stations and sensors:

- temperature sensors:
 - IRT 5920;
 - Tundra 73;
 - Sahara;
 - DIP TTE24
- weather stations:
 - HeavyWeather, models: WS2308, WS2310, WS2315, WS3610;
 - Oregon Scientific, models: WMR100, WMR200;
 - DAVIS Instruments, Vantage Pro 2 model;
 - DIP MS;
 - StreamLabs TP.

The list of supported equipment is expanded.

2. General Scheme of Working with Sensors and Weather Stations

- 1. Plug device to PC. Install software to output measurings on PC if it is included into software set.
- 2. Be sure that the device functions correctly.
- 3. Customize the device via the WeatherStationPluginConfig program configurator.

4. Launch the FDImageUpdater program. Create task of the SensorEx type used to output data from plugged to PC device (see the Creation of Tasks section).

3. The WeatherStationPluginConfig Program Configurator

The WeatherStationPluginConfig program is used to configure weather stations and temperature sensors used by programs from the Forward T software set.

WeatherStationPluginConfig	k
Oregon Scientific WOS DIP Modular System DIP TTE24 TUNDRA Stream TPH PMM-4095E PMM-4095 Heavy Weather Temp. Keeper DigiTV Thermo Davis Instruments Oregon Scientific Model: WS2308 Image: Comparison of the stream temp. Griptication path: Griptication path: Griptication path: Griptication path: Griptication path: Browse Refresh every: 5 min. Temp. Stream temp. Stream temp.	
Is active	

Installation of the program is implemented automatically when the ForwardT Software set is being installed. The program is installed in the ~\Tools\WeatherStations folder,

where \sim is a full path to the folder where ForwardT Software set is installed.

General workflow of working with the program:

- 1. Launch the program.
- 2. Pass to the tab which name corresponds to the name of weather device to be configured in the appeared window.
- 3. Customize parameters on the tab and put the Is Active mark.
- 4. Close the program.

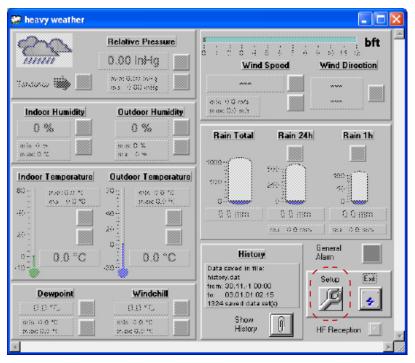


1. Heavy Weather Station

- 1. Turn PC off. Plug weather station to PC COM port.
- 2. Plug weather station into COM port. Turn PC on.
- 3. Install necessary software using the disk included in weather station set. The software is used to output measurings on PC (HeavyWeather PC Software).

Click to visit	t www.heavy	weather.info	9 WS 23	10 / WS 2315
HeavyWeather PC Software HeavyWeather PC Software is the tool to display and collect weather data from the weather	Click to install Heavy/Weather	Click to open Operation Manual	Click to open PC Setup Manual	Click to open Quik
station to your PC through the serial port. Note: User must un-install all existing version of HeavyNeather PC software and delate the directory C/heavyNeather/crime before installing this version.	PC Šoftware	View	Ulevu	View
Weather Publisher Software				
Weather Publisher Software allows PC user to upload the weather data collected by the HeavyWeather PC software to a website or send the weather pictures to anyone by email.	Click to install Weather Publisher Software	Click to open User Manual Mew		
#Remark - You need to install HeavyWeather PC Saftware first.				
Weather Review Software Weather Review software allows users to generate plots from the weather history data collected.	Click to install Weather Review Software	Click to open User Manual		
#Remark - You need to install HeavyWeather PC Software first.				
Ger Adobe	Install Adobe Acrobat			

- 4. Launch the application used for output of data from Heavy Weather station on PC.
- 5. Click the Setup button in the appeared window.



- 6. Customize the following in the appeared window:
 - select COM port to which the station is connected in the Com Port No drop-down list on the Global tab;

80	hea <mark>vy we</mark> a	ther - settings		×
	Global	Units Pres	sure History	About
		Com Port No. COM1: 💌	Clock 24h 12h	
		🔟 Tips On/Off	Decimal sepa point comma	
			Abari	ОК



• specify units of output measurings on the Units tab as it is shown on the picture below.

Ð	hea <mark>vy wea</mark> t	her - sett	ings	×
	Global	Units	Pressure History About	1
	Pres	sure	(Temperature)	
	inHo 🔻		Ψ 3'	
	R.	in	Wind Speed	
	mm	T	m/s 💌	
				_
			Abort OK.	

Click OK to exit the window with saving of all customized settings.

7. Data received from weather station is displayed in the heavy weather main program window in several seconds.

Indext Pressure 29.19 inHg Tendency min: 20.10 inHg min: 20.20 inHg min: 20.20 inHg min: 20.20 inHg min: 20.20 inHg min: 30.4 min: 30.4 min: 30.4 min: 30.4 min: 30.4 min: 21.8 °C Mini: 21.8 °C
Indoor Humidity Outdoor Humidity 37 % 34 % min 38 % min 33 % Indoor Temperature Outdoor Temperature 60
min. 38 % min. 33 % min. 33 % Indeer Temperature Outdoor Temperature 600 60
Indeer Temperature Outdoor Temperature 60 - min: 21.8 °C 70 - min: 21.8 °C 40 - max 24.5 °C 70 - max 28.2 °C 40 - max 24.5 °C 0 - max 28.2 °C
20 - max 0.0 mm max: 0.0 mm
0 0 Beneral 10 24.5 °C 26.2 °C 10 Jata caved in file: Alarm history.dat Salue File
Dewpoint Windehill ittory.dat Setup End 9.0 °C 1324 save di data set(s) Image: Setup Image: Setup
min: 0.0 °C min: Show History II HF Reception

- 8. Click Exit to exit the program. The program must be closed at further working.
- 9. Launch the WeatherStationPluginConfig weather station configurator (C:\Program Files\ForwardT Software\Tools\ WeatherStations\WeatherStationPluginConfig.exe).
- $10. \ Pass to the Heavy Weather tab.$

💥 Weather Station Plugin Config
Oregon Scientific WOS DIP Modular System DIP TTE24 TUNDRA Stream TPH PMM-4095E PMM-4095
Heavy Weather Temp, Keeper DigiTV Thermo Davis Instruments Oregon Scientific
Model: WS2315
Application path: C:\HeavyWeather\heavy weather.exe Browse
Refresh every: 1 😋 min.
Is active
OK Cancel

Customize the following items:

- select model of used device in the Model drop-down list;
- specify a full path to the file that launches the program that outputs data received from weather station on PC in the Application file field (for example, heavy weather.exe). For this use the Browse... button to open a standard dialog window and select the file;
- specify time interval between reading cycles of data from weather station in the Refresh every field;
- put the Is active mark.
- Close the WeatherStationPluginConfig program by clicking OK. The program must be closed at further working. Weather station is prepared to be used by FDImageUpdater program.
- 12. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select sensors which names begin with the WSxxxx prefix, where xxxx is an index of weather station model.

Add sensor	X			
Select sensor:	PMM-4095E temperature (C)			
Use sensor value	PMM-4095E temperature (C) PMM-4095E pressure (mmHg) PMM-4095E humidity (%)			
Format:	PMM-4095E burnidity (%) WS2315 outdoor temperature (C) WS2315 indoor temperature (C)			
# ▼	WS2315 windchill (C) WS2315 wind speed (m/s)			
Use text replacement WS2315 wind direction WS2315 outdoor humidity (%) Text file for repla WS2315 indoor humidity (%)				
- Text file for rep	WS2315 pressure (mmHg) WS2315 pressure (hpa)			
	WS2315 rain total (mm) WS2315 rain 24h (mm)			
Use image replacement	WS2315 rain 1h (mm) WS2315 dew point (C) WS2315 weather tendency			
	Browse			
,				
	OK Cancel			

2. DIP Modular System Sensors (MA T, MA TPH Models)

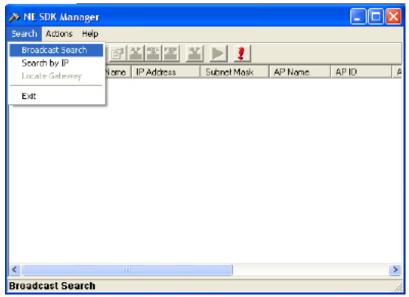
- 1. Plug sensor to PC local net and network. Turn the device on.
- 2. Install NESDK software included in the sensor delivery set. For this start NESDK_X.X.exe application for execution, X.X denotes software version.

	🕑 dmm matph (F:)				
	і́⊈айл ⊡равка <u>В</u> ид <u>И</u>	збраннов	Серенс (іправка	2
	ј Адреса 🕑 E (💌 🄁 Flep	екод
	Ина 🔶		Разиар	Тип	Изие
	DMMexplorer			Папка с файлани	17.02
	🔟 dmm41_IP .doc		Z 574 KB	Дакуиант Microsof	09.11
_	DMM_41_udpserver.doc		238 KB	Дакуиент Microsof	03.10
((NESDK_2.4.exe)		4 620 KB	Припожение	06.12
	ESDK_2.4.rar		3 423 KB	Apxide WinRAR	19.01
	🗐 TPH.txt		ZКБ	Текстовый документ	06.12
	🚯 udpserver.exe		1 4 68 KB	Припожение	03.10
	<	11			>

3. Launch the NE SDK Manager program.



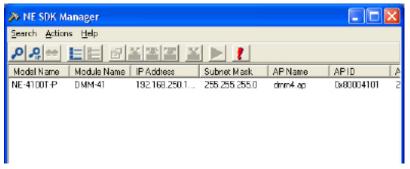
4. Select the Broadcast Search command in the appeared program window in the Search menu.



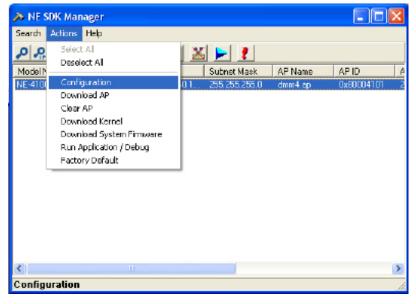
The program searches the device in local network.

ddrecs 8:14:2c:df
8:14:2c:df

Information on found device is displayed in the main program window.



- 5. Click line with information on the divice.
- 6. Select the Configuration command in the Actions menu.



7. Put the Change Ethernet Settings mark and customize local settings of the device (IP Adress, Netmask, Gateway, IP Config) according to recommendations of a local network administrator in the Configuration window. Then click Save&Restart.

🔉 Configuratio	n 💶 🗖 🔀
Network Enabler	Serial Port Advance Setting
Change N	letwork Enabler Settings
Module Nar	me : DMM-41 Mode : Running
Change F	
Password	
Confirm P	essword:
🔽 Change B	ihamet Setlings
IP Addres	s: 182.168.250.154 Netmask : 255.255.0
Gateway	: 192.168.250.3 IP Config : DHCP 💌
	Savet Restart 🛛 🗶 Carcel

- 8. Close the program. The program must be closed at further working.
- 9. Be sure that temperature is displayed on device panel on a special display.
- 10. Launch configurator of weather stations WeatherStationPluginConfig (C:\Program Files\ ForwardT Software\Tools\WeatherStations\ WeatherStationPluginConfig.exe).
- $11.\ Pass to the DIP Modular System tab.$

WeatherStationPlu	ginConfig				
Heavy Weather Oregon Scientific WOS	Temp. Keeper DIP Modular System	DigiTV Thermo DIP TTE24 TU	Davis Instruments	Orego	n Scientific
	58.250.154 V	Add	INDRA Stream TPH		PMM-4095
Sensors Temperature Is active	✓Pressure H	umidity			
				ок	Cancel

• click Scan network. The program searches the device in local network. When the device is found the IP, Port and Slot fields values will be specified automatically.

ک ے	WeatherStatio	nPluginCo	onfig					
	Heavy Weather Oregon Scientific V IP: 1	192.168.250	mp. Keeper Modular Sy 1.154	DigiTV Therm DIP TTE24 Add Add port	RA	/is Instruments Stream TPH	Orea PMM-40958	gon Scientific PMM-4095
	✓ Is active							
							OK	Cancel

- put marks that correspond to sensors from which the FDImageUpdater program must receive the information in the Sensors group of elements;
- put the Is active mark.
- 12. Close the WeatherStationPluginConfig application by clicking OK. The program must be closed at further working. Weather station is prepared for being used in FDImageUpdater.
- 13. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select sensors which names begin with the DMS prefix.

PMM-4095E temperature (C)
PMM-4095E temperature (C)
PMM-4095E pressure (mmHg) PMM-4095E bumidity (%)
DMS temperature (C)
for sensor value
acement;
Browse

78

3. Stream Labs USB_MS_RS485 Sensor

1. Copy a folder with drivers on PC hard disk.

Important: Drivers and application used for customizing of the Stream Labs sensor are supplied by the manufacturer.

- 2. Plug the sensor to PC USB port. The Wizard window appears. Follow Wizard instructions. Installation is implemented in a standard way.
- 3. Be sure that the sensor is in the list of system devices. To do this complete the following:
 - a) right-click My Computer context menu and select Properties;
 - b) pass to the Hardware tab in the Properties window;
 - c) click Device Manager;
 - d) look for USB Stream Labs Devices in the list of devices. Close the window.

🖴 Device Manager	
<u>File Action Vi</u> ew <u>H</u> elp	
Computer Computer Computer Computer Computer Computer Computer Computer Computer Computer Computer Computer Computer Computer Computer Computer Computer Compu	

- 4. Launch the METEO_Sensor_USB_RS485.exe program to check functioning of the sensor.
- **Important** The METEO_Sensor_USB_RS485 program is supplied by the manufacturer.

The program searches sensors plugged to PC via USB port.



When sensor is found information received from it will be displayed in the program window.

METEO_Sensor_USB_RS	485					
Temperature +22 oC Humidity 42 %						
Pressure 7		имРт.ст.				
139 131 116 185	183	MeteoSensor Connected				

Close the program.

- 5. Launch the WeatherStationPluginConfig configurator for weather stations (C:\Program Files\ForwardT Software\ Tools\WeatherStations\WeatherStationPluginConfig.exe).
- 6. Pass to the Stream TPH tab. Put the Is active mark.

	Temp. Keeper	DigiTV Thermo	Davis Instruments	Oregor	n Scientific
regon Scientific WOS	DIP Modular System	DIP TTE24 TUNDE	RA Stream TPH	PMM-4095E	PMM-4095
Z Ta antica					
✓ Is active					

7. Close the WeatherStationPluginConfig program by clicking OK.

8. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select sensors which names begin with the Stream TPH prefix.

Add sensor	×
Select sensor: Use sensor value Format:	Stream TPH temperature Stream TPH temperature Stream TPH pressure Stream TPH humidity Correction: 0,0 Subtract (-)
Use text replacement	

4. Oregon Scientific Weather Station

4.1. Working With Oregon Scientific Weather Station Using Virtual Weather Station Software

- 1. Plug weather station to PC, turn the station on.
- 2. Install software from the disk included in the Virtual Weather Station software set.

	🦉 Virtual Weather Station	
	Destination Directory Select the primary installation directory.	
	All software will be installed in the following location(s). To install software into a different location(s), click the Browse button and select another directory.	
(1)	Target directory for application C twwst Browse	
	C. Program Files Wational Instruments C. Program Files Wational Instruments A.	
	((Back Next))	

The software is installed to the folder specified in the Target directory for application field (1).

Program shortcut appears on the desktop after installation.



3. Launch the Virtual Weather Station program using the shortcut.

At the first program launch several dialog windows appear. In the windows you may select a language and register used software. We recommend registering the program.



4. Specify units of measuring of output data in the Conversions window as it is shown below. Then click Close.

X Conversions					
-Conversions -Temperature - で で	Alikude O feel O meter	Rain² ◯ in ⊙ mm			
Barometer	Wind Speed mph knot km/hr m/sec	*Evapotranzpitation Distance miles () km			
	Qose				

5. Select name of plugged weather station in the Weather Station drop-down list of the Communication window.

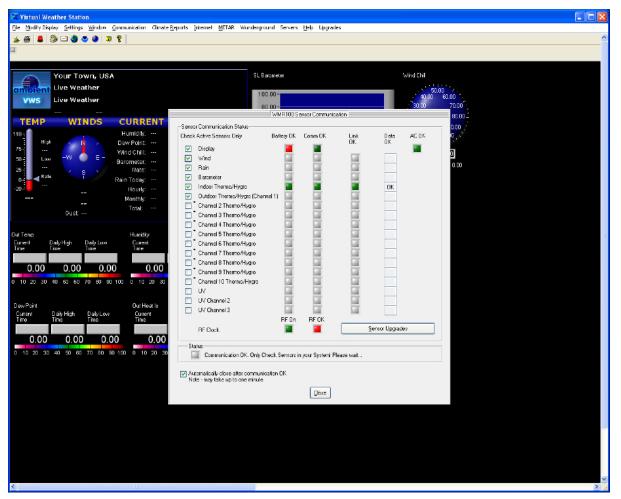
🔀 Communication	
Communication Weather Station:	
Communication Polt Beutitate:	
Communication Rate (sec)	
- Status Message	
Операция успешно завершена	
Close program and reboot computer if problem persists.	
Qose	

Click Close. Window with the following service message appears.

💥 Restart Program 🛛 🛛 🔀
Program will shut down when the communication window is closed. Restart Program for Station Changes to Take Effect
OK

After clicking OK the program is automatically closed.

6. Launch the Virtual Weather Station program. Its main window and window with title XXX Sensor Communication, where XXX is name of station appear.



- 7. Complete the following in the XXX Sensor Communication window:
 - put marks that correspond to the names of plugged sensors (if marks are absent);
 - remove marks that correspond to the names of sensors that are not used (if marks are put);
 - put the Automatically close after communication OK mark and wait till the window closes automatically (it may take several minutes).
- 8. Data received from the Virtual Weather Station is displayed in the main program window after closing of the XXX Sensor Communication window and if the station functions correctly.

The program initializes output of data in the dbase.csv file during some time (it takes 1 minute approximately).

- 9. Launch the WeatherStationPluginConfig configurator for weather stations (C:\Program Files\ForwardT Software\ Tools\WeatherStations\WeatherStationPluginConfig.exe).
- 10. Pass to the Oregon Scientific tab in the Weater Station Plugin Config window.

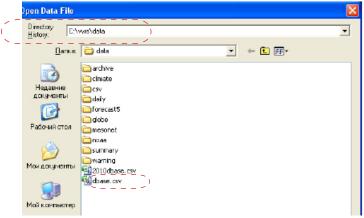
💥 WeatherStationPluginConfig
Oregon Scientific WOS DIP Modular System DIP TTE24 TUNDRA Stream TPH PMM-4095E PMM-4095 Heavy Weather Temp. Keeper DigiTV Thermo Davis Instruments Oregon Scientific
Model: WMR100 Application path: C:\vws\vws.exe Refresh every: 1 > min. Data file: C:\vws\data\dbase.csv
V Is active

Complete the following on the tab:

- select a model of plugged weather station in the Model drop-down list;
- specify a full path to the file that launches the program that outputs data received from weather station on PC in the Application path field (for example, vws.exe). For this use the Browse... button to open a standard dialog window and select the file;
- specify time interval between reading of data from weather station in the Refresh every field;
- specify a full path to the dbase.csv file in the Data file field by completing the following:
 - 1. Pass to the Virtual Weather Station program window.
 - 2. Select the Open Data File command in the File menu.

	🔀 Virtual Weather Station				
	Ele	Modify Display	Settings	<u>W</u> indow	Communication
(<u>O</u> pen Data File Print	Cb/H	Shift+O) ?

3. A full path to the folder with the dbase.csv file is displayed in the Open Data File window in the Directory History field. Memorize this path.



- 4. Close the window by clicking Cancel.
- 5. Pass to the WeatherStationPluginConfig program window.
- 6. Click Browse... to specify path to data file. Specify path to the dbase.csv file mentioned on step 3.
- put the Is active mark.
- 12. Close the WeatherStationPluginConfig application by clicking OK.
- 13. Close the Virtual Weather Station program using the File > Exit menu command.
- 14. Launch the FDImageUpdater program.
- 15. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select sensors which names begin with the WMRXXX prefix, where xxx is an index of weather station model.

Add sensor	×
Select sensor: Use sensor value Format: # • Use text replacement f	WMR100 outdoor temperature (C WMR100 outdoor temperature (C) WMR100 indoor temperature (C) WMR100 windchill (C) WMR100 wind speed (m/s) WMR100 wind gust (m/s) WMR100 wind gust (m/s) WMR100 outdoor humidity (%) WMR100 indoor humidity (%) WMR100 pressure (mmHg) WMR100 rain total (mm) WMR100 outdoor dew point (C)

4.2. Working With the Oregon Scientific Weather Station using Weather OS

- 1. Plug weather station to PC, turn the station on.
- 2. Install software from the disk included in the Weather OS software set.



The software is installed in the folder specified on the Select Installation Folder step in the Folder field (1).

Program shortcut appears on the desktop after installation.



- 3. Launch the Weather OS program using the shortcut.
- 4. Select model of used weather station in the appeared Model Selection window in the drop-down list (2) and click OK (3).



5. The Oregon Weather Station – XXX window appears, XXX is index of program version. Click Settings... (4).



6. Specify a folder for storing data in the Settings window on the General tab, in the Data Directory field (5). The Data subfolder is automatically created in this folder that will contain data received from weather station at working of the FDImageUpdater program.

	Settings	×
	General Sensors Language City	
	Weather station model	
	Please choose the type of your station in the list below	
	WMR100/A Check the USB connection	
	Recording settings	
	Data Directory :	
5)-	C:\Program Files\Oregon Scientific\Weather C6	
	6 OK Cancel Apply	

Click OK (6).

7. Close the Weather OS program by right-clicking the icon (7) located in task bar notification area. Select Quit in the appeared menu.



- 8. Launch the WeatherStationPluginConfig configurator for weather stations (C:\Program Files\ForwardT Software\ Tools\WeatherStations\WeatherStationPluginConfig.exe).
- 9. Pass to the Oregon Scientific WOS tab.

1	WeatherStationPlug	ginConfig				
	Heavy Weather Oregon Scientific WOS	Temp. Keeper DIP Modular System	DigiTV Thermo DIP TTE24 TUM	Davis Instruments	Oregon Scientific PMM-4095E PMM-4095	
	Model: WMR100	~				
	Application path:	G:\SoftLab-NSK\Data\W	/eather OS.exe		Browse	
	Refresh every: 2	🛟 min.				
	Data folder: C:\Program Files\Oregon Scientific\Weather OS\DATA\ Browse				Browse	
	✓ Is active					
				(OK Cancel	

Customize the following items on the tab:

• select model of plugged weather station in the Model drop-down list;

	💥 WeatherStationPluginConfig						
1	Heavy Weather Temp. Keeper DigiTV Thermo Davis Instruments Oregon Scientific WOS DIP Modular System DIP TTE24 TUNDRA Stream TPH Pf	Oregon Scientific MM-4095E PMM-4095					
	Model: WMR100						
	Application path: G:\SoftLab-NSK\Data\Weather OS.exe	Browse					
	Refresh every: 2 🗘 min.						
	Data folder: C:\Program Files\Oregon Scientific\Weather OS\DATA\	Browse					
	✓ Is active						
L							
		OK Cancel					

- specify a full path to the file that launches the program that outputs data received from weather station on PC in the Application path field (for example, vws.exe). For this use the Browse... button to open a standard dialog window and select the file;
- specify time interval between reading of data from weather station in the Refresh every field;
- specify path to the folder used for storing of files selected on step 6 in the Data folder field;

- put the Is active mark.
- 10. Close the WeatherStationPluginConfig program by clicking OK.
- 11. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select sensors which names begin with the WMRXXX prefix, where xxx is an index of weather station model.

Add sensor	X]
Select sensor:	WMR100_WOS outdoor temperat	、
Use sensor value	WMR100_WOS outdoor temperature (WMR100_WOS indoor temperature (C WMR100_WOS wind speed (m/s)	1
Format:	WMR100_WOS wind direction WMR100_WOS wind gust (m/s)	
# 💌	WMR100_WOS outdoor humidity (%) WMR100_WOS indoor humidity (%)	
	WMR100_WOS pressure (mmHg) WMR100_WOS rain total (mm)	
Text file for repla	WMR100_WOS outdoor dew point (C) Stream TPH temperature	/
1	Stream TPH pressure Stream TPH humidity	

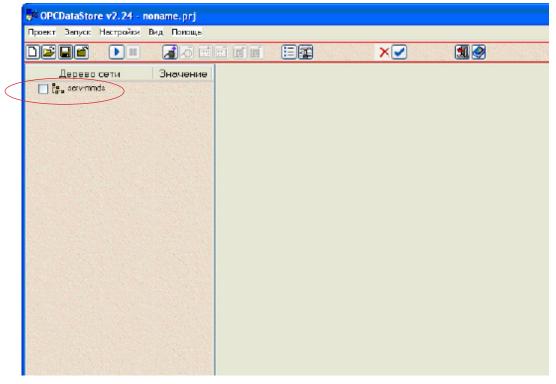
5. IRT 5920 Sensor

Transmitting of data from the IRT 5920 sensor to PC is implemented via the OPCDataStore server developed by sensor manufacturer. The program can be downloaded from the «Elemer» website, the site is currently available in Russian only:

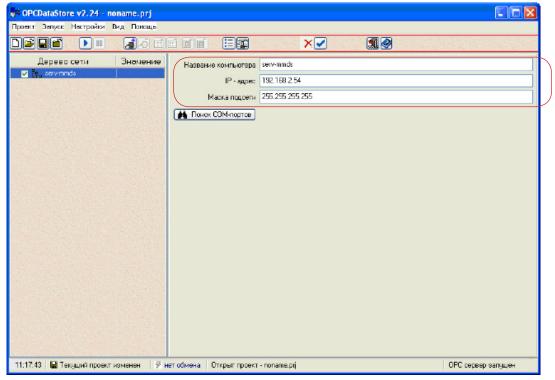
http://www.elemer.ru/catalog_1146.html.

- 1. Launch the OPCDataStore program. The program does not have English interface.
- 2. Create a new project via the Проект > Новый проект menu command.

Line with the name of your PC is displayed in the Дерево сети list.



3. Put the mark opposite the name of your PC in the Дерево сети list. PC net connection settings are displayed on information panel.



4. Click Добавить СОМ-порт on a toolbar. The COM1/9600 line is added to the Дерево сети list.

😽 OPCDataStore v2.24 - no	name. prj		
Проект Запуск Настройки В	ид Покощь		
Дерево сети	Эначение		

Complete the following on the panel:

- select index of COM port and скорость обмена in the COM-порт and Скорость обмена drop-down lists that correspond to specified sensor;
- click Проверка связи to be sure that specified port is accessible for working.

📲 OPCDataStore v2.24 - noname.prj		
Проект Запуск Настройки Вид Понощь		
Дерево сети Значение ■ Г : servminds :	ООМ-перт ООМ1 С Скорость обнана 9500 С Скорость обнана 9500 С ОКI СОМ-порт доступен для обмена с приборами. Диапазон прирка Поиск приборов	1 N N

5. Click Добавить прибор on the panel. The Прибор line appears in the Дерево сети list.

OPCDataStore v2.24 - noname.prj 💽 🖸 🔀						
Проект Запуск Настройки Вид	д Понощь					
	ৰিতি 🗾			×	۵.	
	Значение	Название прибора	Прибор			
E 🔽 🚰 serv-minds E 🔽 🥒 COM1/9600	Contraction of the second	Тип прибора	3 🤹			
🛛 🗾 🧱 Прибор		Сегевой адрес	1 拿			
Sold States of Sold States		📡 Проверка связи				
		🚆 Считать конфиг.				

Customize the following on the panel:

- specify 9 in the Тип прибора field;
- specify 0 in the Сетевой адрес field;
- click Проверка связи to be sure that settings are made correctly;
- Note: Required values of the Тип прибора parameters are specified in instruction supplied to the IRT 5920 sensor.
 - click Считать конфиг. Name of the sensor is displayed in Дерево сети list instead of Прибор.

OPCDataStore v2.24 - noname.prj	© OPCDataStore v2.24 - noname.prj					
Проект Запуск Настройки Вид Понощь						
D ele 🕨 Ia		I I I I I I I I I I I I I I I I I I I	SARASSIN .			
Дерево сети Значени	Название прибора	Прибор				
.⊟ 🔽 serv-mmds 🚊 🔽 COM1/9600	Тип прибора	9 🖨				
🗴 📩 ИРТ 5920(30)	Сегевой адрес	0 🗢				
Research Research	💽 Проверка сеязи	Oki На сеязи				
New Xord Adv. No.	Считеть конфиг.					
		4				

6. Click Добавить канал on a toolbar.

Line with name of channel appears in the Дерево сети field.

© OPCDataStore v2.24 - noname.prj		
Троект Запуск Настройки Вид Помощь		
D e li de la c e		
Дерево сети Значение У serv-mids © COM1/9600 ■ Ø IAPT 5920(30) • Ø Keren 1	Названня канала Канал1 Адросканала 0 📚 Проверка связи Периодичность опроса 5 💭 - с	

7. Click Проверка связи on information panel. Measured value appears in the filed located near the Проверка связи button if data is correctly received from the sensor.

😽 OPCDataStore v2.24 - nonam	ie.prj		
Проект Запуск Настройки Вид	Помощь		
	ta e e		
Дерево сети Зна в 🗸 serv-mmds	ачение	Нассания канала Канал 1	
⊆ 🔽 СОМ1/9600 ⊆ 💽 ИРТ 5920(30)		Адресканала 0 🗘	< <u>></u>
Korran T		Периодичность опроса 5 😰 , с	

- 8. Save the project by clicking Проект > Сохранить проект как....
- 9. Open the Настройка программы (the Настройки > Настройки программы menu command).

10. Customize the following items as it is shown below on the picture. Then click OK.

Настройки программы	X			
- Общие настройки				
🕑 Автозагрузка последнего открытого проекта				
🗹 Автозапуск обора данных при входе в программу				
🗹 Сохранение настроек программы при выходе				
🗹 Отображение картинок в дереве сети				
Автозапуск ОРС сервера при входе в программу				
Показать кнопку з муляции сбора данных				
Сворачивать в трей при запуске				
Тип передаваетски данных				
🔾 Етрока 💿 Число				
🗸 ОК 🗶 Отмена) 🎯 Помощь				

11. Launch the OPCConfigurator configurator (C:\Program Files\ ForwardT Software\Tools\OPC\ SLGPIOPCConfig.exe).

🍰 OPCConfi	gurator (connected)		×
OPC server	OPCDataStore. TOPCElemerServer.2	Connect Disconnect	
	Item groups	CPC server th	annels
= <u>123</u> ÷.com	1.ИРТ 5920(30)(0].Канал 1	Now group Config group Remove group Add channel Remove channel Set GP1 parans	
	L	ad Save	

- 12. Customize parameters in this program configurator in the same way as you customized dealing with OPCDataStore.
- **Tip:** First customize settings in the OPC server channels bar, then after creating of a group drag the channel into the Item groups bar using the mouse.

٢

13. Specify minimal and maximal temperature values in the GPI config dialog window. The window is opened by clicking the Set GPI params button.

UPLDataStore 92.24 - 3.net		
Проект Запуск Настройки Вид Помощь		
Дерево сети Эначение ГГ № servemds ГГ № COM1/9600 ГГ № CPCConfigurator (connected) OPC server OPCDataStore.TOPCElemerServer.2 ✓ Cornect	×	Запрос клиентам на отключение Информация о подключённых клиентах ⊕ Подключился новый клиент 17.03.2008 10.42:14 ⊕ Подключился новый клиент 17.03.2008 10.43:18
Item groups COM1.WPT 5920(30)[0].Kawan 1 New group Remove group Add channel Remove channel Set GPI params Loed Save	OPC server channels	Статус ОРС подключений Клиент подключился: ОК Создана налия Group0: ОК Создан каная COMI JPT 5520(30)(0) Evice exchange: ОК Создан каная COMI JPT 5520(30)(0) Kanan 1: ОК Клиент подключился: ОК Создана каная COMI JPT 5520(30)(0) Kanan 1: ОК Создана каная Server's Device's Tree_Changed DK Создана каная Server's Device's Tree_Changed DK Создана каная COMI JPT 5520(30)(0) Kanan 1: 0K Чаленен агруппа 5520.0 K Создана каная COMI JPT 5520(30)(0) Kanan 1: 0K Чаленен агруппа 5520.0 K Чаленен агруппа 5520.0 K Создана каная COMI JPT 5520(30)(0) Kanan 1: 0 K Чаленен агруппа 5520.0 K Создана каная Server's Device's Tree_Changed 0 K Создана каная Server's Device's Tree_Changed 0 K Создана каная COMI JPT 5520(30)(0) Kanan 1: 0 K

Tip: We insistently recommend specifying nonzero values for the Min value and Max value parameters (minimal and maximal temperature values), for example, -50 minimal, 50 maximal.

- 14. Save made configuration. Close the configurator.
- 15. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select sensor which name begins with «OPC_».



6. Tundra Sensor

- 1. Turn PC off.
- 2. Plug the sensor to PC COM port. Turn PC on.
- 3. Launch the WeatherStationPluginConfig weather station configurator (C:\Program Files\ForwardT Software\Tools\ WeatherStations\WeatherStationPluginConfig.exe).
- 4. Pass to the Tundra tab.

WeatherStationPlu	ginConfig					
Heavy Weather	Temp. Keeper	DigiTV Thermo	Davis	s Instruments	Orego	Scientific
Oregon Scientific WOS	DIP Modular System			Stream TPH	PMM-4095E	PMM-4095
COM port: COM1	×					
✓ Is active						
					ок	Cancel

- 5. Complete the following on the tab:
 - specify port to which the sensor is plugged in the COM port drop-down list;
 - put the Is active mark.
- 6. Close the WeatherStationPluginConfig program by clicking OK.
- 7. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select the TUNDRA outdoor temperature (C) sensor.

Add sensor	
Select sensor:	Stream TPH temperature
Use sensor value	Stream TPH temperature Stream TPH pressure Stream_TPH bumidity TUNDRA outdoor temperature (C))
# •	0,0 ÷ Subtract (-)
Use text replacement	
	Browse

7. RMM-4095. Device for Collecting and Processing of Data Received from Weather Station

- 1. Turn PC off. Plug the device to PC COM port.
- 2. Plug the device to network. Turn the device and PC on.
- 3. Launch the WeatherStationPluginConfig configurator for weather station (C:\Program Files\ForwardT Software\ Tools\WeatherStations\WeatherStationPluginConfig.exe).
- 4. Pass to the RMM–4095 tab.

💐 WeatherStationPlug	inConfig				
Heavy Weather Oregon Scientific WOS	Temp. Keeper DIP Modular System	DigiTV Thermo DIP TTE24 TUN	Davis Instruments DRA Stream TPH	Orego PMM-4095E	n Scientific PMM-4095
COM port: COM1	Correction Temperatu Pressu Humic	ure: 0 🌍 mmHg	om -9.9 to +9.9 , from -30 to +30 om -10 to +10		
Is active					
				ОК	Cancel

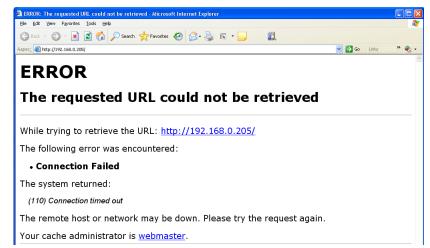
Customize the following:

- specify port to which the RMM-4095 device is plugged in the COM port drop-down list;
- specify corresponding correction values for temperature, pressure and humidity indicators in corresponding text fields of the Correction group. The FDImageUpdater program will receive data adjusted according to the specified values;
- put the Is active mark.
- Close the WeatherStationPluginConfig program by clicking OK. The program must be closed at further working. The RMM-4095 device is prepared to be used by FDImageUpdater program.
- 6. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select sensors which names begin with RMM-4095.

Add sensor		×
Select sensor:	PMM-4095E temperature (C)	•
Use sensor value	PMM-4095E temperature (C) PMM-4095E pressure (mmHg)	
Format:	PMM-4095E humidity (%)	

8. RMM-4095E. Device for Collecting and Processing of Data Received from Weather Station

- 1. Plug the PMM-4095E device to PC network port and local network. Turn the device on.
- 2. Be sure that the device is detected. To do this launch Microsoft Internet Explorer on one of PCs in local network. Specify IP address of the device in address line (see Tip below) and pass to the web page:
 - if the page with message on error appears then the device is not detected. In this case appeal to network administrator.

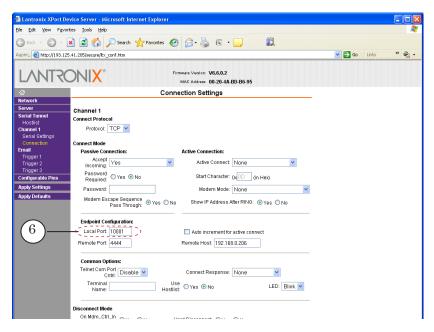


• if the page presented on the picture below is opened in the Internet Explorer window then the device is detected.



Tip:	The RMM-4095E block is supplied with a preset IP adress – 192.168.0.205 . There is a possibility of changing IP adress by completing the following:
	1. Connect the device and PC using a net cable. Turn the device on.
	2. Launch Microsoft Internet Explorer (when using other browsers information can be displayed incorrectly). Specify: http://192.168.0.205 in address line and press Enter.
	 3. If the following window appears in the Internet Explorer window then click OK without entering anything. If the following window appears in the Internet Explorer window then click OK without entering anything. If the following window appears in the Internet Explorer window then click OK without entering anything. If the following window appears in the Internet Explorer window then click OK without entering anything. If the following window appears in the Internet Explorer window then click OK without entering anything. If the following window appears in the Internet Explorer window.
	Lantronix XPort Device Server - Microsoft Internet Explorer Ele Edit Yew Favorites Tools Lieb
	🔇 8xxk - 🐑 - 🖹 🗟 🟠 🔎 Search 👷 Favorites 🕢 🍰 🗟 - 🥁 🗟 -
	Apper, http://192.168.0.205/jescure/bx_conf.htm 🖉 🖸 60 Links 🌚 •
	Home Home Home Home Home Home Home Home
	Network Serial Tunnel Hoshid Channel Serial Statings Connecton Trigger 1 Trigger 2 Trigger 2 Trigger 3 Configurable Pins Apply Serials Period Server Configuration Manager Version 1.7.0.1

- 5. Page for customizing of network connection appears. ix XPort Device Server - Mic ft Internet Explo View Favorites Tools Help Edit 🔇 Back 🔹 🐑 - 📓 🛃 🏠 🔎 Search 🤺 Favorites 🤣 🍰 🗟 🔹 🧾 1 🕘 http://193.125.41.205/secure/ltx_conf.htm 🔽 🛃 Go 🛛 Links » 🗞 Firmware Version: V6.6.0.2 MAC Address: 00-20-4A-BD-B6-95 LANTRONI<mark>X</mark>° Network Settings Network Mode: Wired Only 👱 $\mathbf{2}$ IP Configuration hannel 1 Serial Sel - 🔿 TODtaïn IP address au 5 Auto Configuration Methods BOOTP: 💿 Enable 🔾 Disable DHCP:
 enable
 Disable AutoIP:
 e Enable
 Disable DHCP Host Name: Apply Settings ply Defaul Use the following IP configuration IP Address: Subnet Mask: 255.255.255.0 Default Gateway: DNS Server: 0.0.0.0 Ethernet Configuration Auto Negotiate Speed: 💿 100 Mbps 🔿 10 Mbps Duplex: 💿 Full 🔾 Half 3 OK Customize settings recommended by your administrator in the IP Configuration group (2), then click OK (3) and click Apply Settings (4).
 - 5. Right-click Connection (5).
 - 6. Search for the value displayed in the Endpoint Configuration group in the Local Port field (6). Memorize this value. The value is necessary at customizing of the device in WeatherStationPluginConfig program configurator.



7. Close Internet Explorer.

- 8. Launch the WeatherStationPluginConfig program configurator for weather stations (C:\Program Files\ ForwardT Software\Tools\WeatherStations\ WeatherStationPluginConfig.exe).
- 9. Pass to the RMM-4095E tab in the appeared configurator window.

🗮 WeatherStationPluginConfig	
Heavy Weather Temp. Keeper Oregon Scientific WOS DIP Modular System	DigiTV Thermo Davis Instruments Oregon Scientific DIP TTE24 TUNDRA Stream TPH PMM-4095E PMM-4095
IP: 193 . 125 . 41 . 205 Port: 10001	Correction Temperature: 0.0 🔷 °C, from -9.9 to +9.9 Pressure: 0 🗢 mmHg, from -30 to +30 Humidity: 0 🔷 %, from -10 to +10
▼ <u>Is active</u>	Refresh every: 1 🗘 min.

Customize the following items on the tab:

- specify IP address of the device in the IP address field;
- specify port used for interaction of the device and PC in the Port field (10001 is by default, see step 6);
- specify corresponding correction values for temperature, pressure and humidity indicators in corresponding text fields of the Correction group. The FDImageUpdater program will receive data adjusted according to the specified values;
- put the Is active mark.
- Close the WeatherStationPluginConfig program by clicking OK. The program must be closed at further working. The RMM-4095 device is prepared to be used by FDImageUpdater program.
- 11. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select sensors which names begin with RMM-4095E.

Add sensor		×
Select sensor:	PMM-4095E temperature (C)	-
Use sensor value	PMM-4095E temperature (C) PMM-4095E pressure (mmHg) PMM-4095E humidity (%)	
Format:		

9. Temperature Sensors that Work with the Temp. Keeper Program

The Temp. Keeper (<u>http://isens.ru/about.html</u>) program is used to work with temperature sensors based on DS1820, DS18S20 michrochips developped by Dallas Semiconductor. The link is currently available in Russian only.

Workflow of preparation:

- 1. Plug the sensor to PC.
- 2. Launch the Temp. Keeper program.
- 3. Be sure that temperature measurings received from the sensor are displayed in the program window.

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		222222	1000									
/010	Стоп	График Настройка	Объекты									
ID	Тип	Серийный номер	t("C)	Минt	Make, t	Мин. f Макс.	f Снгнал					
OBJ	L_001			-55	125	0 10	D Вкл.					
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D510	0_001 0 518520	16 111 53 1 2 8 0 2	52 22,5		125	0 10	О Вкл.					
D510	0_001 D\$18\$20	16 111 53 1 2 8 0 2			125	0 10	0 Вкл.					
D510	0_001 D\$18\$2D	161115312802	52 22,5		125	0 10	0 Вкл.	Т	мператира		7.16	
DS10	0_001 D\$18\$20	16 111 53 1 28 0 2	52 22,5		125	0 10	0 Вкл.	T	мпература			
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DS10	0_001 D 51852D	161115312802	52 22,5		125	0 10	D BKA	Ţ	омпоратура			

4. Click Настройка (2).

1		707	График	Настро	inter 1	Бъекты						
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	OBJ_001						-55	125	0	100	Вкл.	
	DS10_001	D 51852D	16.11	115312	8.0.252	22.5	-55	125	0	100	Вкл.	

- 5. Customize the settings in the Настройка appeared window. Customize the following settings on the Log tab:
 - put the Записывать лог mark;
 - put the Имя файла mark in the Настройки лог-файла group;
 - specify the keeper.log name in the Имя файла field.
- Important: You must obligatory specify the keeper.log name for a correct interaction of the FDImageUpdater and Temp. Keeper programs via log file.

жовные Интерфе Записывать лог		
астройки лог-файл	1a	
Имя файла:	keeper.log]
Ограничить раз С Каждые сутки н	мер (Кb): 1024	
	и каждом опросе д	
(• Записывать то.	лько при изменени	и температуры

Click OK to exit the window with saving of all customized settings.

- 6. Close the program.
- 7. Launch the WeatherStationPluginConfig weather station configurator (C:\Program Files\ForwardT Software\Tools\ WeatherStations\WeatherStationPluginConfig.exe).
- 8. Pass to the Temp. Keeper tab.

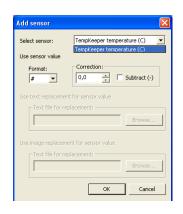
WeatherStationPl	uginConfig					
Oregon Scientific WOS			TUNDRA	Stream TPH	PMM-4095E	PMM-4095
Heavy Weather	Temp. Keeper	DigiTV Therm	o Da	ivis Instruments	Orego	n Scientific
Refresh every:	5 🛟 min.					
Data file:	D:\Temp. Keeper\keepe	er.log		owse		
▼ Is active						
				(ОК	Cancel

Customize the following settings on the tab:

- specify time interval between data updating in the Refresh every field;
- specify a full path to the keeper.log file in the Data file field;
- put the Is active mark.
- 9. Close the WeatherStationPluginConfig program by clicking OK. The program must be closed at further working.
- 10. Launch the Temp. Keeper program.
- 11. Create task of the SensorEx type in the FDImageUpdater program (see the Creation of Tasks section). Select sensor which name begins with the Temp.Keeper prefix.

104





Important: The Temp. Keeper program must be obligatory launched when images are customized and output.

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Recording of Data on Weather Into a Text Fie

1. General Information

Function of recording of data on weather must be activated if it is necessary to use information coming in FDImageUpdater program from weather stations via other programs.

Important: You must create a task for working with used weather station to output data on weather into a text file in the FDImageUpdater project.

2. Recording of Data on Temperature

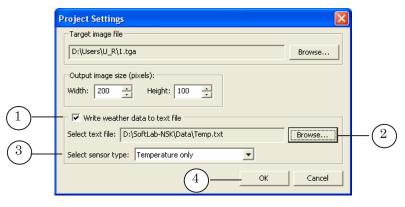
Working with any sensor supported by the FDImageUpdater program you can organize output of data on temperature into a text file.

Only temperature value is recorded into a text file. Output of data is implemented periodically.

📕 Temp.txt - Notepad							
<u>F</u> ile	<u>E</u> dit	F <u>o</u> rmat	⊻iew	<u>H</u> elp			
- 2	, 1						^
							\checkmark

Complete the following to organize output of data:

- 1. Open the Project Settings... window using the Settings > Project Settings... menu command.
- 2. Put the Write weather data to text file (1) mark in the Project Settings... window.



- 3. Click Browse... (2) to specify text file for data output in the appeared window.
- 4. Specify the Temperature only value in the Select sensor type drop-down list (3).
- 5. Save project settings by clicking OK (4).

3. Recording of Data on Temperature, Pressure, Humidity

Output of data on temperature, humidity and pressure into a text file can be implemented only when dealing with the following sensors:

- Stream Labs USB_MS_RS485;
- RMM-4095 (device for collecting and processing of weather data).

Data is recorded into separate lines that have the following format:

t=XX is a line with data on temperature, where XX is temperature value;

p=YY is a line with data on pressure, where **YY** is pressure value;

h=ZZ is a line with data on humidity, where ZZ is humidity value.

Picture below presents an example of file with data on temperature, pressure and humidity opened in Notepad editor.



Complete the following to organize output of data:

- 1. Open the Project Settings... window using the Settings > Project Settings... menu command.
- 2. Put the Write weather data to text file (1) mark in the Project Settings... window.

	Project Settings				
	Target image file —				
	D:\Users\U_R\1.tga	3		Browse	
	Output image size (p	pixels):			
	Width: 200 +	Height: 100			
(1)	└	laba ba ba di Gila			
\bigcirc					\bigcirc
~	Select text file: D:\;	SoftLab-NSK\Data\Temp.txt		Browse	-(2)
(3)	- Select sensor type:	Temperature only	•		Ŭ
\bigcirc		Temperature only PMM-4095			
		Stream TPH	ОК	Cancel	
			(4)		1
			\bigcirc		

- 3. Click Browse... (2) to specify file used for output of data in the appeared window.
- 4. Select one of the following values in the Select sensor type drop-down list (3):
 - Stream TPH if the Stream Labs USB_MS_RS485 sensor is used;
 - RMM-4095 if either RMM-4095 sensor or RMM-4095E sensor is used.
- 5. Save project settings by clicking OK (4).

Useful Links

Forward T Product Line: Description, Software Delivery, Documentation, Ready Solutions

http://www.softlab-nsk.com/forward/index.html

Support

http://www.softlab-nsk.com/support.html e-mail: forward@softlab.tv forward@sl.iae.nsk.su forward@softlab-nsk.com

Forums

<u>http://www.softlab-nsk.com/forum</u> (currently available in Russian only)

Additional Information FDTitleDesigner. Creating Title Objects. User's Guide; FDWebTracker. Downloading of Data from Web Site. User's Guide;

Translation from 18 March, 2013

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