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Leading in grading technology



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Startup/Shutdown Procedure

The Ellips system consists of two or more computers. One computer runs Windows with the user-interface application. If your system can only grade on weight, it is quite likely that the second computer is a MiniMaster. All other systems have one or more 19" rack master computers. Ellips computers should not be connected directly to the main power lines. Instead an online UPS (uninterruptible power supply) must be inbetween the power lines and the computers. The UPS is a big battery that protects the computers from spikes and voltage drops on the power lines. See connection diagrams below.

Startup:

Locate the UPS and switch it on. If you cannot locate the UPS, please contact your machine supplier (in some cases the UPS is remotely activated from a main panel). Some UPS models require you to hold the power button for a few seconds before they switch on. When the UPS is powered up, the master computer(s) and Profibus boards will also power up. Now you can power up the user-interface computer by pressing the power button on the front. On the monitor you will see Windows booting and after that automatically the TrueSort interface application will start. Once the TrueSort application is up and running, look for the system status. It is either located on the right in a post-it or on the top toolbar. A green check sign indicates the system is ready to use. If you see a red cross, be patient for a few minutes as the system is probably still initializing.



System is ready to use



System is initializing or in error

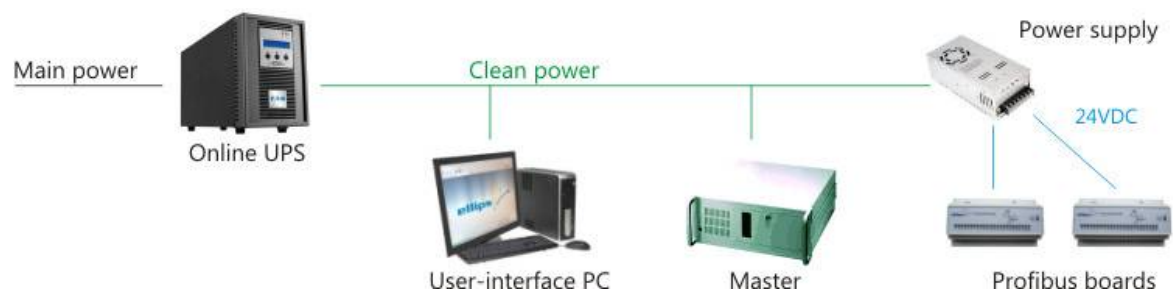
Shutdown:

Shutdown Windows first, either by pressing the power button on the front of the user-interface computer or from the Windows 'Start' menu. Wait for Windows to shut down completely, the computer will power off automatically. Now power off the UPS. Again you might need to hold the UPS power button for a few seconds to initiate the shutdown. Master computer and Profibus boards should now be off as well.

Diagram for a weight only system:



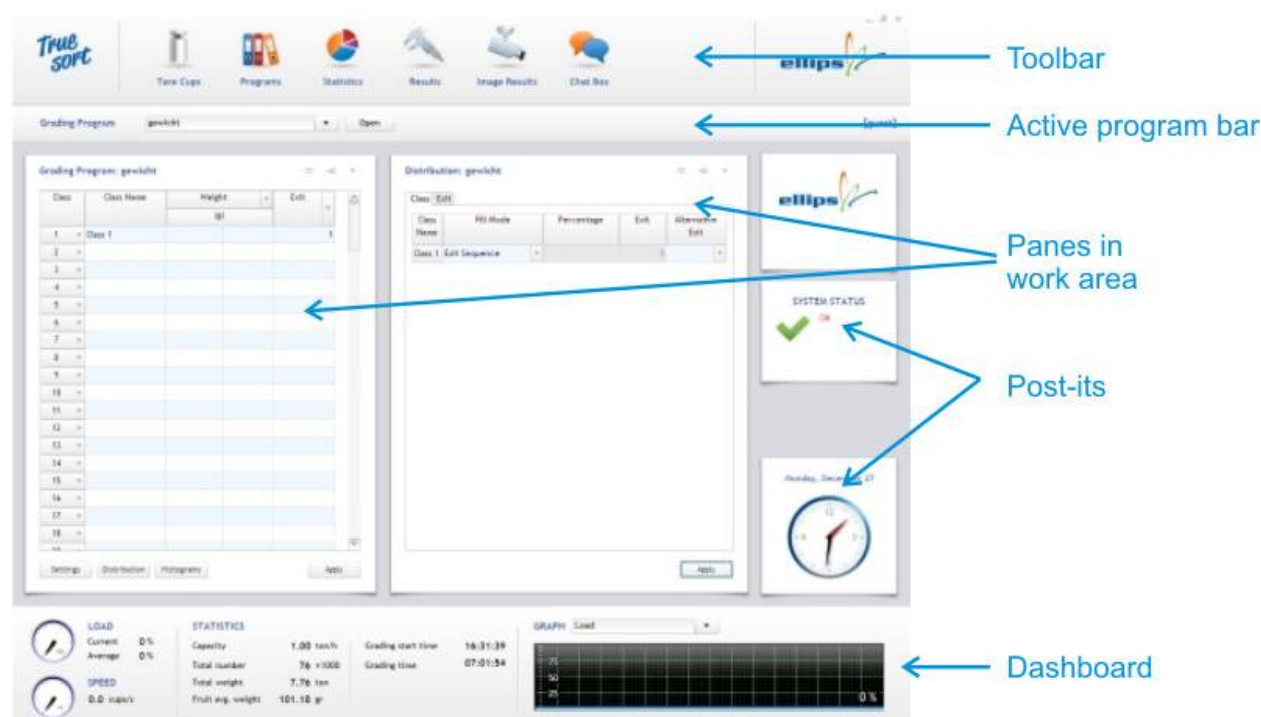
Diagram for all other systems:



Getting Started

Before we can actually start grading we have to be familiar with the TrueSort main screen.

The Main Screen



A major part of the main screen can be customized to your preference. Actually only the top toolbar and the active program bar are fixed. The 'post-it' area on the right can be switched off completely (the system status icon will automatically move to the top toolbar). The dashboard below can be replaced with a slim status bar. These customizations help to increase the working area if required. Different layout schemes can be chosen for the working area. Depending on the layout you choose, one or more panes are shown in the working area. As a user you decide what information you like to attach to a pane. For instance: grading criteria, statistics, packaging & distribution, measurement results etc.

To add/remove the post-its or replace the dashboard with the status bar, click on the TrueSort logo in the top left corner of your screen. A menu will pop up. Now choose **Edit→Settings** and select the **GUI Properties** tab to make the desired changes. It may seem like you are able to modify the **Maximum Cup Speed** here as well but this value is only used for the range of the speed indicator located in the bottom left of the big dashboard.

To choose a different layout for the panes, click on the TrueSort logo and from the popup menu select **Window→Layout**.



Click on the small triangle in the top right of a pane to attach the desired content/information for that pane.

Start To Grade

A few crucial things need to be checked before starting. First and foremost is the system status. A green check sign indicates the system is ready to grade. If the system status shows a red cross with an error message, the system will not function correctly. Check the troubleshooting page if the status remains 'Error'.

Next thing to check is the active grading program. If it's not the program you wanted, select a different one from the list. The statistics will reset automatically. If there is no need to change the program but you would like to reset the statistics, click on the **Statistics** icon from the toolbar and press the **Reset** button in the statistics window.

Now would be a good time to start the machine empty (without produce). In the bottom left corner of the screen the speed of the machine is displayed. If your system measures the weight of each fruit individually, it is best to reset the tare cup/roller weight (**Tare Cups** from the toolbar) at this point. The system will show a message that will automatically disappear when the tare is done. Depending on how important the accuracy of the weight is to you and how recently you have switched on the electronics we recommend to run the machine empty for about five to ten minutes before actually starting. That will give the electronics some time to go to a stable temperature resulting in a more stable weight measurement.

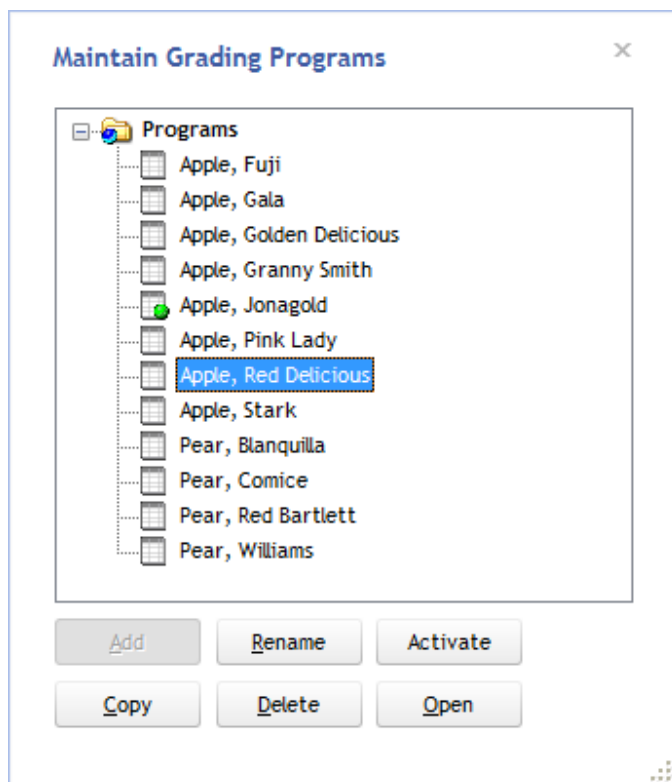
Start to grade!

Grading Programs

A grading program holds all information needed by the system for detecting, measuring, classifying, distributing and packing the produce. An unlimited amount of grading programs may be created.



Click on the **Programs** toolbar button to open the **Maintain Grading Programs** window.



The **Maintain Grading Programs** window shows the list of programs currently available. Here you may add, delete, rename, copy, open or activate a program. To save time and trouble we recommend to copy a similar program instead of adding a new one.

Opening the active grading program and/or activating a program is more easy directly from the main screen (active program bar).

There are two ways to protect grading programs. Especially when multiple users control the system you may feel the need to protect a program from being modified by somebody else. Please refer to the document [Protecting Programs](#) (if it is unavailable to you please contact your dealer).

Working With The Grading Program

Only the active grading program can be docked into the working area. Activating a different program will automatically open and replace the currently docked grading program window. In other words, the docked grading program window always shows the active grading program. Other programs may be edited simultaneously and they will be shown as a popup window. Pressing **Apply** in the grading program window will save your modifications. If it is the active program, the changes will be effected immediately to the current grading process. Press **Reset** to go back to the last applied state.

Grading Program: Apple, Jonagold

Class	Class Name	Diameter	BlushPercentage	DefectArea	Brix	Exit
1	Defect			0.5		1
2	Defect				4.5	1
3	Undersize	40.0				2
4	40-50, Red	40.0	50.0	50.0		3
5	50-60, Red	50.0	60.0	50.0		4
6	60-70, Red	60.0	70.0	50.0		5-6
7	70-80, Red	70.0	80.0	50.0		7-9
8	80-90, Red	80.0	90.0	50.0		10
9	40-50	40.0	50.0			11
10	50-60	50.0	60.0			12
11	60-70	60.0	70.0			13
12	70-80	70.0	80.0			14
13	80-90	80.0	90.0			15
14	90+	90.0				2
15						
16						

The classification of the product works from top to bottom only; the left to right order is of no consequence. Once all the measured results for a product are known, the classification process starts to check the first row in the grading program. If it meets the criteria of that row, the product belongs to that class. If not, the second row in the program is checked and so forth until it meets all the

requirements in a row. If it does not meet the criteria of any of the rows, the product is unclassified and it will go to the end of the machine.

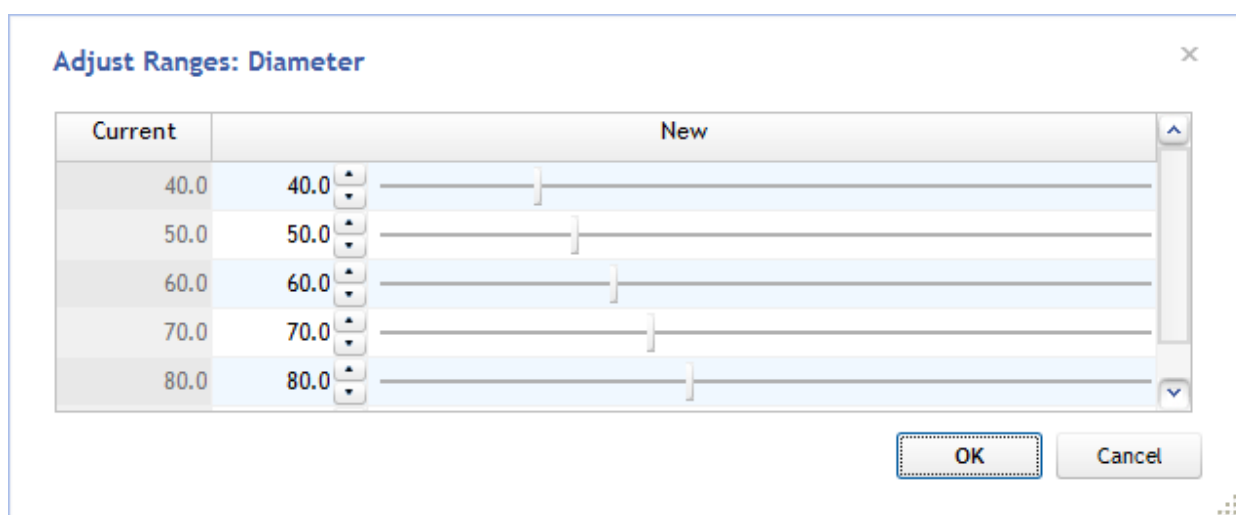
In the **Class Name** column, an arbitrary name may be chosen for a class. In the same row the **Exit** column shows the exits belonging to this class. In-between, the measurement columns hold the criteria for unique classification. Measurement columns may be added and removed as needed, keeping the grading program as simple as possible. Click on the **Settings → Columns** button in the bottom left corner to activate or deactivate columns in the grading program. Measurement columns always have a minimum and maximum value.

Only active columns are used to grade a product.

If a criterium cell is empty, it is considered a 'wildcard'. The use of wildcards is very handy. Take a look at the example above. The first row shows no criteria except for the **Defect** column. Meaning that no matter the diameter, color or brix result, if it has a more than 0.5% defect on it (with respect to the total surface), it should go to exit 1. The second row does the same for brix and so products with a brix value higher than 4.5 are sent to exit 1 as well. So if the defect measurement result is higher than 0.5% **and/or** the brix measurement result is higher than 4.5 the product will be classified as 'Defect' and sent to exit one. If these two rows were combined in one row, it would read: if the defect measurement is higher than 0.5% **and** the brix measurement result is higher than 4.5 etc. and so the outcome would be different. Take a look at row 5, products with a diameter between 50 and 60mm **and** a blush percentage higher than 50% will go to exit 4. The same sized products but with less blush will go to exit 12.

Click on the small triangle next to the row number to insert or remove a row.

Sometimes you may want to change a value that occurs multiple times in the same measurement column. Right click on the header of the column (diameter in this example) to open the following window:



The dialog box titled "Adjust Ranges: Diameter" contains a table with two columns: "Current" and "New". The "Current" column lists values 40.0, 50.0, 60.0, 70.0, and 80.0. The "New" column has corresponding input fields with up/down arrows. To the right of each input field is a horizontal slider bar. At the bottom right are "OK" and "Cancel" buttons.

Current	New
40.0	40.0
50.0	50.0
60.0	60.0
70.0	70.0
80.0	80.0



Now modify the desired value and press **OK**. All cells containing the old value will be replaced with the new value. More easy and less chance of mistakes!

Some measure method columns offer additional settings to fine tune the behaviour of the measurement. Click on the small black triangle next to the header and choose **Edit measure method** to make changes. Please refer to the Sort/Variety section to get detailed information about these additional settings.

Buttons not discussed:

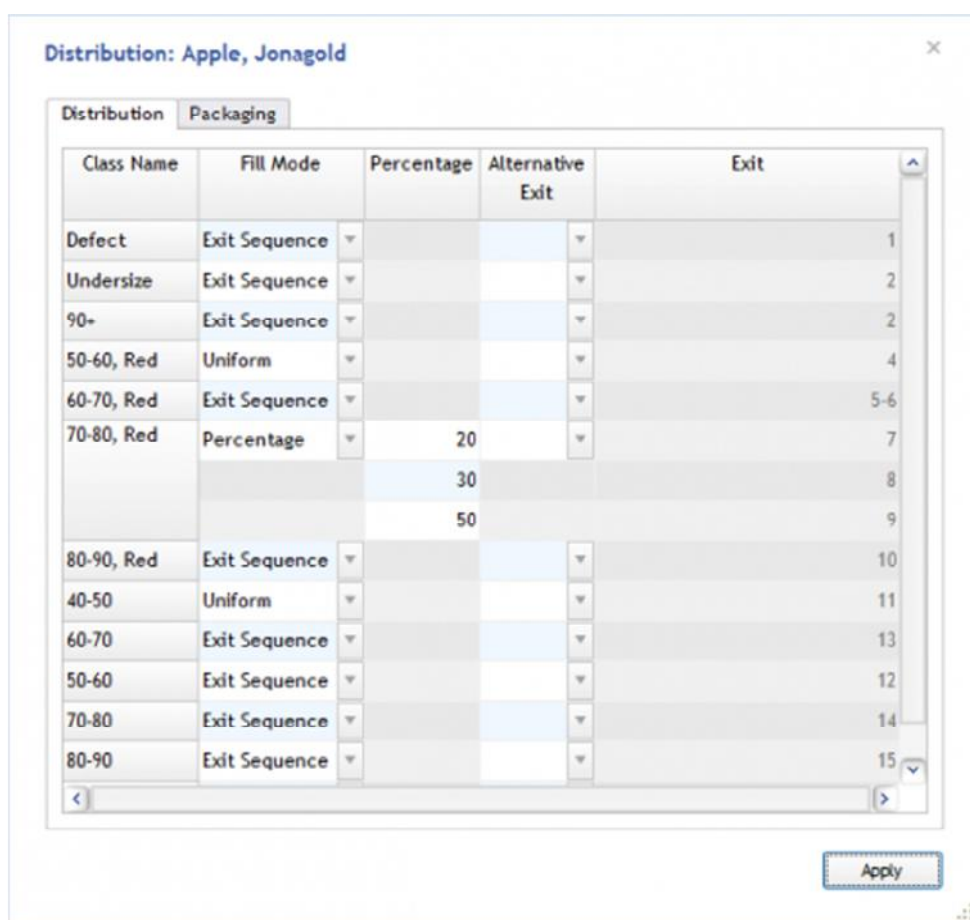
Some options available from the grading program (buttons at the bottom) window have not been discussed here. Please refer to the chapters on these subjects:

- Settings → **Sort/Variety Settings** (*option maybe not visible due to user level*)
- Settings → **Background separation**
- Settings → **Split lanes** (*option maybe not visible due to user level*)
- **Distribution, see Distribution & Packaging**
- **Histograms**

Distribution & Packaging

Distribution

After classification the produce is sent to an exit of choice that was previously set in the grading program. If there is only one exit for the class and the exit is just a container that can buffer the received produce, your possibilities are very limited. However, in many cases you may want to control how the flow of produce is going to the exits. Open the distribution (and packaging) dialog from the grading program dialog. Click on the **Distribution** button and the following dialog will show:



Class Name	Fill Mode	Percentage	Alternative Exit	Exit
Defect	Exit Sequence			1
Undersize	Exit Sequence			2
90+	Exit Sequence			2
50-60, Red	Uniform			4
60-70, Red	Exit Sequence			5-6
70-80, Red	Percentage	20		7
		30		8
		50		9
80-90, Red	Exit Sequence			10
40-50	Uniform			11
60-70	Exit Sequence			13
50-60	Exit Sequence			12
70-80	Exit Sequence			14
80-90	Exit Sequence			15

A distribution fill mode should be set for every class in the grading program, although it only makes sense if multiple exits are assigned to a class. Here are the most common examples:

Distribution Fill Modes

Uniform - Produce will be divided equally to all exits of the class.

Percentage - A different percentage of a class may be sent to each exit of the class (see example above).



Exit Sequence - The first exit will fill to the set package amount and/or weight and then the next exit of the class will start to fill etc. until the last package of the class is filled. Then it will start all over again.

Accurate Weight - License needed. Will fill a package accurately to the desired weight with minimum overweight. This distribution algorithm needs at least three exits for the same class to function properly. More exits will improve performance.

Dynamic Exits - License needed. Will claim a free exit for a certain class and release it when the package is finished or when another class has priority. Especially useful when there are a limited amount of exits and the deviation of the incoming produce is unknown.

The distribution will **always** drop the produce on an exit. Consider a class with three exits assigned that have just finished their packages. The system will block the exits for new produce to prevent package errors. However since these are the only three exits for the class the new arriving produce must be dropped onto one of these exits. The system will wait as long as possible hoping one of the exits will be ready for new produce again. If that does not happen, the last exit of the class will be chosen to drop the produce resulting in an error for the current package. A lamp may be mounted at every exit to indicate the package errors. To avoid this behavior an alternative exit may be set to give the system the opportunity to send produce to this exit when all exits for a certain class are blocked.

Packaging

If the TrueSort system is in control of the packages the following dialog must be configured to get the desired results.

Distribution: Apple, Jonagold

Exit	Class	Amount	Min. Weight	Max. Weight	Unit	Package
1	Defect					
2	Undersize	40				
	90+					
	Total	50				
3	40-50, Red					
4	50-60, Red					
5	60-70, Red	20				
6	60-70, Red		5		kg	
7	70-80, Red	20				
8	70-80, Red		2500		g	
9	70-80, Red		5		kg	
10	80-90, Red					
11	40-50					
12	50-60					
13	60-70					

Apply

In the example above exit 2 will make packages of 50 pieces of produce. Class 'Undersize' will deliver 40 pieces in every package and the rest (10 pieces) will be added with class '90+'. This is actually a bad example as there is no alternative exit for these classes. If the system would receive 50 pieces of 'Undersize' and less than 10 pieces of '90+', the package would close in error state. Multiple exits with the same class will solve this problem as well as setting an alternative exit.

Exit 7, 8 and 9 have the same class assigned and so the produce will be divided between these exits. The distribution setting determines how it will be divided. In this example the produce of this class is sent to all three exits at the same time but exit 7 will receive less than exit 8 and exit 8 will receive less than exit 9. If one of these exits is blocked because the package is finished, the other two exits will receive all the produce of the class again divided according to their percentages. Once the blocked exit is free again it will catch-up and receive more produce than normal for a short while.

Instead of using distribution mode **Percentage**, exit 7, 8 and 9 could have also been configured for **Exit sequence**. Packages would then be finished one by one. So exit 7 would receive all the produce of the class until the package is finished. The produce will then be sent to exit 8 until that package is finished, then it would go to exit 9 etc.



Common packages may be predefined and then selected using the **Package** column on the right. To add predefined packages to the system click on the TrueSort logo at the top left of your screen and choose **Edit → Packages** from the popup menu.

When a package is finished, people operating the machine or automatic packers may need to be signaled. Refer to the **Exit Control** settings to see if the required signaling is configured.

Statistics

During the grading process statistics are collected for every class and exit. Statistical information is updated every five seconds by the master computer. Even if the Windows user-interface computer needs rebooting the statistics information is not lost. The master computer still collects the data and as soon as the Windows computer is back online the statistics are updated again. Statistics are reset automatically when activating a different grading program. In fact the current statistics file is closed and a new file is created. The same applies for resetting the statistics manually (**Reset Batch** button). So you never need to worry about losing statistical information.



Click on the **Statistics** button from the main toolbar.

Program statistics

At the top there are three tabs. The first tab, **Grading Program**, shows the statistical information per class or per exit for the current grading program. The second tab, **Statistics Program**, may be disabled unless you are running a second grading program simultaneously merely for collecting different statistical information for the same batch (see **Double Statistics**).

Statistics									
Grading Program Statistics Program Machine Statistics									
GoFind Properties Print FlushExits Reset Batch									
Class	Exit	Amount	Amount %	Average Package Weight (g)	Avg. Package Amount	Last Package Weight (g)	Last Package Amount	Package Count	Weight
60/65 mm	3	77	0	0	0.0	0	0	0	
	4	126	1	0	0.0	0	0	0	
	Total	203	1						
65/70 mm	3	900	6	0	0.0	0	0	0	
	7	561	3	142	1.1	0	0	343	
	8	256	1	0	0.0	0	0	0	
	Total	1717	10						
70/75 mm	7	4922	28	1395	9.4	442	3	343	
	8	909	5	0	0.0	0	0	0	
	Total	5831	33						
75/80 mm	7	919	5	483	2.7	1603	9	343	
	8	8537	48	0	0.0	0	0	0	
	Total	9456	53						
80/85 mm	3	84	0	0	0.0	0	0	0	
	7	139	1	56	0.2	0	0	343	
	8	77	0	0	0.0	0	0	0	
Machine A (1-2) Exit									

The tabs at the bottom let you decide whether you would like to view the statistical information based on classes or on exits. The image above shows the class statistics. The image below shows the per exit statistics.

Statistics

Grading Program Statistics Program Machine Statistics

Grading Program: Gala 5mm Farbe (1) (Batch ID: 78,)

Columns Properties Print Flush Exits Reset Batch

Exit	Class	Amount	Package Count	Last Package Amount	Last Package Weight (g)	Avg. Package Amount	Average Package Weight (g)	Total Weight (kg)
	Total	80	0	0	0			0.0
6	Schalapf...	0		0	0			
	Schalapf...	0		0	0			
	Schaela...	81		0	0			
	Schaela...	0		0	0			
	Total	81	0	0	0			0.0
7	65/70 mm	577		0	0	1.1	141.0	
	70/75 mm	4993		4	589	9.1	1358.6	
	75/80 mm	1046		9	1558	2.9	523.7	
	80/85 mm	140		0	0	0.2	54.3	
	85/90 mm	1		0	0	0.0	0.8	
	90 mm+	0		0	0	0.0	0.0	
	100 mm+	0		0	0	0.0	0.0	
	Total	6757	360	13	2147	13.4	2078.3	748.2
	Column Totals	18378	360					748.2

Machine A (1-2) Exit

The **Grading Program** tab shows a number of buttons:

- Columns
- Properties
- Print
- Flush Exits
- Reset Batch

These five buttons are described below.

Columns

Depending on your system setup you may not be interested in all the columns you see in the statistics table or maybe you miss some data. Click on the **Columns** button and select the columns that interest you.

Statistics Columns

Amount

☒ Amount
☒ Percentage
☐ Graph

Weight

☐ Weight
☐ Percentage
☐ Average
☒ Graph

Exit Info

☒ Show exit info per class
☒ Package count
☐ Package type

Amount:

☒ Average package
☒ Last package
☐ Current package

Weight:

☒ Average package
☒ Last package
☐ Current package
☒ Total package

☒ Show column totals

OK

Cancel

Properties

Maybe you would like to store some additional data to your current statistics batch. Click on the **Properties** button to open the **Statistics Batch Properties** dialog. Here you are able to modify the batch label, grower name, field properties etc.

Statistics Batch Properties

Info

Grading Program: Gala 5mm Farbe (1)
Begin: 9/1/2011 2:48:49 PM
End: 9/1/2011 5:23:29 PM

Batch ID: 78
Batch label: GR19457

Comments

Field A

Assigned to: Grower Filsinger
Delivered weight: 0 Kg
Garbage weight: 0 Kg

OK

Cancel

Print

Clicking on the **Print** button opens the **Print Preview** dialog. Only the active columns (set via the **Columns** button) in the statistics view are printed. Optionally the grading program and exits view may be printed as well. If no printer is present the statistics may also be printed to a PDF file for later reference.

Print Preview

Previous

Next

Zoom In

Zoom Out

☐ Black & white

☐ Landscape

Print

Getzenberger Arnold&R

Grover: Röhner

Batch ID: 76

Grading Program: Gelbesenharde (1)

Total Weight: 0.00 kg

Total Amount: 2040

Total Amount: 2040

Delivered Weight: 0.0 Kilogram

Garbage Weight: 0.0 Kilogram

Start: 9/1/2011 2:46:49 PM

End: 9/1/2011 12:41:9 PM

Grading Time: 0:00:00

Exit

Exit	Weight	Amount	Delivered	Garbage
1	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00
33	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
41	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00
59	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
61	0.00	0.00	0.00	0.00
62	0.00	0.00	0.00	0.00
63	0.00	0.00	0.00	0.00
64	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00
66	0.00	0.00	0.00	0.00
67	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00
69	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00
71	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00
74	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00
76	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00
83	0.00	0.00	0.00	0.00
84	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00
86	0.00	0.00	0.00	0.00
87	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00
91	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00
96	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00

Machine A (1-2) - Gewicht, New Validity

Statistics


Exit	Weight	Amount	Delivered	Garbage
1	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00
12	0.00	0.00	0.00	0.00
13	0.00	0.00	0.00	0.00
14	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00
18	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00
20	0.00	0.00	0.00	0.00
21	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00
26	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00
28	0.00	0.00	0.00	0.00
29	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00
32	0.00	0.00	0.00	0.00
33	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00
40	0.00	0.00	0.00	0.00
41	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00
44	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00
47	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00
49	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00
52	0.00	0.00	0.00	0.00
53	0.00	0.00	0.00	0.00
54	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00
59	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00
61	0.00	0.00	0.00	0.00
62	0.00	0.00	0.00	0.00
63	0.00	0.00	0.00	0.00
64	0.00	0.00	0.00	0.00
65	0.00	0.00	0.00	0.00
66	0.00	0.00	0.00	0.00
67	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00
69	0.00	0.00	0.00	0.00
70	0.00	0.00	0.00	0.00
71	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00
74	0.00	0.00	0.00	0.00
75	0.00	0.00	0.00	0.00
76	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00
83	0.00	0.00	0.00	0.00
84	0.00	0.00	0.00	0.00
85	0.00	0.00	0.00	0.00
86	0.00	0.00	0.00	0.00
87	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00
90	0.00	0.00	0.00	0.00
91	0.00	0.00	0.00	0.00
92	0.00	0.00	0.00	0.00
93	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00
95	0.00	0.00	0.00	0.00
96	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.00
100	0.00	0.00	0.00	0.00

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☐ Print programs

☒ Print exit

Table



Flush Exits

The **Flush Exits** button removes the produce from all exits and resets the package weights and amounts. If packages are manually removed, they will need to be removed from the machine before pressing the **Flush Exits** buttons.

Reset Batch

Resets the batch. In fact a new statistics file is created. If no batch label is entered, the statistics properties dialog will open to let you enter it.

Exits will not be flushed/reset!

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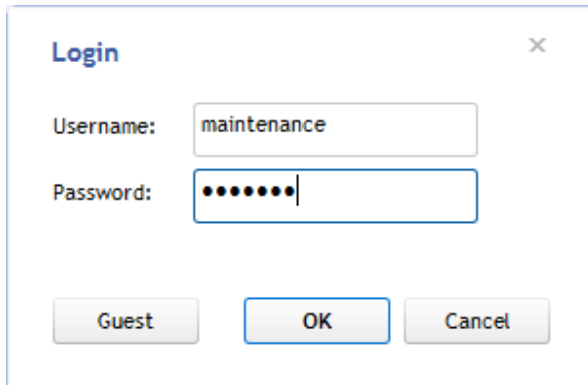
Machine Statistics

The third tab at the top, **Machine Statistics**, shows the load on the machine in a graph. It shows how many hours of the day the machine has actually been grading and how high the load was at a particular time. It also shows the possible load differences between the lanes.



User Levels

By default, the TrueSort Gui starts up with the user **Guest**. In most cases the **Guest** has restricted access to features available in the TrueSort application. Log in as **Maintenance** to get full access by pressing **F1** or click on the TrueSort logo and choose **File** → **Switch User** from the main menu.



A screenshot of a 'Login' dialog box. The dialog has a title bar with the word 'Login' and a close button (X). It contains two input fields: 'Username:' with the text 'maintenance' and 'Password:' with a masked password represented by seven dots. Below the input fields are three buttons: 'Guest', 'OK', and 'Cancel'. The 'OK' button is highlighted with a blue border.

If you are logged in in the TrueSort Gui as the user **Maintenance**, you can manage the rights of other users of the TrueSort Gui. Click on the TrueSort logo and choose **File** → **User Management**.

User Administration

×

Currently logged in:

maintenance

Username:

guest

▼

Add User

Delete User

Rename

Change Password

Operations	Permissions
Current grading settings	Read/write
Open Grading Table	Read/write
Sort Variety	Read (Enable)
User Administration	None
System Configuration	None
Dropout configuration	Read/write
Weight configuration	Read/write
Misc. Advanced/Dealer	None
Camera Equalizer Advanced Mode	None
Add/Remove extra weight measure methods	None
Gradingprogram folders administration	None

OK

Cancel

Apply

- You cannot delete the currently logged on user.
- You cannot delete the **Maintenance** and **Guest** users, as they are built-in.

In the maintenance level you are entitled to create new users with their own rights or change permissions for any user account.

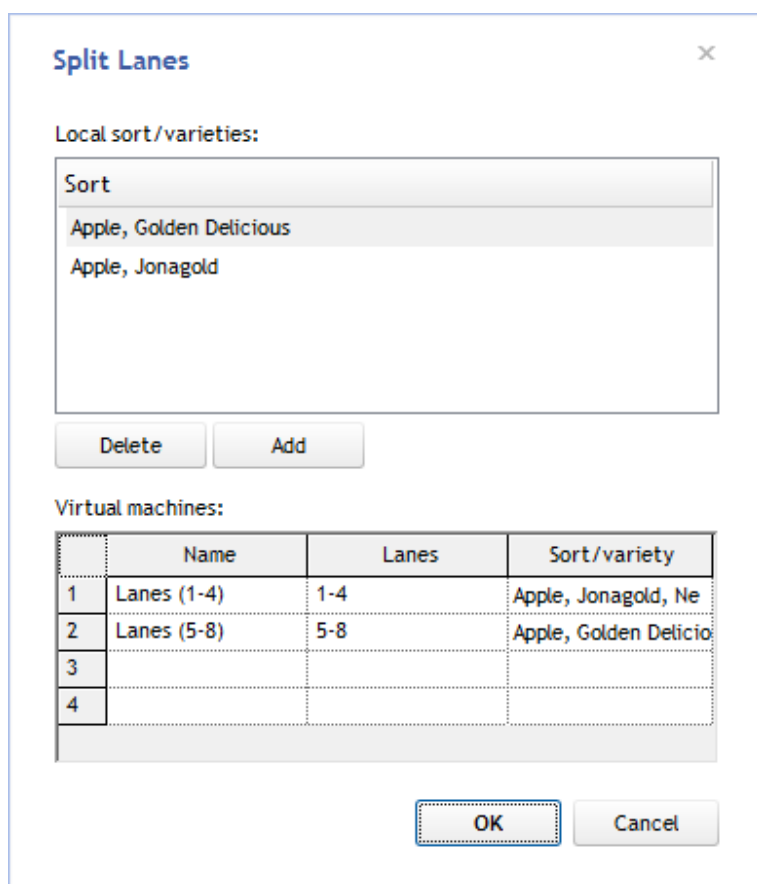
Please do yourself a favor and do not give the **Guest** account Read/Write access to the **User Administration** and **Grading program folders administration** operations.

Available operations

Operation	Description
Current grading settings	Activate a grading program.
	None: you cannot change the active grading program.
	Read/Write: you can activate another grading program.
Open Grading Table	Modify a grading/statistics program.
	None/Read: Inspect a program, but not modify it (the <i>Apply</i> button is disabled).
	Read/Write: Make changes to a program.
Sort Variety	Change the settings of the sorting algorithms.
User Administration	Manage user accounts and access rights.
System Configuration	Modify the system configuration.
Dropout Configuration	
Weight Configuration	
Misc. Advanced/Dealer	
Camera Equalizer Advanced Mode	
Add/Remove extra weight measure methods	Add/Remove the measure methods <i>Empty cup weight</i> , <i>Reference weight</i> and <i>Raw weight</i> .
	These measure methods should only be activated in a program when you want to find some problems relating to the weight measurements of the machine, such as a faulty cup.
Gradingprogram folders administration	Add/Remove/Rename template folder
	Add/Remove/Modify template programs

Splitting Lanes

The TrueSort system is capable of splitting your machine into virtual machines. This option is particularly useful when quality grading is done manually. For example a four lane machine could be split into two virtual machines. Virtual machine **A** with lane 1,2 and 3 could do first quality produce and virtual machine **B** with only lane 4 could be set to do second quality produce. All produce is sent to lane 1, 2 and 3 and manually, second quality produce is picked from lane 1, 2 or 3 and put on lane 4. To configure TrueSort for virtual machines click on the **Settings** button within the grading program dialog and from the popup menu choose **Split Lanes**.



Split Lanes [X]

Local sort/varieties:

Sort
Apple, Golden Delicious
Apple, Jonagold

Delete Add

Virtual machines:

	Name	Lanes	Sort/variety
1	Lanes (1-4)	1-4	Apple, Jonagold, Ne
2	Lanes (5-8)	5-8	Apple, Golden Delicio
3			
4			

OK Cancel

Configure the amount of virtual machines by specifying a name, the lanes and the sort/variety.

Of course this option can also be used to split the machine into two lane groups to run different types of produce each with their own grading criteria's and statistics.

Below examples of the grading program and distribution. These windows have all received extra tabs for each virtual machine and so each virtual machine may have its own settings. The same applies for the statistics.

Grading Program: Apple, Jonagold

Lanes (1-4) Lanes (5-8)

Class	Class Name	Diameter	BlushPercentage	Defect
1	Defect			
2	Defect			
3	Undersize	40.0		
4	40-50, Red	40.0 50.0	50.0	

Distribution: Apple, Jonagold

Lanes (1-4) Lanes (5-8) Exit

Class Name	Fill Mode	Percentage	Alternative Exit
Defect	Exit Sequence		
Undersize	Exit Sequence		
90+	Exit Sequence		
50-60, Red	Uniform		

Measurement Results

Two icons on the main toolbar are available to diagnose the measurements.

Textual results



The first icon will show measured results in table view. This option is very useful as it will show you all the measured results for one lane or one measure method for all lanes. If the produce is not classified the way you would expect, this would be the first tool to use. Below the two different views for the results. On the left the per lane view is chosen and all the measured results for the produce on this lane are displayed. Also the class is shown and this is very helpful for diagnostics. If the class shows 'Invalid' or 'Unclassified' then something could be wrong. Please check the [troubleshooting](#) page for more information. On the right a measure method is selected and all the measurements (for all lanes) is shown. This is particularly nice to determine if the grading criteria for a measure method are set properly. It will - for instance - quickly give you feedback on the average percentage of blush or defects.

Measurement Table

Show Lane or Measure Method

☒ Lane 1 ☐ Measure method Weight

Cup	Class	Diameter	Weight (g)	Defect (%)	Dark Defect (%)	Color	Blush (%)
92	Big	70.7	144	0.3	0.2	42	58.4
93		---	-1	---	---	---	---
94		---	0	---	---	---	---
95	Small	64.4	121	0.3	0.3	44	22.9
96	Small	68.5	118	0.6	0.6	43	17.6
97		---	0	---	---	---	---
98	Small	60.5	96	0.1	0.1	47	33.8
99	Big	73.6	169	0.1	0.1	44	37.2
100	Small	64.8	113	0.0	0.0	47	11.3
101	Small	67.8	119	0.1	0.0	45	18.9
102	Big	70.9	177	14.7	14.0	42	7.3
103	Big	79.9	193	0.5	0.5	44	57.7
104	Small	67.8	127	0.0	0.0	52	18.8
105	Big	72.5	162	0.0	0.0	42	59.9
106	Small	67.5	142	0.0	0.0	46	44.0
107	Big	80.3	209	1.1	1.0	43	80.5
108		---	1	---	---	---	---
109		---	-1	---	---	---	---
110	Big	73.5	175	0.0	0.0	40	50.3

☐ Pause

Measurement Table

Show Lane or Measure Method

☐ Lane 1

☒ Measure method Weight

Cup	Lane 1 kg	Lane 2 kg	Lane 3 kg	Lane 4 kg
48	208	171	144	-4
49	-1	121	-2	-2
50	177	129	0	-2
51	1	157	-5	-4
52	0	188	178	-4
53	-1	1	0	98
54	178	242	147	-3
55	155	0	-4	169
56	-2	138	0	-2
57	154	175	157	143
58	-3	182	-5	-2
59	200	1	136	-5
60	-2	161	153	-3
61	119	199	-1	-5
62	1	130	200	128
63	0	0	-1	-2
64	1	121	-1	0
65			1	182

☐ Pause

Image results



The second icon shows camera images for one piece of produce at a time with overlays and measured results. Great for checking the quality of the images and the synchronization of the cameras. The dialog to view these results may look different than the example below. Different kind of produce and different kind of machinery demand a different approach on how to show the image results. However, the same way of checking applies to all these different views. The processed images should show a sharp contour exactly where you would expect it to be. The contour should not be disturbed by dirt or leaves. If it is, clean the area under the camera. Also the contour should not be cut-off in any way. Some exceptions to the rule though as the tips of long pears for instance may sometimes go past the image boundaries. Below an example of a good scan. Eight images were captured while the apple was rotating under the camera. The eight images look good as no part of the apple is cut-off. Click on one of the 'thumbnail' images to select it and it will be shown with processed overlays (bigger image below). The overlays show which part of the apple is 'seen' as blush. The contour here is well defined.

Color results


Lane: 2


Continue

Show: Classified

Class: 70: Class 1

☐ Entire scanarea
☐ Save message





Blush	76.7
Color Average	5.0

Uncorrected Color Image

1x zoom

Fit

	Blush	Color Average
Image 2	83.7	10.0
Image 3	87.1	9.0
Image 4	88.4	3.0
Image 5	54.7	5.0
Image 6	48.7	5.0
Image 7	84.9	5.0

Backup/Restore Your Data



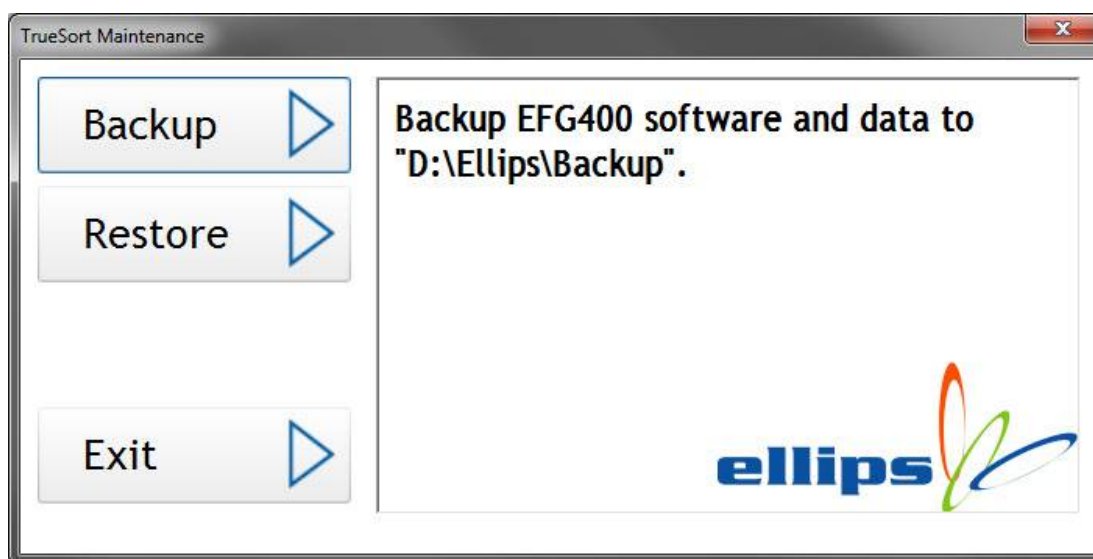
TrueSort Maintenance enables you to backup and restore your TrueSort software and data.

You will find TrueSort Maintenance under **Start menu → All Programs → Ellips**. Normally there will be a shortcut on your desktop as well.

Note that you can run TrueSort Maintenance only with Administrator rights.

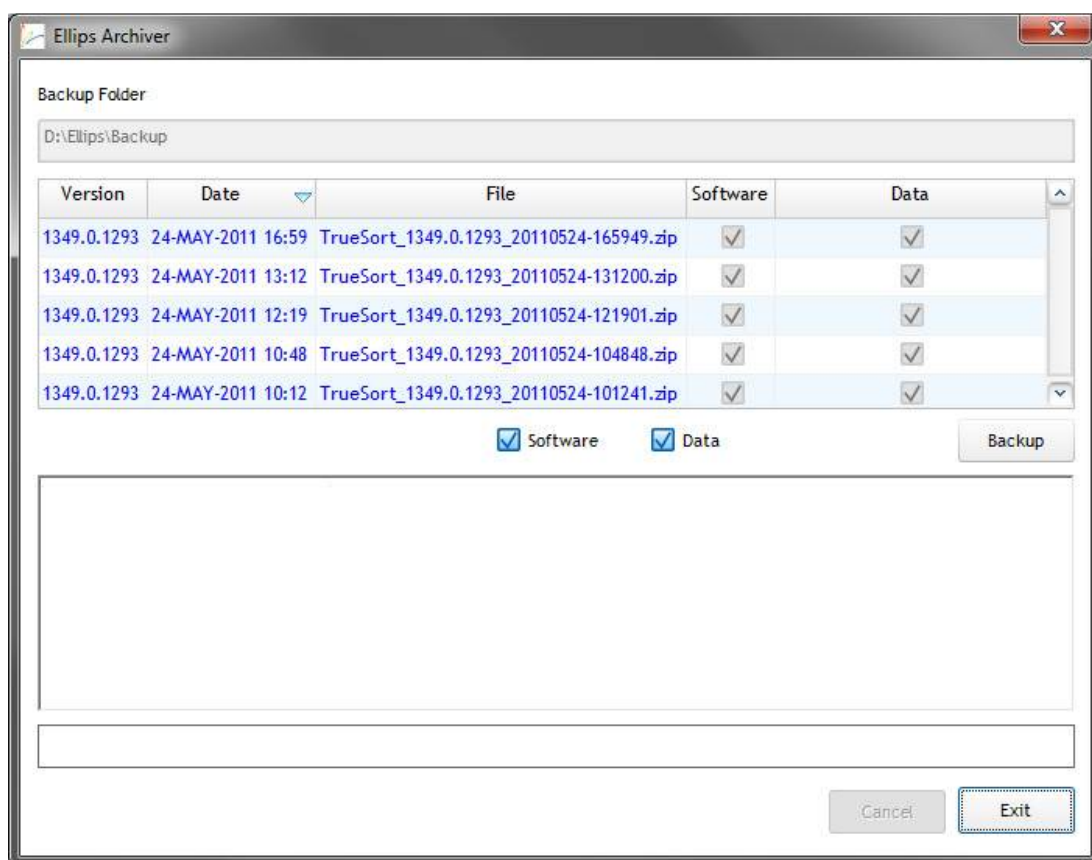
Always close the TrueSort GUI before starting TrueSort Maintenance.

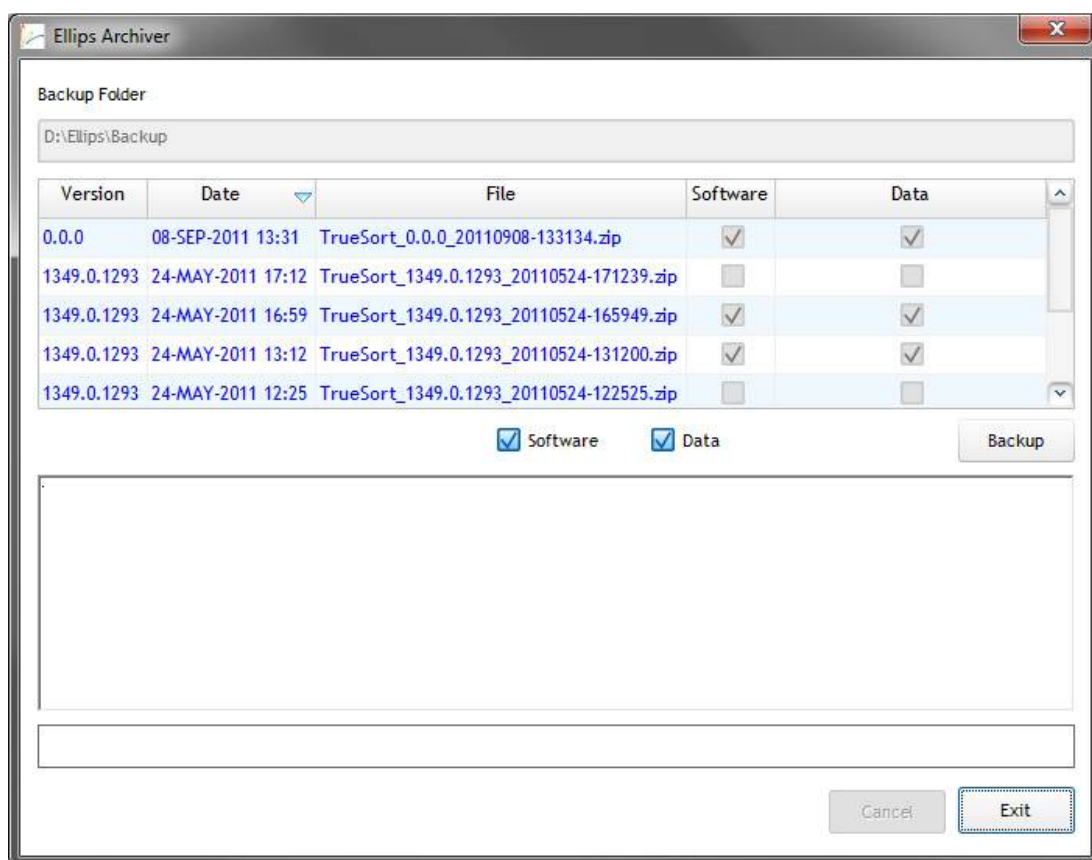
After you start TrueSort Maintenance you can choose for the backup or the restore procedure. The panel on the right tells you in which folder the backups can be found on the Windows system. If you want to make a safety copy of one of the backups you can copy it from that folder to a destination of your own choosing.



Backup Procedure

When you choose the Backup procedure the Ellips Archiver opens. This dialog shows the location of the backups and a table of backups that were made previously.





To create a backup:

1. Check the 'Software' box if you want to backup the software (recommended). This will create a backup of the 'D:\Program Files\Ellips' folder.
2. Check the 'Data' box if you want to backup data (recommended). This will create a backup of the 'D:\udata' folder.
3. Press the **Backup** button to start the procedure.

The lower part of the dialog shows the progress. After the procedure has finished you will see a new backup entry in the table.

You can abort the backup procedure by pressing the Cancel button. The results of the current procedure will be lost then and no backup is made.

Exit

Press Exit to return to the [TrueSort](#) Maintenance Main Panel.

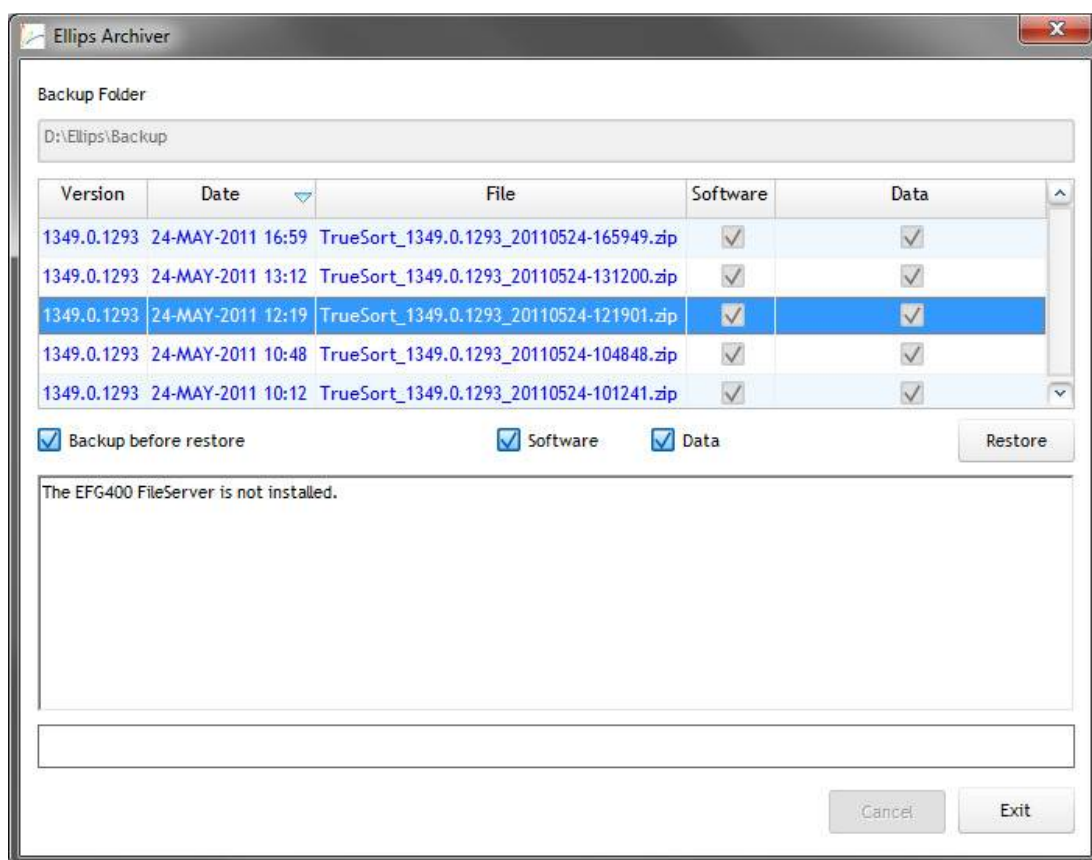
Restore Procedure

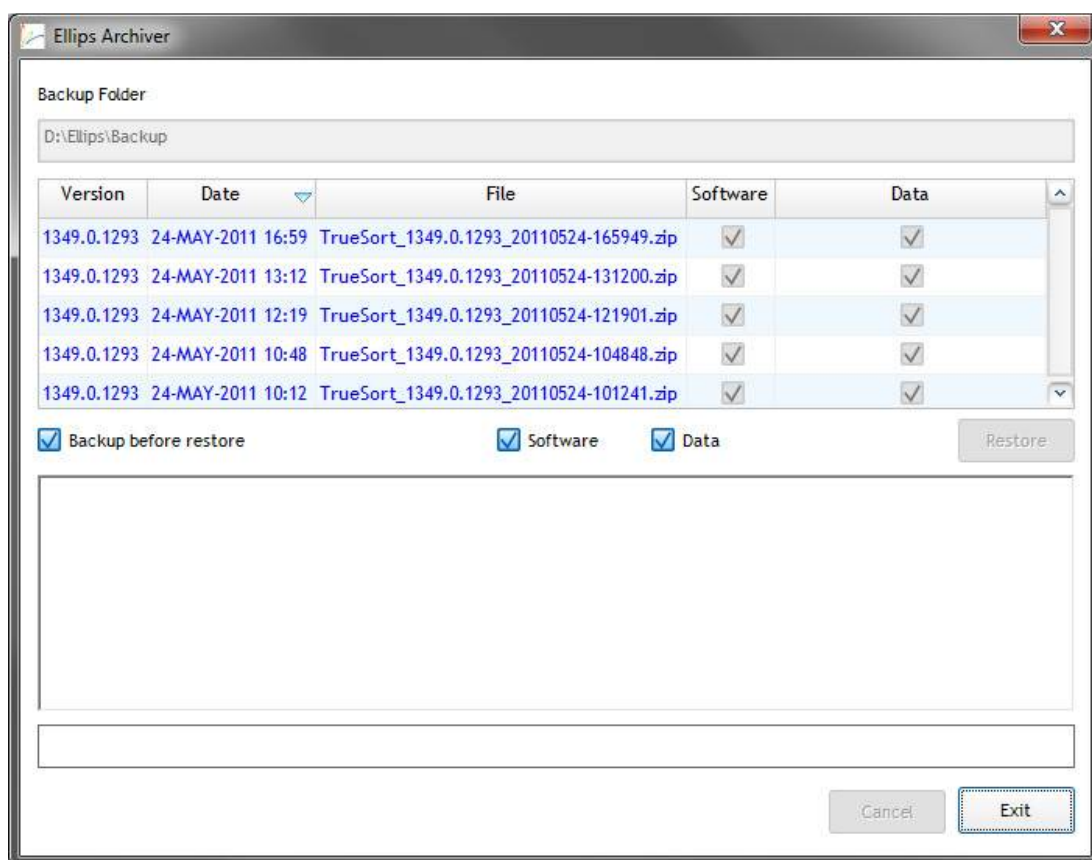
When you choose the Restore procedure the Ellips Archiver opens. This dialog shows the location of the backups and a table of all available backups.

This table shows:



- The software version of the backup.
- The date when the backup was made.
- The filename that contains the backup (this file can be found in the location shown on top of the dialog).
- Whether the backup contains software and/or data.





To restore a backup:

1. Select the backup you want to restore from the table.
2. Check the 'Backup before restore' box if you want to create a backup of your current software or data (recommended). This will create a backup of the current software and/or data before it is overwritten with the restored version.
3. Check the 'Software' box if you want to restore software (this is possible only if the backup contains software). This will overwrite the current contents of the 'D:\Program Files\Ellips' folder.
4. Check the 'Data' box if you want to restore data (this is possible only if the backup contains data). This will overwrite the current contents of the 'D:\udata' folder.
5. Press the **Restore** button to start the procedure.

The lower part of the dialog shows the progress. After the procedure has finished you will see a new backup in the table.

You can abort the restore procedure by pressing the Cancel button. Your current TrueSort software and data will remain then.

Exit

Press Exit to return to the TrueSort Maintenance Main Panel.

System Maintenance

The [TrueSort](#) system requires very little maintenance. Especially when a number of precautions have been taken.

Computers

The computers should be stored in a well-ventilated, dust free environment. Also vibration should be kept to a minimum. Special care must be taken for the Windows computer as it has a hard disk which is more vulnerable to shock/vibration. The power line must be protected by a double conversion/online UPS. Please read the wiki for more information:

http://en.wikipedia.org/wiki/Uninterruptible_power_supply

The master/slave computers have a replaceable filter. Please check these filters from time to time and make sure they are clean. Please contact your dealer if you do not know where to find the master/slave computers. To access the filters open the front lid (19" rack) and pull the plastic lever.



Cameras

The cameras need very little maintenance to no maintenance at all. Check the glass part of the lens once in a while to see if dust has been collected. We have seen spiderwebs on the lenses occasionally. Spiderwebs or dust may be removed with a **microfiber lens cleaning cloth**.

Be careful not to adjust the rings on the lens! These adjust the focus and iris, so changing them will make the images blurry or too dark/light, resulting in bad images and incorrect grading results.

Camera Lights

Check the camera lighting on a regular basis.

- Sometimes vibration causes lamps to stop working.
- Some machines have covers over the lamps and these covers may need to be cleaned.



- Halogen lights are the most popular in our current setups. On average the lifetime of the halogen lamp is about 2000 hours.
- Replace the lamps in time as it is difficult to see the decrease in light but it rapidly influences the quality of grading.

Weight Sensors

Weight sensors are very sensitive to collected dirt. To measure the produce within the accuracy of a gram the weight sensor must be able to move freely. Make sure the weight sensor bridge and all its parts are clean and if specified by your dealer well lubricated.

Troubleshooting

Please check the most common problems below to see if it fixes yours. If not, please ask customer [support](#) for assistance.

- System will not start
- System status is: Red cross
- System status is: Yellow exclamation mark
- Status says 'Master not present'
- Weight measurement is bad
- Too many produce goes to the end of the machine
- Many mistakes in classified exits

System will not start

If none of the computers have started the UPS is probably still switched off. Switch on the UPS to get the system started. If the UPS is on and only one computer is not starting, remove its power, wait for a moment and reconnect to see if it will start. If the Windows computer starts but locks up or reboots, you might need to contact customer support to help you restore the Windows operating system.

System status is: Red cross

Something is wrong with the system and it is probably grading in a bad way or not at all. Click on the red sign to get more information. If you see a “master not present error” check the special item on this topic further down this page. If not, you might have some hardware failure. Remove the mains power from the master, wait for a few seconds and reconnect it to see if it solves the problem. Be patient as it may take a few minutes for the master to connect to the Windows computer.

System status is: Yellow exclamation mark

The yellow sign is a warning. If you are switching to another grading program, it is normal behavior, the system is warning you that the grading program switch is postponed until the last classified produce at the time of switching has been dropped at the exit. Click on the yellow sign to get more information.



Status says 'Master not present'

This status message means there is no communication possible between the Windows and the master (19" rack) computer. There could be a number of reasons:

- During startup (or intentional reboot of the master) this is a normal message, be patient for a few minutes, the message will disappear automatically.
- Master is off → Switch it on!
- Master is rebooting continuously. On the Windows computer you will continuously see pop-up messages that the network cable to the master is plugged/unplugged.
 1. Bad Ethernet cable/connection. Check the cable between the Windows and master computer.
 2. The master computer has lost its BIOS settings. Maybe the battery on the motherboard is flat or the settings have been reset due to some other reason. You will need to connect a monitor and keyboard to the master computer. Check the battery voltage. If it is less than 3.0V, replace the battery. Now restore the BIOS settings. The main setting is that it must boot from the onboard network card. Please contact support in case you need assistance.
 3. Someone has made modifications to the network settings. Log in as administrator and check to see if the network settings have changed. The 'To Master' LAN connection must have a static IP address: 192.168.99.1
 4. Someone has made modifications to the firewall settings. Log in as administrator and check to see if the firewall settings have changed. Some Windows PC's are equipped with a firewall or a virus scanner for connection to LAN. These mechanisms can cause delays in the network connection from Windows computer to the master and cause startup errors. Sometimes the master has to boot more than 10 times to get a proper connection. Advice is to switch off the virus scanner and firewall controlling the Windows-to-master connection as this connection is local/private and completely safe.

These firewall protection measures must stay on for the company LAN connection.

- Master is crashing or locks up. This could be a hard- or software problem. If you are capable, you might want to try to clean the contacts of the interface cards. If nothing helps, contact support for assistance.

Weight measurement is bad

If your weight measurement is bad, stop the infeed and wait for all produce to drop from the machine. When all the cups are empty leave the machine running and click on the **Tare Cups** icon from the main toolbar. Wait for a few turns of the machine and see if all cups are more or less zero gram. If so, you can start grading again. However, if some cups are not more or less zero gram, locate the cups and check if they are sticky or dirty and clean or replace them if necessary. If a cup has a low weight like -50 grams or less, it is possible that a product was in the cup at the time of initialization of the empty cups weights. Reset the empty cup weights once more to see if it fixes the problem.

Too many produce goes to the end of the machine

There are several possibilities that can make products go to the end of the machine:

1. Product characteristics (weight, diameter, color etc.) do not match any of the classes in the grading program.
2. One of the measurement units has not been able to do its measurement for the product. The product is then classified as invalid.
3. Product shape/size or mechanical imperfection has made the product jump to another position on the machine. The electronic system cannot locate the new position of the product and it will go to the end of the machine.
4. The product is sticky or small resulting in a problem to drop it on the exit.
5. A solenoid (electronic device which makes the cup drop) has a defect which makes it impossible to drop the product on the exit.
6. The software configured distance for a drop-out is wrong or has changed possibly because of chain stretch.

Solution:

1. Open the **Measurement Table** dialog (from the main toolbar choose **Results**). Click on the **Advanced** button and check the option **Invalid/Unclassified**. Now the table will only show invalid or unclassified results. Check the results of each measure unit on one of the lanes and see why it does not match any of the classes in the grading program.
2. Open the **Measurement Table** dialog (from the main toolbar choose **Results**). Click on the **Advanced** button and check the option **Invalid/Unclassified**. Now the table will only show invalid or unclassified results. Check the results of each measure unit on one of the lanes and see which measure unit is not giving a result. Open the **Image Results** dialog and check the images. Most common problem is a dirty background or a bad setting for the background separation. If the machine/cups/rollers are dirty (under the camera) → **clean the machine**. If it is the background separation, check the Background Separation settings.
3. Put as many products of different shapes and sizes in an easy pattern (for instance, leave one cup empty between every product) at the infeed of the machine. Run the machine with an empty grading program (no exits defined to classes) and see if the pattern stays intact. If not, one or more product changed their location on the machine. Contact your machine manufacturer to see if he can solve the problem for you.
4. Contact your machine manufacturer to see if the cups can be adjusted to drop with a higher speed.
5. Check the power of all the output boards (Profi-PWM24 or Profi-Output). Make sure that not only the board has power but also the solenoids. If your machine works with air pressure, make sure the air pressure is OK.
6. In this case products of a specific class are going to the end. Check the solenoids/drop-outs at the exit(s) of this class.
7. Check/adjust/fix the chain first. Then adjust the exit distance in the 'System Configuration' dialog 'Drop-Out' tab.

Getting Support

There could be a number of reasons why you would like support. Maybe you would like to classify the produce in a particular way but you cannot find how to do it. Or something is wrong because the classes are mixed and you do not know why (maybe the system status shows a red cross?). For the latter please read the Troubleshooting section first.

To get help please call your local dealer first. If it is not an trivial problem you will probably be asked to connect the system to the internet. A good fast internet connection is mandatory. It is your responsibility to make sure it is available and working properly. Without it we might not be able to help you and you will be billed for the time we have to spend, which is usually considerably more if the internet connection is not working properly (or not at all).

Now, before we can actually access your system you will need to setup the connection to our support computer. Minimize the TrueSort application. If you do not know how, look for the three small icons above the Ellips logo in the top right of your screen. Now click on the left one (looks like a minus sign). The application is now minimized and you should see your desktop. Your dealer may have added an icon to connect to their support computer. If not, look for the 'Ellips Fast Connection' or 'Ellips Support VPN' icon and double click it. Now press the connect button and you will be connected. Do not change the login credentials as they have been preconfigured and stored for your convenience. Once the connection is established call your dealer or Ellips to let them know you would like support and are connected (we are not actively checking if someone is connected to our support computers).

To communicate with our support colleagues use the chat box



(click on the chat box icon on the main toolbar).



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