BINMASTER

Version 4.1

eBob

System Requirements

     PC with 300MHz or higher, Intel® Pentium® Processor or compatible
     Microsoft® Windows 2000 with Service Pack 4 or Windows XP Professional
          Windows XP Professional <u>required</u> for Internet Access
          Internet Information Services (IIS) installed for Internet Access
          Static IP address required for Internet Access
     Microsoft® Internet Explorer 5.5 or higher
     Microsoft® .NET framework 1.1
     Microsoft® Excel® and Access®
     128MB of RAM
     40MB of available hard-disk space
     1 Serial communications port
     RS-485 Interface Module (supplied by BinMaster)
     RS-232 Serial Cable (supplied by user)
     SmartBob Remote Units

1.0   Introduction

The BinMaster eBob Software is designed to intelligently manage inventory in up to 100 vessels working with the BinMaster SmartBob II Remote. The software (Figure 1) provides graphical representation of;

- Weight of product and headroom
- Volume of product and headroom
- Percent full
- Distance to and of product

- Date and time of last measurement
- Silo name and content
- Silo number and group
- Vessel Status Enabled/Disabled

Advanced control functions are also available to set alarm points, schedule measurements, build common group measurements and automatically email information to appropriate users.


Figure 1

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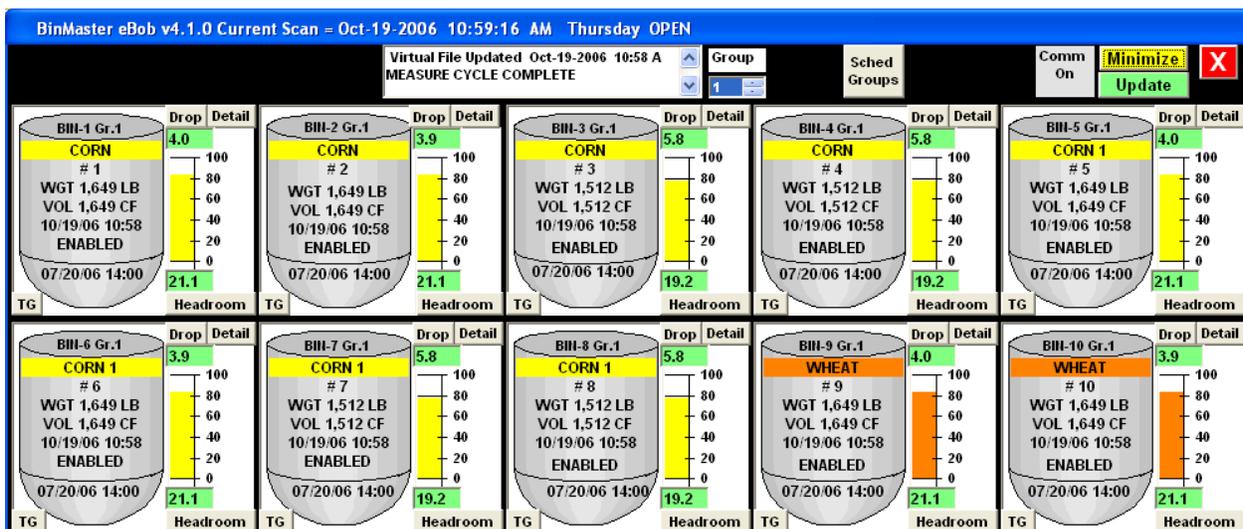
BinMaster eBob Software consists of four software components which work together to provide setup, control and data reporting of measurements obtained by the SmartBob II Remote. An optional Internet Access module gives the user remote access to a PC running the BinMaster eBob Workstation Software, via the Internet, for remote control and reporting functions. The four components are;

1. Excel compatible spreadsheet. Allows easy access to vessel parameters and setup in a native format Excel spreadsheet.

2. eBob Workstation Provides graphical interface to your SBRII system for control of the BinMaster SmartBobs and advanced measurement display functions.

3. BinMaster Database files Microsoft® Access compatible database files provide storage for current measurement data and historical measurement data for up to 40 days. All data can be easily transferred to other software programs for data analysis or archiving.

4. eBob Internet access module Add on functionality of the eBob Workstation software to provide remote access to the eBob Workstation software using any Internet Explorer web browser. Login name and password steps provide security and control.

2.0   eBob Workstation Installation

2.1   Pre-Installation Considerations

If you plan to also install the eBob Web Workstation functionality, please refer to Section 6.0, Internet Access *before* installing any eBob components. It is important to install the required Windows® components, such as Internet Information Services.

> *NOTE: eBob Workstation requires Microsoft® .NET framework 1.1 is installed before eBob installation. See Section 7.1 for consideration for upgrading from previous IMS Versions.*

2.2   Installation

From Control Panel, select Add/Remove Programs and then select Add New Programs, then select "CD or Floppy". Insert the BinMaster eBob CD into the CD drive. Navigate to the folder named eBob Workstation Installer and run WorkstationAppInstaller.exe by double clicking.

The workstation install screen will appear and click INSTALL.

A red System Message (Figure 2) will appear, noting the user must change the installation folder to C:\Garner.

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Figure 2

After pressing OK, the screen will change to the eBob Workstation Setup Welcome Screen. Press OK.

On the next screen (Figure 3) you *must* click Change Directory and enter C:\Garner in the path (or select it in the Folders List) and Click OK. See Figure 4.

Figure 3

Figure 4

9250255 Rev G
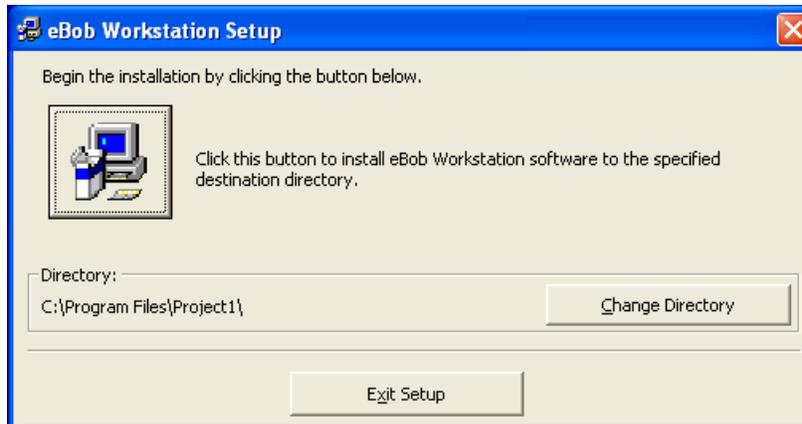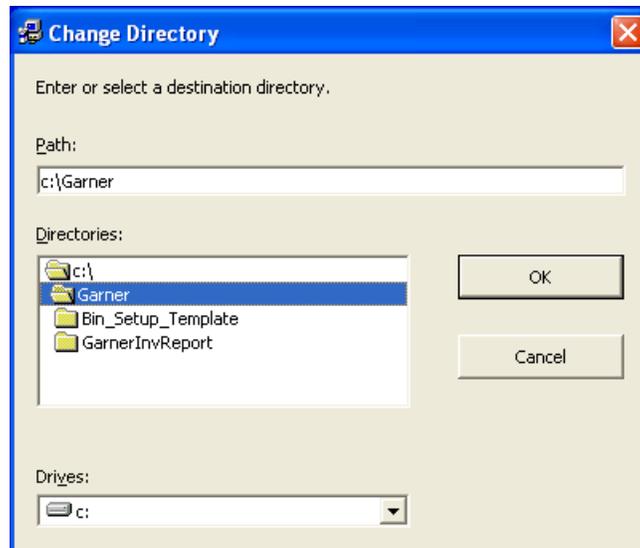
NOTE: Change the default folder for the install to C:\Garner. (Figure 4) <u>This is</u>
<u>REQUIRED for proper operation.</u>

After the install folder has been changed to C:\Garner, click the Computer Icon in the upper left corner of the next window to start the installation. In some cases, the install package may request the user to confirm a newer version of a system file. Click "Yes" in all cases. After the eBob Workstation application has been installed, the utility will also install two more components, a SmartBob Diagnostics program and an Inventory Report program.

NOTE: The SmartBob Diagnostics installation will also require the installation
directory be changed to C:\Garner.

Once installation is complete, icons will be added to the desktop for eBob Workstation, Inventory Report and SmartBob diagnostics.

2.3   eBob Internet Access Installation (Optional)

NOTE: To install the eBob Internet access module, eBob Workstation must already be
installed. Please refer to Section 6, Internet Access <u>BEFORE</u> installing eBob
Workstation Web.

From Control Panel, select Add/Remove Programs and then select Add New Programs, then select "CD or Floppy". Insert the BinMaster eBob Web Installer CD into the CD drive. Navigate to the folder named eBob Workstation Web Installer and run BinMasterWebInstaller.exe by double clicking.

The BinMaster Web install screen will appear and click INSTALL. In some cases, the install package may request the user to confirm a newer version of a system file. Click "Yes" in all cases. Follow the onscreen prompts to complete the install.

NOTE: For the eBob Internet Access module, DO NOT change the default directory in
the install screen to C:\Garner. It can be left as default.

2.4   eBob Internet Access String Report Install (Optional)

NOTE: To install the eBob Internet access module, eBob Workstation must already be
installed. Please refer to Section 6, Internet Access <u>BEFORE</u> installing eBob
Workstation String Report Web.

From Control Panel, select Add/Remove Programs and then select Add New Programs, select "CD or Floppy". Insert the BinMaster eBob Web Installer CD into the CD drive. Navigate to the folder named eBob String Report Web Installer and run StringReportWebInstaller.exe by double clicking.

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The String Report Web install screen will appear and click INSTALL. In some cases, the install package may request the user to confirm a newer version of a system file. Click "Yes" in all cases.

> *NOTE: For the eBob Internet Access module, DO NOT change the default directory in the install screen to C:\Garner. It can be left as default.*

Follow the onscreen prompts to complete the install.

3.0   System Setup

The Bin Master System Setup spreadsheet is the master template for setting up your eBob Workstation software to control the BinMaster SmartBob II Remotes.

> *NOTE: The System Setup spreadsheet uses macros to add vessels automatically to the spreadsheet and calculate parameters. The macro security setting should be set at "Medium" to allow macro operation. To modify the security level in Excel, got to Tools | Macro | Security and set the Security Level to Medium.*

- The System setup spreadsheet is located at C:\Garner\BinMasterSystemSetup.xls

- Only edit the System Setup spreadsheet when eBob Workstation is not running.

- Enter data in yellow highlighted cells. Do not modify blue highlighted cells.

- When the eBob software starts up, it reads in data from the spreadsheet and also writes the measurement data back to the spreadsheet during operation.

- If multiple vessels are needed, fill out the vessel template with common information before using the "Add Sheet" command. The Add Sheet automatically adds a group of vessels to the spreadsheet. To modify each vessel individually, click on the Bin Sheet Tab at the bottom of Excel, associated with each vessel.

Main Sheet (Figure 5)

	A	B	C	D	E	F	G	H
1	BINMASTER SMARTBOB SETUP SHEET							
2	COMPANY	BinMaster		Vessel Quantity	4			QUANTITY
3	LOCATION	7201 N 98th Street						OF VESSELS
4	CITY	Lincoln						CREATED
5	STATE	NE		Add Sheet				4
6	ZIP	68507						
7								
8	MEASURE DAYS SUNDAY	CLOSED						
9	MEASURE DAYS MONDAY	OPEN	ENTER TIME IN 24 HOUR CLOCK FORMAT (Ex. 0715 FOR 7:15 AM, 1830 FOR 6:30 PM)					
10	MEASURE DAYS TUESDAY	OPEN	GROUP	START	STOP	INTERVAL	LAST TIME CYCLED	
11	MEASURE DAYS WEDNESDAY	OPEN	1	800	1600	4		
12	MEASURE DAYS THURSDAY	OPEN	2					
13	MEASURE DAYS FRIDAY	OPEN	3					
14	MEASURE DAYS SATURDAY	CLOSED	4					
15			5					
16	REMOTE DRIVE LETTER	C	6					
17			7					
18			8					
19			9					
20			10					
21			11					
22			12					
23								
24								
25								
26								
27								
28	COM PORT NUMBER			1				
29								
30								
31	GROUP SCHEDULER STATE [ON/OFF]			OFF				
32								
33	Revision:	E						
34	Date:	6/23/2006						

Figure 5

NOTE: After the SmartBob hardware and System Setup Spreadsheet are operating properly, it is highly recommended to make a backup copy of the System Setup spreadsheet and store in a safe location.

General Information   In the upper left hand corner of the spreadsheet, Rows 1 through 16, enter facility information, vessel contents, etc and select which days of the week the facility will be open or closed, which is used for automatic scheduled group measurements.

Setup Measurement Days   Enter OPEN or CLOSED in the appropriate day of the week fields to customize the Group Scheduler to your facilities workdays. If the day is tagged as open, automated schedules WILL run, if enabled. If the day is closed, automated schedules WILL NOT run.

Create Group Schedules   In the Group Schedule area, (Figure 6) create a desired group drop schedule by entering a Start time, End time and Measurement interval for each group. Please note the clock format and enter the Interval parameter in hours or tenths of hours. During operation, the Last Time Cycled field will update based on last measurement. Group schedules may also be configured or modified in the main screen, Schedule Groups control.

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ENTER TIME IN 24 HOUR CLOCK FORMAT (Ex. 0715 FOR 7:15 AM, 1830 FOR 6:30 PM)					
GROUP	START	STOP	INTERVAL	LAST TIME CYCLED	
1	800	1600	4	200610191119	200610191200
2	800	1600	8	200610191119	200610191200
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					

Figure 6

Communication Port   Set the desired COM port number (Figure 5) on the PC which will be used for communications to the SmartBob Remotes.

Vessel Quantity   The Vessel Quantity field and the Add Sheet command (Figure 7) are used to automatically generate a number of pre-defined vessel sheets. Complete the BIN TEMPLATE sheet with as much common information for the vessels as possible.

> *NOTE: Make sure to complete the BIN TEMPLATE sheet with as much common information as possible BEFORE the Add Sheet command is executed.*

After the Add Sheet command is executed, an Excel script will create a dedicated spreadsheet for each vessel which will appear in the Excel worksheet tab list at the bottom of the screen as a Bin #.

Vessel Quantity	4
Add Sheet	

Figure 7

Bin Template Sheet (Figure 8)   The Bin Template spreadsheet is the "master record" to define and manage a vessel and SmartBob system. All vessel and display parameters are setup and retained in the individual spreadsheets associated with a vessel.

Creating Bins Overview   The basic process to setup a vessel system for control by the eBob software is to fill out vessel information for each bin and setting the desired display characteristics for the eBob Workstation screen. Because many vessel systems have a number of similar vessels, the Add Sheet command, defined above, provides an easy way to enter common information once and "copy" this information to up to 100 vessels in the setup sheet.

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NOTE: If any modifications are made the units, vessel size or shape, be sure to press the CALCULATE button on the spreadsheet to update all of the appropriate cells. See Figure 8 below, upper right corner of the spreadsheet for the location of the CALCULATE button.

	A	B	C	D	E	F	G	H
1	SMARTBOB SETUP SHEET		FEET	YARDS	METERS			
2			1	0	0			
3	VESSEL CONTENTS	SOLIDS						
4	VESSEL TITLE	Vessel #						
5	SMARTBOB	1				CALCULATE		
6								
7								
8								
9								
10	VESSEL OVERALL HEIGHT	25						
11	VESSEL SHAPE (R = Square, C = Circular)	C						
12	VESSEL STRAIGHT WALL HEIGHT	25	25	8.33	7.62	VESSEL HEIGHT IN FEET		25
13	SQUARE (R) VESSEL WIDTH	0	-	-	-			
14	SQUARE (R) VESSEL LENGTH	0	-	-	-			
15	SQUARE (R) VESSEL VOLUME	0.0	-	-	-			
16	CIRCULAR (C) VESSEL RADIUS	5	5	1.67	1.52			
17	CIRCULAR (C) VESSEL VOLUME	1,963	1,963	72.70	55.59			
18	OFFSET VOLUME	0	-	-	-			
19	TOTAL VOLUME	1,963	1,963	72.70	55.59			
20								
21	UNIT MEASUREMENT DENSITY							
22	LB/CU FT, LB/CU YD, OR KG/CU M	1.0	Note: Enter density in same units as defined in Row 2 above					
23	STRAIGHT WALL VOLUME	1,963						
24	STRAIGHT WALL WEIGHT	1,963.0	CF	CY	GD	GL	BU	CM
25	GROSS VOLUME SELECTED UNIT	1,963	CUBIC FT	CUBIC YARD	GALLONS	GALLONS	BUSHELS	CUBIC
26	INITIALS OF SELECTED UNIT	CF			DRY	LIQUID		METERS
27	GROSS VOLUME IN CU FT	1,963	1	0.0370373	6.4285	7.48051	0.803567	0.0283171
28			1	0	0	0	0	0
29	WEIGHT DISPLAY UNIT: LB, TON, MTON	LB						
30	(Metric Ton)							
31								
32	ALARMS							
33	LOW	0%	LOW					
34	HIGH	100%	HIGH					
35	REORDER	0%	REORDER					
36	STOP LOAD	100%	PRE HIGH					

Figure 8

Once a number of similar vessels have been created, specifics of each vessel can be entered into the spreadsheet associated with each vessel by clicking on the Bin # sheet tab. These are selected as sheet tabs in the overall workbook. (See figure 9)

52				
53				
54				
55				
56				

MAIN SHEET / BIN TEMPLATE / BIN1 / BIN2 / BIN3 / BIN4 / BIN5 / BIN6 / BIN7 / BIN8 / BIN9 / BIN10 /

Ready

Figure 9

NOTE: <u>Do not modify the individual spreadsheet "BIN#" names in the workbook</u>. The software references the BIN# name to retrieve data.

Vessel contents, Title, and SBRXII In the BIN TEMPLATE spreadsheet, rows 3 to 5, the user can enter contents information, a title for the vessel and most importantly, which SmartBob Remote address is associated with the particular spreadsheet page.

> *NOTE: The SmartBob field in the spreadsheet MUST correspond to the hardware address settings setup in the SmartBob.*

Vessel Size and Shape In the BIN TEMPLATE spreadsheet rows, 11 to 16, define the vessel shape and the height and width. Enter a "1" in Row 2, Column C, D or E to select whether the bin parameters are in Feet, Yards or Meters. To update the various results fields, press the calculate button.

Volume Setup The Volume fields in Row 28, Columns C, D, E, F & G are results fields based on the vessel heights and widths inputs, but the user may select a particular volume display by entering "1" in the yellow cell for the desired units.

Weight Setup The weight display units can be set in Cell B29 by entering LB, TON, or MTON (metric tons).

Alarm Setup Alarms are setup by entering data into rows 33 to 36. There are two "Low" level alarm points and two "High" level alarm points which can be used for various warning or process control applications. The Alarm points are entered in % of full units.

32	ALARMS						
33	LOW	0%	LOW				
34	HIGH	100%	HIGH				
35	REORDER	0%	REORDER				
36	STOP LOAD	100%	PRE HIGH				
37			PERCENT	LAST DROP	NEXT DROP		
38			EMPTY	TIME	TIME		
39	PRODUCT HEIGHT	21.05	0.84	200610200739			
40	VOLUME	1648.92					
41	WEIGHT	1,648.92					
42	BACK GROUND COLOR	2	2=Green 3=Red 4=Brown 5=Blue 6=Black 7=Yellow				
43	FILL LEVEL COLOR	7	8=Soft Blue 9=Orange 10=Purple				
44	FIRST GROUP DISPLAY NUMBER	1					
45	SECOND GROUP DISPLAY NUMBE	0					
46	THIRD GROUP DISPLAY NUMBER	0					
47	FOURTH GROUP DISPLAY NUMBER	0					
48	FIFTH GROUP DISPLAY NUMBER	0					
49	ENABLED or DISABLED	ENABLED					
50	SMARTBOB STATUS	0	(0) Retracted, Idle (13, 14) Retract Failed (15) Bob Stuck Top (16) Bob Stuck Bot				
51							

Figure 10

Color and Group Setup Background and Product Fill Level display color may be changed by entering the desired number color code, as defined in the spreadsheet, in the Back Ground of Fill Color data cells.

Group Numbering Group numbers may be customized by entering a group number in the group display number fields.

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SmartBob Enable / Disable The SmartBob remotes may be manually enabled or disabled in the spreadsheet by entering "ENABLE" or "DISABLE" in the control field.

> *NOTE: The eBob Workstation software periodically monitors the status of the SmartBob remotes. If a previously enabled bob becomes unavailable due to a communications or bob problem, eBob will automatically disable that bob to prevent improper operation.*

Bob Status The Bob Status field reports the current status of the SmartBob remote. See the field descriptions in the setup sheet for status codes.

Vessel Shape Corrections A vessel volume offset correction may be setup in the Volume Offset section of the setup sheet. This allows the operator to create a correction value to subtract a "correction volume" from the total volume due to a conically shaped vessel bottom. The correction factor models the cone section of a vessel by applying a height and radius to multiple "bands" or sections of the cone and subtracting this from the overall volume. (Figure 11) To apply the correction value, press the CALCULATE button in the spreadsheet to update the volume data fields with the correction factor.

	A	B	C	D	E	F	G	H	I	J
52			PARTITION					RECT		CYLINDER
53	CONE VOLUME CORRECTION	PARTITION TOTAL	HEIGHT	VOLUME	TOTAL	WIDTH	LENGTH	VOLUME	RADIUS	VOLUME
54	0 PARTITION	25	0	78.54	173.57			0.000	5.000	78.540
55	1st PARTITION	26	1	50.27	95.03			0.000	4.000	50.265
56	2nd PARTITION	27	1	28.27	44.77			0.000	3.000	28.274
57	3rd PARTITION	28	1	12.57	16.49			0.000	2.000	12.566
58	4th PARTITION	29	1	3.14	3.93			0.000	1.000	3.142
59	5th PARTITION	30	1	0.79	0.79			0.000	0.500	0.785
60	6th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
61	7th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
62	8th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
63	9th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
64	10th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
65	11th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
66	12th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
67	13th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
68	14th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
69	15th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
70	16th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
71	17th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
72	18th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
73	19th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
74	20th PARTITION	30	0	0.00	0.00			0.000	0.000	0.000
75										
76	Cone Volume Correction Setup:									
77										
78	Cone volume correction compensates for the volume difference between a normal cylinder or rectangular vessel and a tapered, "cone" shaped discharge hopper.									
79	NOTE: When the SmartBob measurement exceeds the straight wall vessel height and the Cone Volume Correction is setup, the measurement will reflect actual cone volu									
80	The maximum number of partition bands is 20 and each partition must be 1 foot high									
81										
82										
83	"0 Partition" is the LAST straight wall vessel section before the cone or hopper section. Start cone volume setup with 1st PARTITION									
84	Enter a 1 foot PARTITION HEIGHT for each desired section, starting with the 1ST PARTITION									
85	Each PARTITION "band" is setup based on a section height and a radius, or a height, length and width for a rectangular vessel									
86	Enter each partition sections radius in the RADIUS column									
87	Setup height units in the PARTITION HEIGHT column in the same units as selected in Row 2									
88										

Figure 11

Archiving System Setup After the SmartBob hardware and System Setup Spreadsheet are operating properly, it is highly recommended to make a backup copy of the System Setup spreadsheet and store in a safe location.

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NOTE: Always remember to SAVE the System Setup spreadsheet if any changes are made.

eBob Startup   After entering the data in the System Setup spreadsheet, save the spreadsheet and exit Excel. To start eBob Workstation, return to the desktop in Windows and double click the eBob Workstation icon.

4.0   eBob Operation

Application Startup   At startup, the eBob Workstation software communicates with each SmartBob II remote on the system and determines current status. Depending on the number of bobs connected, this may take several seconds up to several minutes, during which a message screen will appear indicating the software is checking bob status. Once each bob has been queried, the eBob software updates the status fields of the spreadsheets and displays the main operating screen.

Main Screen   The main operating screen paints a graphical representation of each of the SmartBob II Remotes that are setup in the system. The display shows the *last* measurement and *current* status of the SmartBobs. The main screen interface is the primary control screen for the eBob Workstation software. Details of each bin, group selection and measurement control are all accessed from the main screen. (Figure 12)
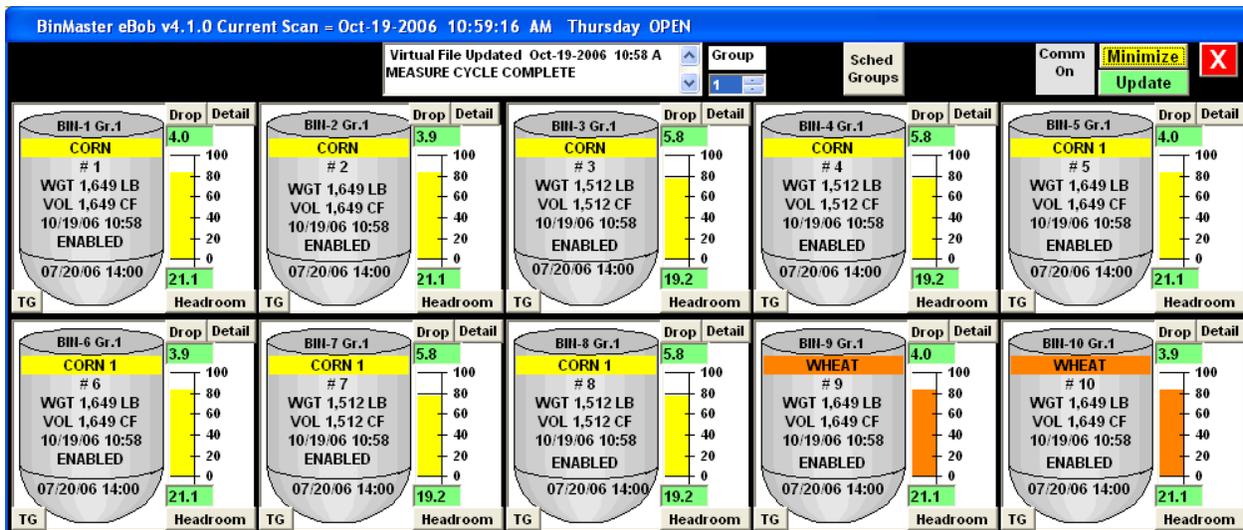
Figure 12

The initial display graphically represents up to the first 20 bobs or less, depending on the number of bobs in the system. To view bins greater than 20, click on the respective tab in the upper left corner of the main screen display. Up to 100 bobs may be displayed on the 5 different tabs.

NOTE: Additional tabs will only be displayed if the bobs are actually setup in the system.

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Each individual vessel graphic, (Figure 13) displays the contents, bin labels, groupings, volume and weight measurement *as they have been entered in the Setup Spreadsheet.* Each graphic also displays percent full, the time of last measurement, the status of the bob (enabled or disabled) and the time of next measurement, if the bob is setup for a scheduled drop. A bob can be manually disabled by clicking and toggling the ENABLE field on the bin graphic.

- Bob Number and Groups
- Percent Full and Product Distances
- Vessel Labels
- Product Weight
- Product Volume
- Date / Time of Last Measurement
- Bob Enabled or Disabled Message
- Bob Status or Date / Time of Next Measurement
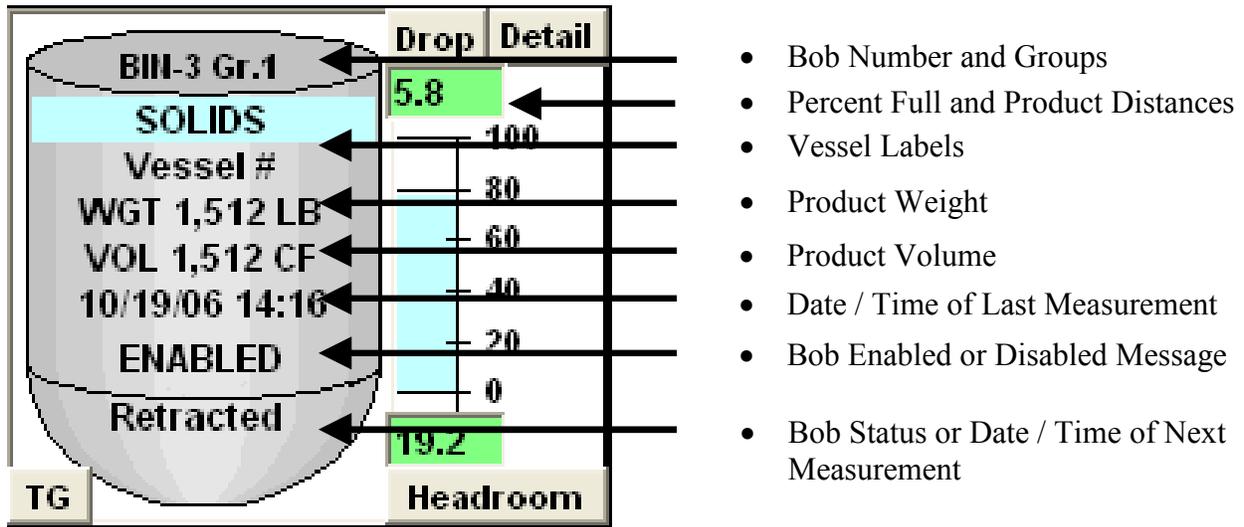
Figure 13

Detail Screen   The Detail screen brings up a large graphic view of the individual vessel / bob system. Within the detail screen, manual measurements may be performed or the bob may be forced to retract.

The Detail screen (Figure 14) is an expanded view of the individual bin graphic from the main screen, and displays a summary of the vessel information that has been entered in each individual Bin Template. The Detail Screen displays;

- Manual SmartBob controls
- Contents, Bin Number and Title
- Vessel Height
- Group associations
- Display colors
- Unit Density setting
- Alarm settings
- Last Measurement data
- Last and Next Measurement times

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Blue highlighted fields in the data screen may be edited to change a particular parameter. When you press Update Data, the new entries will be saved to the master spreadsheet. Editable fields are:

- Bin Contents
- Bin Title
- Bin Group Numbers
- Alarm Set-Points
- Bin Color
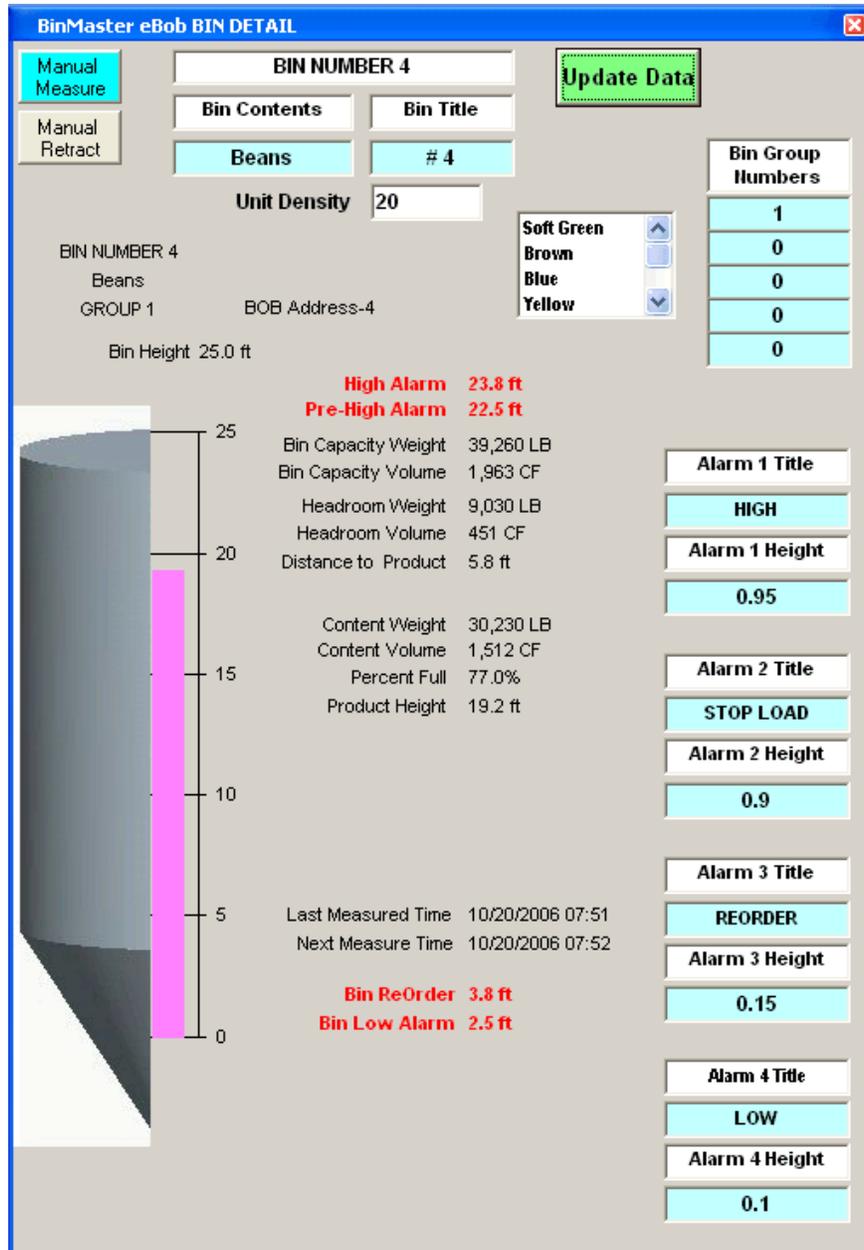
Figure 14

Manual Measurements For a basic manual measurement from the main screen, highlight the Drop button by left clicking for the particular vessels you wish to measure. Multiple bobs may be selected, up to all the bobs in the system. Once the desired bobs have been selected, click the Measure button (Figure 15) in the upper center of the main screen to perform the measurement.

> *NOTE: The measurement process may take several minutes, depending on the number of bobs and the distances associated with each measurement. As a general rule, drop and retract rates are two feet per second.*
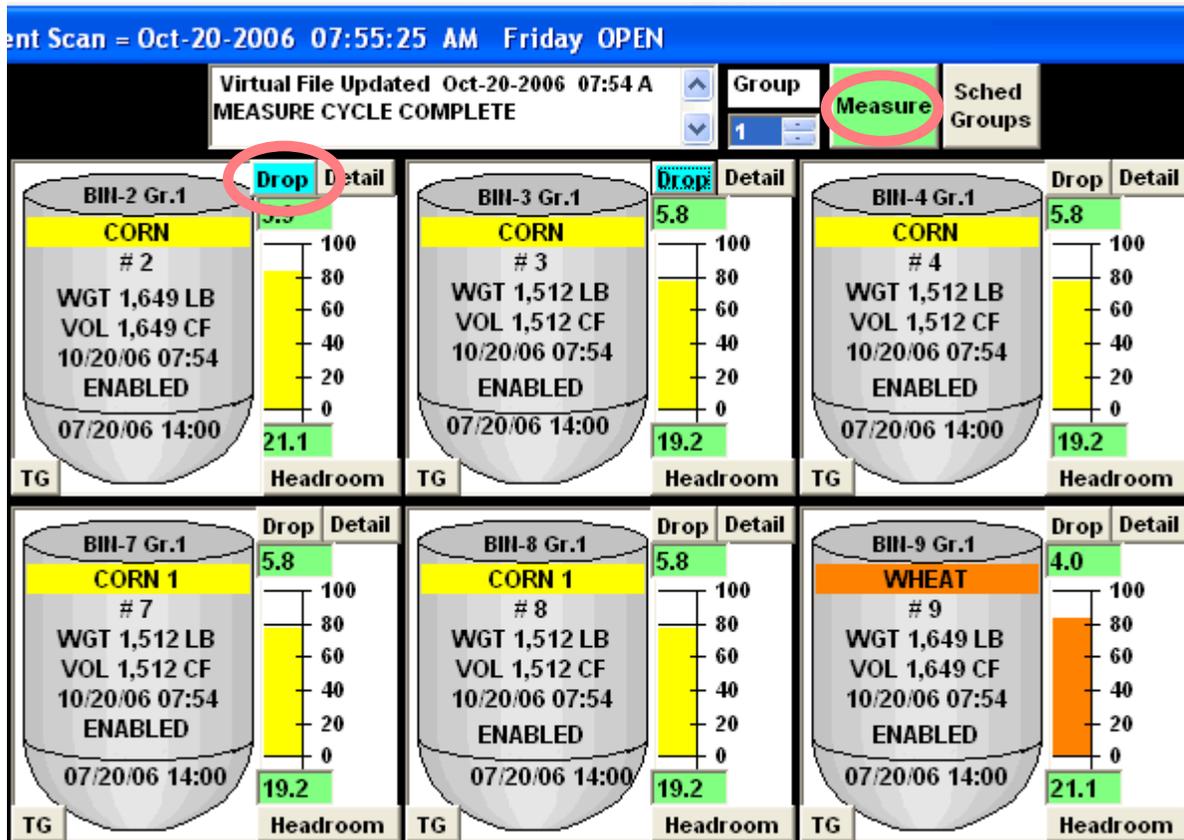
Figure 15

Headroom Display The Headroom button on the vessel graphic in the main screen will toggle the volume and weight between the actual amount of product in the vessel or the room left (headroom) in the vessel. (Figure 16)

9250255 Rev G
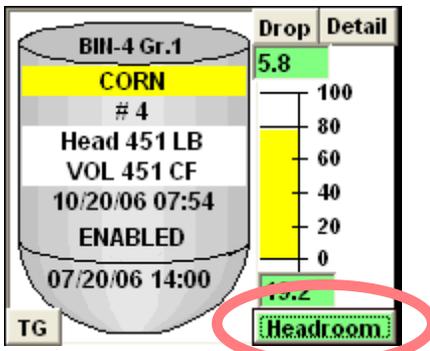
Figure 16

Scheduling Groups The Schedule Groups button enters a setup screen (Figure 17) to create a group of common vessels for periodic, automatic measurements. The schedule is entered by defining a Start Time, Stop Time and the measurement interval within that time. For example, to setup a group to take a measurement every two hours from 8:00 AM to 5:00 PM, enter 0800 in Start Time, 1700 in Stop Time and an interval of "2". For fractions of an hour, enter with a decimal point. The maximum resolution is 0.1 hours or 6 minutes.

NOTE: Time entries must be in 24 hours clock format.
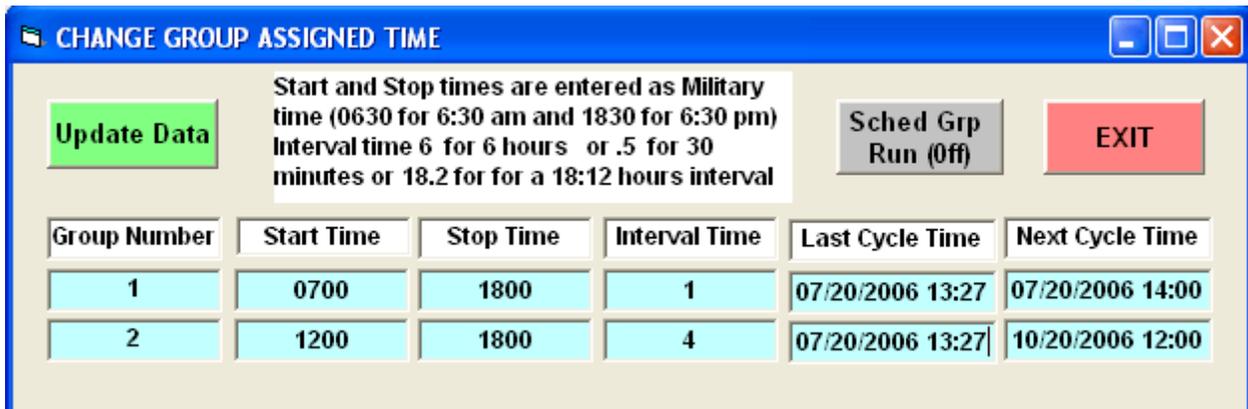
Figure 17

Groups may be created in the system setup spreadsheet or setup and modified Schedule Groups control on the main screen. Group membership (the group number) is displayed at the very top of the main screen graphic and up to 20 vessels may belong to a group.

To view a group on the main display, click the rotary control in the Group control at the top of the main display. Rotate the group number control by clicking on the arrows to the desired group to display. Only the members of that particular group will be displayed.

Temporary Group The "TG" Button and Temp Group ON / OFF control create a special, temporary group for manual control. The Temp Group function is used to define and take a measurement for a vessel / bob group that does not need a specific schedule, such as a mid day inventory report for non related bins.

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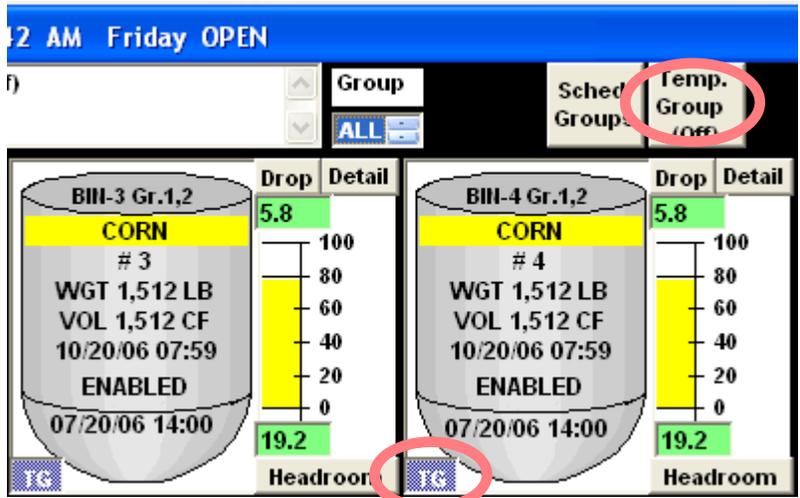
Figure 18

To setup a Temporary Group, highlight the "TG" button by clicking on it. Do this for the desired bins. Once selected, press the Temp Group ON button to display only the group vessels. To take a measurement highlight the Drop control on the desired bins and click Measure. A temporary group selection and measurement does not change any "Scheduled Group" parameters.

Alarm Notification Alarm parameters that have been established in eBob may be setup to generate an alarm notification *automatically,* via email. To setup email notification, open the configuration file "config.cfg" located in C:\Garner using Notepad. Please see instructions in the configuration file for setup details and *follow the instruction carefully.* (Figure 19)

Figure 19

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17
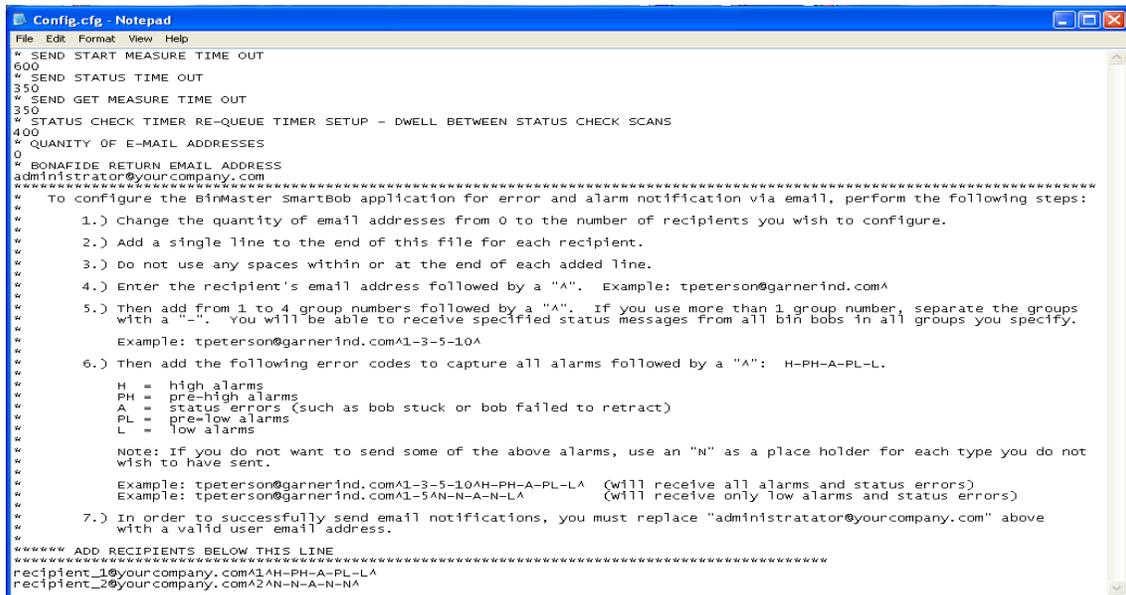
1. Enter the quantity of email addresses in the config file.
2. Enter a current email address as the return or "sender" email address
3. Enter the desired notification email address BELOW the instruction block and SAVE the file.

To enable email notification within eBob, the program must be restarted after the configuration file has been updated. Once the configuration files have been setup, an "Email On / Off" toggle button will appear in the upper right hand corner of the main screen. Turn this ON to enable the sending of alarm notification emails.

NOTE: eBob defaults to email off after startup. Remember to turn Email notification on, if desired, after startup.

Also, the first 8 lines of the configuration file are advanced timing parameter settings used for communication setup. (Figure 20)

NOTE: The user should not modify any of these settings unless instructed to do so by BinMaster Technical Support.

Figure 20

5.0   eBob Reporting and Archiving

5.1   Basic Reporting

During installation, eBob will add an icon to the desktop to access a basic reporting screen. This is an independent process or program from the actual eBob Workstation, but it accesses the *exact* same data.

Inventory screen   The Inventory screen is a basic inventory history display of the last measurements.

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- The Inventory screen data is from last measurement of each vessel, *whenever* that measurement was taken.
- Click the Inv Print button to print the basic inventory page.
- Click "Inv. by Bin" to display inventory of each bin individually, whereas "Inv by Product" will display each vessel, but group them by contents and total each type of contents or "Product".
- Click EXIT to close Inventory Report window.

NOTE: If the inventory screen has been left open for a while or minimized, click "Inv by Bin" or " Inv. By Product" to refresh the inventory data to the most recent.

Figure 21

History or "String" reports   The String report is a graphical history trend or the last measurements of the vessel, up to the last 30 measurement points.

NOTE: After 30 measurements in the database files, oldest data is purged from the file.

- Run history by selecting vessel number and clicking Run String to display a history "String" report for the selected vessel.
- To print history chart, place mouse cursor over chart and click print in the upper right corner of the chart.
- Click Inventory Button to go back to main inventory screen.
- Click EXIT to close the History Report window.

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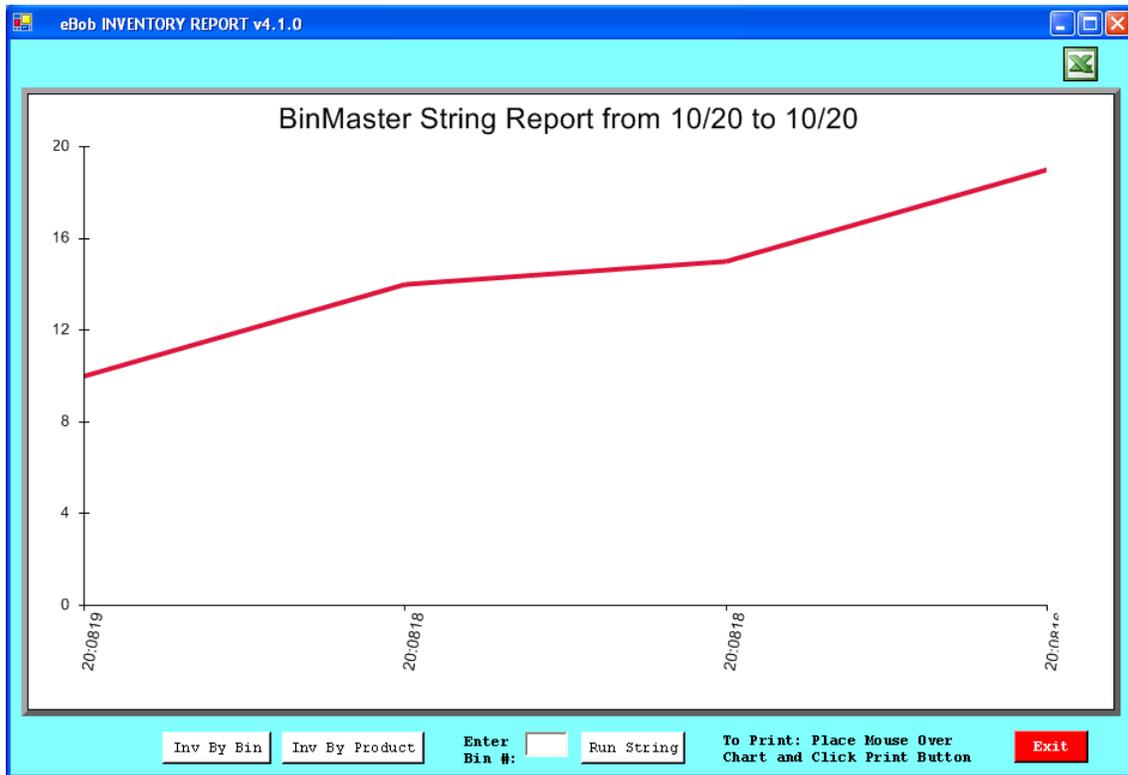
Figure 22

History Export   The Inventory Report module also allows historical data to be exported to a Comma Separated Values (CSV) format data file. Click the Excel® icon in the upper right portion of the Inventory screens to launch the Export dialog.

Figure 23

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Using the export dialog you can select the Date range, Individual vessels and specify and filename and location of the export file.

5.2   Advanced Reporting

Access Database   For advanced reporting requirements, the BinMaster eBob Software writes a Microsoft® Access database file. Two databases are created and maintained during operation. The data from these may be sorted or exported and analyzed by the user. The native Access database allows transfer to any Microsoft® application with ease. The data base files are located on the C:\Garner folder.

5.3   Last Measurement   BINMASTER.mdb is written to by the eBob software after EACH measurement. This database ONLY records the last measurement data for each bin, but all vessel parameters are copied to the history file after each measurement, i.e. % full, weight, bin status, schedule times, etc. See BINMASTER.mdb for details.

BIN	BIN1	LABEL1	LABEL2	LABEL3	LABEL4	LABEL5	LABEL6
1	84% LEVEL	Corn	#1	WGT 1,649 LB	VOL 1,649 CF	10/20/06 08:24	ENABLED
2	84% LEVEL	Wheat	#2	WGT 1,649 LB	VOL 1,649 CF	10/20/06 08:24	ENABLED
3	77% LEVEL	Corn	#3	WGT 1,512 LB	VOL 1,512 CF	10/20/06 08:24	ENABLED
4	77% LEVEL	Beans	#4	WGT 30,230 LB	VOL 1,512 CF	10/20/06 08:24	ENABLED
5	84% LEVEL	SOLIDS	Vessel #	WGT 1,649 LB	VOL 1,649 CF	10/20/06 08:24	ENABLED
6	84% LEVEL	SOLIDS	Vessel #	WGT 1,649 LB	VOL 1,649 CF	10/20/06 08:24	ENABLED
7	77% LEVEL	SOLIDS	Vessel #	WGT 1,512 LB	VOL 1,512 CF	10/20/06 08:24	ENABLED
8	77% LEVEL	SOLIDS	Vessel #	WGT 1,512 LB	VOL 1,512 CF	10/20/06 08:24	ENABLED
9	84% LEVEL	SOLIDS	Vessel #	WGT 1,649 LB	VOL 1,649 CF	10/20/06 08:24	ENABLED
10	84% LEVEL	SOLIDS	Vessel #	WGT 1,649 LB	VOL 1,649 CF	10/20/06 08:24	ENABLED
0							

Figure 24

5.3   Measurement History   BinMasterData.mdb is written to by the eBob software after EACH measurement and records the history of ALL measurements for 40 days. Measurement records in this database older than are 40 days are purged. See BinMasterData.mbd for details.

RecNum	BinNumber	Measure	MeasueType	DataInputTime	TotalCubeFeet	TotalWeightCubicFeet	MeasuredVolume	MeasuredWeight	HeadRoom
17	1	21.025	MAN. GRP 1	200610200823	1963	1963	1649	1648.92	
18	2	21.0625	MAN. GRP 1	200610200823	1963	1963	1649	1648.92	
19	3	19.2125	MAN. GRP 1	200610200824	1963	1963	1512	1511.51	
20	4	19.175	MAN. GRP 1	200610200823	1963	39260	1512	30230.2	
21	5	21.025	MAN. GRP 1	200610200823	1963	1963	1649	1648.92	
22	6	21.0625	MAN. GRP 1	200610200823	1963	1963	1649	1648.92	
23	7	19.2125	MAN. GRP 1	200610200823	1963	1963	1512	1511.51	
24	8	19.175	MAN. GRP 1	200610200823	1963	1963	1512	1511.51	
25	9	21.025	MAN. GRP 1	200610200823	1963	1963	1649	1648.92	
26	10	21.0625	MAN. GRP 1	200610200823	1963	1963	1649	1648.92	
27	1	21.025	MAN. GRP 1	200610200824	1963	1963	1649	1648.92	
28	2	21.1	MAN. GRP 1	200610200824	1963	1963	1649	1648.92	
29	3	19.2125	MAN. GRP 1	200610200824	1963	1963	1512	1511.51	
30	4	19.175	MAN. GRP 1	200610200824	1963	39260	1512	30230.2	
31	5	21.025	MAN. GRP 1	200610200824	1963	1963	1649	1648.92	
32	6	21.1	MAN. GRP 1	200610200824	1963	1963	1649	1648.92	
33	7	19.2125	MAN. GRP 1	200610200824	1963	1963	1512	1511.51	
34	8	19.175	MAN. GRP 1	200610200824	1963	1963	1512	1511.51	
35	9	21.025	MAN. GRP 1	200610200824	1963	1963	1649	1648.92	
36	10	21.1	MAN. GRP 1	200610200824	1963	1963	1649	1648.92	
37	1	21.0625	MAN. GRP 1	200610200825	1963	1963	1649	1648.92	
38	2	21.1125	MAN. GRP 1	200610200825	1963	1963	1649	1648.92	
39	3	19.2	MAN. GRP 1	200610200825	1963	1963	1512	1511.51	
40	4	19.175	MAN. GRP 1	200610200825	1963	39260	1512	30230.2	
41	5	21.0625	MAN. GRP 1	200610200825	1963	1963	1649	1648.92	
42	6	21.1125	MAN. GRP 1	200610200825	1963	1963	1649	1648.92	
43	7	19.2	MAN. GRP 1	200610200825	1963	1963	1512	1511.51	
44	8	19.175	MAN. GRP 1	200610200825	1963	1963	1512	1511.51	
45	9	21.0625	MAN. GRP 1	200610200825	1963	1963	1649	1648.92	
46	10	21.1125	MAN. GRP 1	200610200825	1963	1963	1649	1648.92	
(AutoNumber)	0	0			0	0	0	0	

Figure 25

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6.0   Internet Access   (Optional)

The eBob Workstation software may be accessed from a remote location via the Internet. Because the PC running the eBob software basically becomes a web server, several parameters must be noted.

- A Static TCP/IP address must be associated with the PC running the eBob Workstation software
- eBob Workstation Internet access requires Microsoft® Windows XP Professional
- Internet Information Services (IIS) must be installed on the PC
- Microsoft® .NET framework 1.1 must be installed on the PC

The following setup procedure is recommended to prepare the operating system for eBob Workstation Web access.

1. Install IIS on the PC by navigating to Control Panel, Add / Remove programs, Add Remove Windows Components. Check Internet Information Services (IIS) in the Windows Components Wizard and click Next to install IIS.

NOTE: Windows may require the original installation CD to install IIS.

2. Install the Microsoft® .NET framework. This can be installed from a Windows installation CD or downloaded from the Microsoft® XP website. Alternatively, Microsoft® .NET install file is included on the eBob distribution disk.

Navigate to eBob Workstation Installation CD using Windows Explorer or My Computer. Locate the file "dotnetfx.exe" and double click to install. Follow the on screen prompts to complete the installation of the .NET framework.

3. Install eBob Workstation and Workstation Internet access module if applicable.

NOTE: Because of how Windows registers the IIS and the .NET framework, it is important to install Internet Information Services first, the .NET framework second and eBob Workstation Web last.

4. Configure Internet Information Services (IIS) Default Web Sites to recognize BinMaster and StringReport. (See Section 6.1)

6.1   Internet Information Services Setup

eBob Workstation requires Microsoft Internet Information Services be configured to recognize the eBob Web pages. Please review and confirm the IIS setting described on the following pages.

Go to Settings, Control Panel, Administrative Tools, and double click on Internet Information Services.
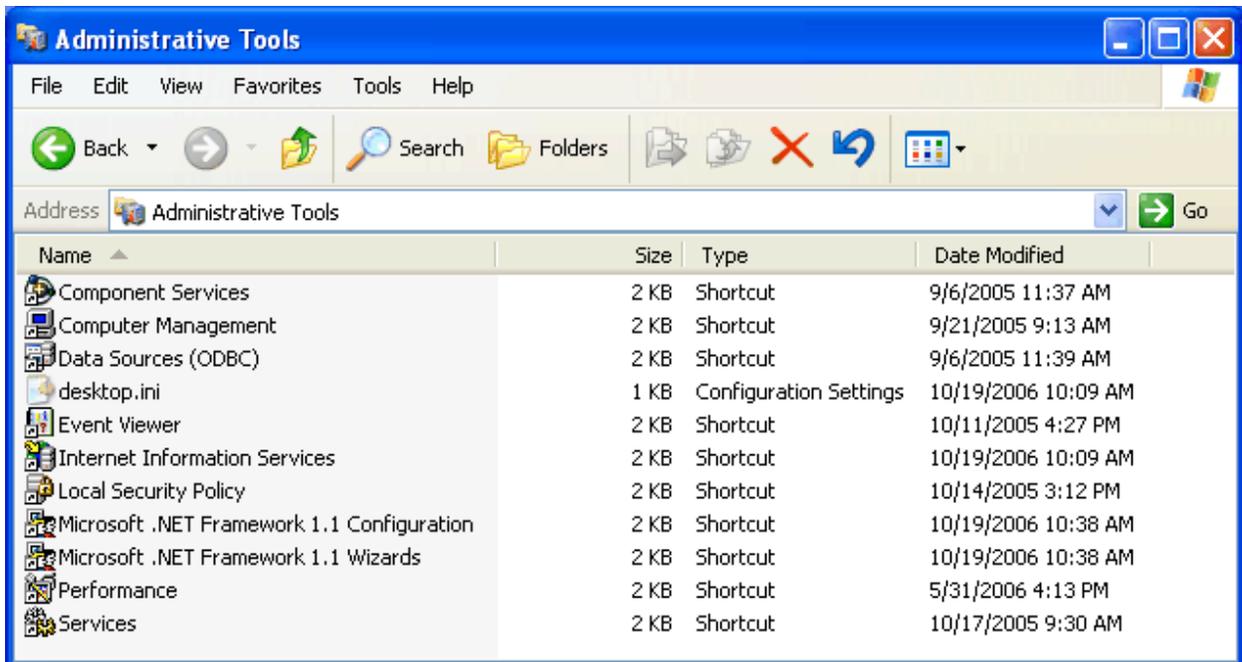
Figure 26

Expand the list for the local computer by clicking on the "+"

Expand Web Sites and then Default Web Sites, by clicking on the "+"
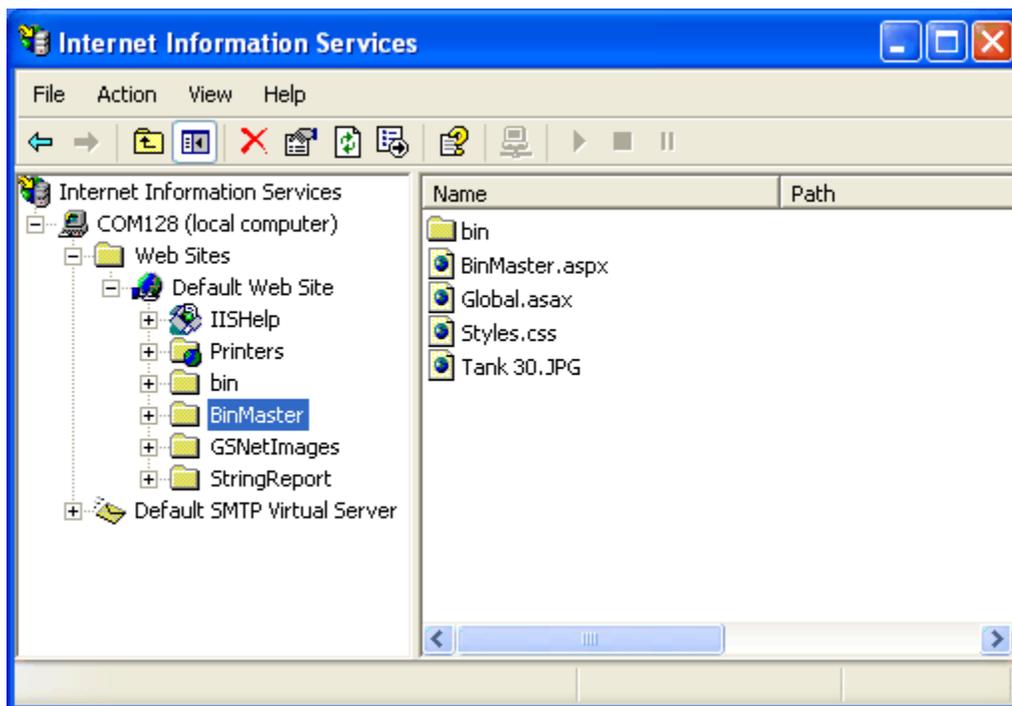
Figure 27

Under the Default Web Sites list item, if BinMaster and StringReport items appear with a folder icon, Internet Information Services has NOT been configured to recognize these files.

> *NOTE: Repeat the configuration process described below for both the BinMaster and StringReport list items in Default Web Sites.*

To configure IIS, select the BinMaster list item, right click and select Properties. The "Application name:" entry in the middle of the dialog box will be grayed out. (Figure 28)

Click on the Create button then Apply. This will configure IIS to recognize BinMaster Web Site. (Figure 29)
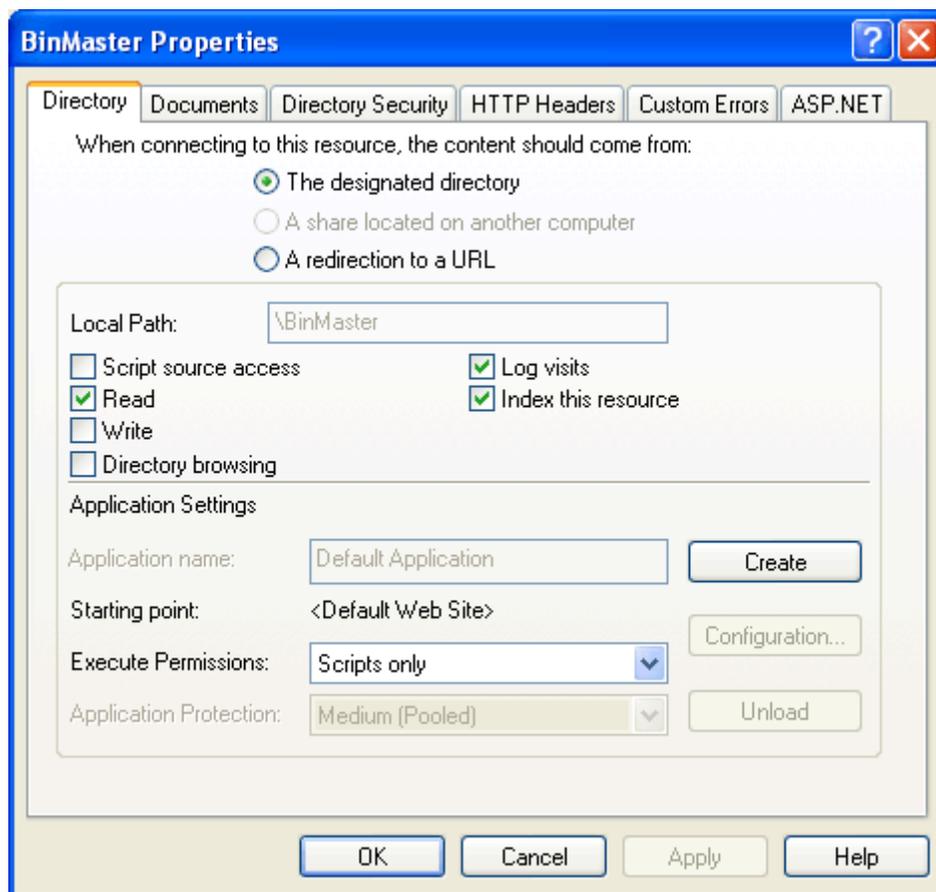
Figure 28
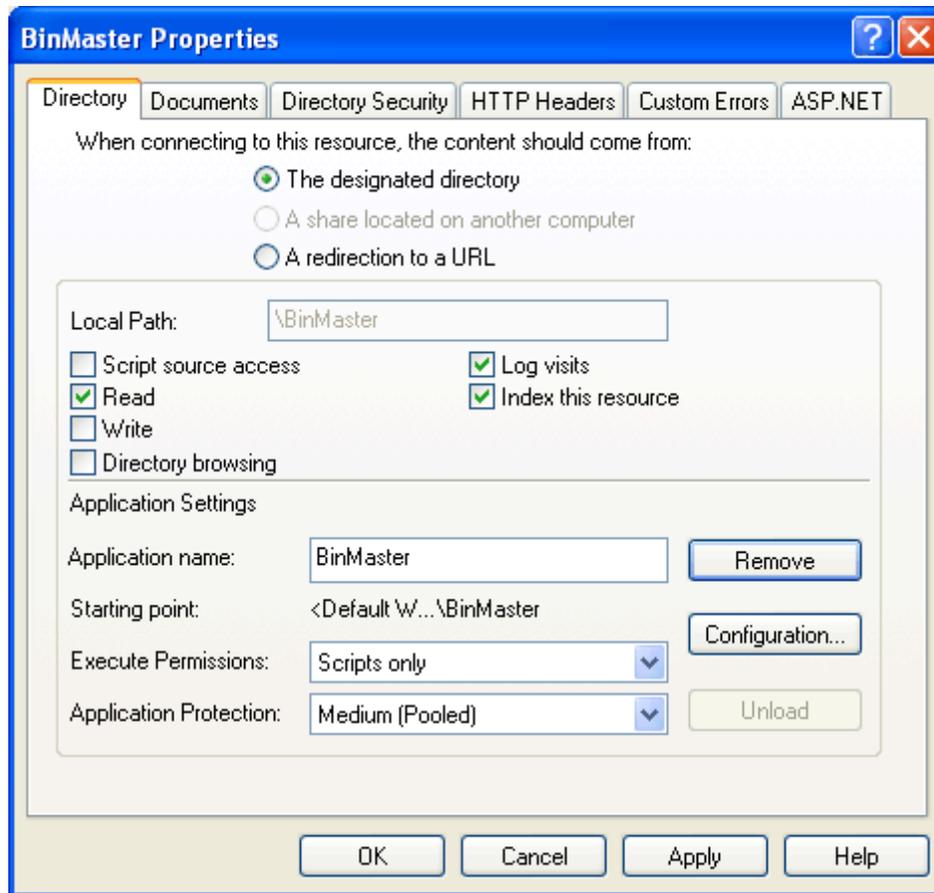
Figure 29

Default Web Site Setup

Select the Default Web Site and right click, select Properties. Click the Documents tab and make sure "default.aspx" is included in the default list. If not, click Add, and type "default.aspx" into the Add Default Document list.

Click OK and default.aspx will appear in the default document list. (Figure 30)
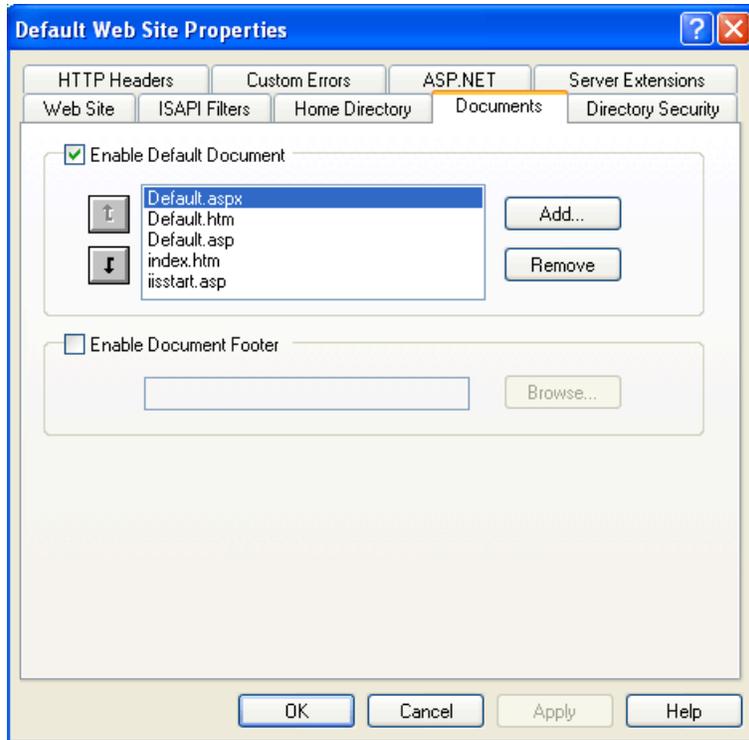
Figure 30

Authentication Setup

Select the Default Web Site and right click, select Properties. Click the Directory Security tab and select Edit under Anonymous access and authentication controls (Figure 31).

Make sure the Integrated Windows Authentication is checked on the following screen. (Figure 32)
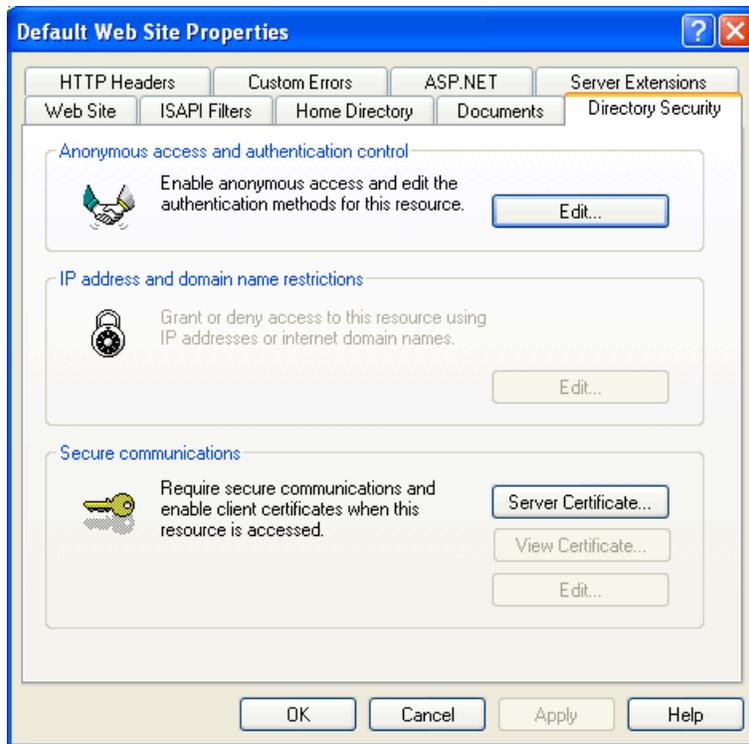
Figure 31

Figure 32

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6.2   Login

Local Login

To test and demonstrate operation of the eBob Workstation Internet Access module, access eBob Workstation via your web browser on the <u>local PC running the eBob software.</u> This is a good test for the system because using the local host does not require accessing the external internet.

- Open your web browser
- Navigate to http://localhost/

The eBob Login screen will appear on your browser. (Figure 33) The factory passwords for the login screen are a Username of "test" and a password of "test". Enter these into the Login screen to access eBob Workstation via the web browser on your local PC.
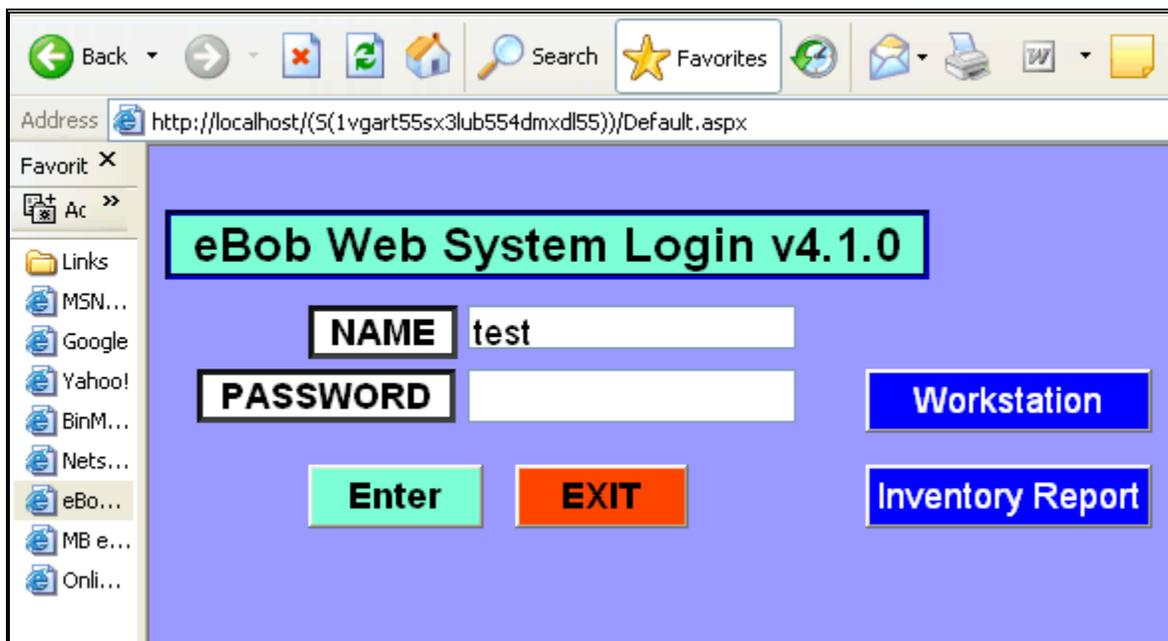
Figure 33

Remote Login

To access eBob Workstation from a remote computer, the same process is used as the local login except the "localhost" is replaced by the Internet IP address of the PC running eBob software.

- Open your web browser
- Navigate to: http://[your IP Address]/   Example http://162.80.80.248/

The eBob Login screen will appear on your browser. (Figure 33) The factory default passwords for the login screen are a Username of "test" and a password of "test" also. Enter these into the appropriate screen to login to eBob Workstation via the Internet

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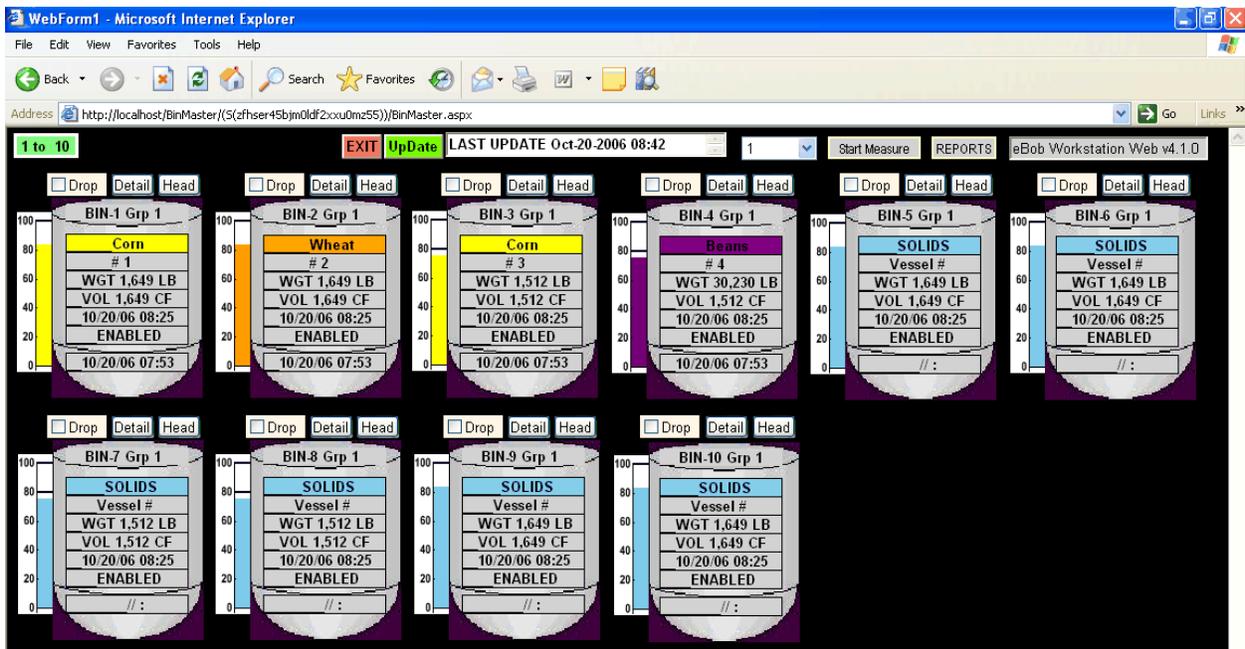
Figure 34

6.3   Operation

Main Screen   The eBob Workstation Web screen (Figure 34) is a web
representation of the Workstation software, with a similar control system to the local eBob
Workstation. The display shows the *last* measurement and *current* status of the SmartBobs.

The initial display graphically represents up to the first 20 bobs or less, depending on the number
of bobs in the system. To view bins greater than 20, click on the respective tab in the upper left
corner of the main screen display.

> *NOTE: Additional tabs will only be displayed if the bobs are actually setup in the
> system.*

Control of the SmartBob remotes via the Web interface is very similar to the basic workstation
software.

For a Manual measurement, check the Drop button by left clicking for the particular vessels you
wish to measure and then left click Measure.

> *NOTE: To update the data from a remote measurement you must click UPDATE in the
> eBob Web screen. Also it is important to note date and time of last update or
> measurement to make sure you are accessing the most recent data.*
>
> *NOTE: DO NOT use the Refresh control on your web browser to update the data on the
> eBob web screen.*

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Click the Tab control in the upper left part of the screen to toggle between vessel groups. The detail screen is displayed as a text box, rather than a pop-up window as in the eBob Workstation software, and is displayed in the lower left corner of the eBob Web screen.

Reports   To access Inventory and History Reports, click the Report button in the eBob Web screen or directly log into the reporting screen by selecting String Reports at the Login screen.

The display will switch to a web screen with reporting functions. Operation of the Web based reports are identical eBob Workstation reports, so please refer to Section 5.1 for operation instructions.

To return to the eBob Web screen, left click the Run BinMaster button.

Printing   The Web Report module offers enhanced PDF generation for printing and report archiving. On the Reporting window, click the Printer icon in the upper left portion of the screen. This will spawn a browser based PDF generation page. (Figure 35)

From the PDF generation page you can print or save the individual report file as necessary.

Figure 35

History Export   The Web Report module also allows historical data to be exported to a Comma Separated Values (CSV) format data file, _to your local PC_, via a browser based Export utility .

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Click the Excel® icon in the upper right portion of the Inventory screens to launch the Export dialog. (Figure 36)
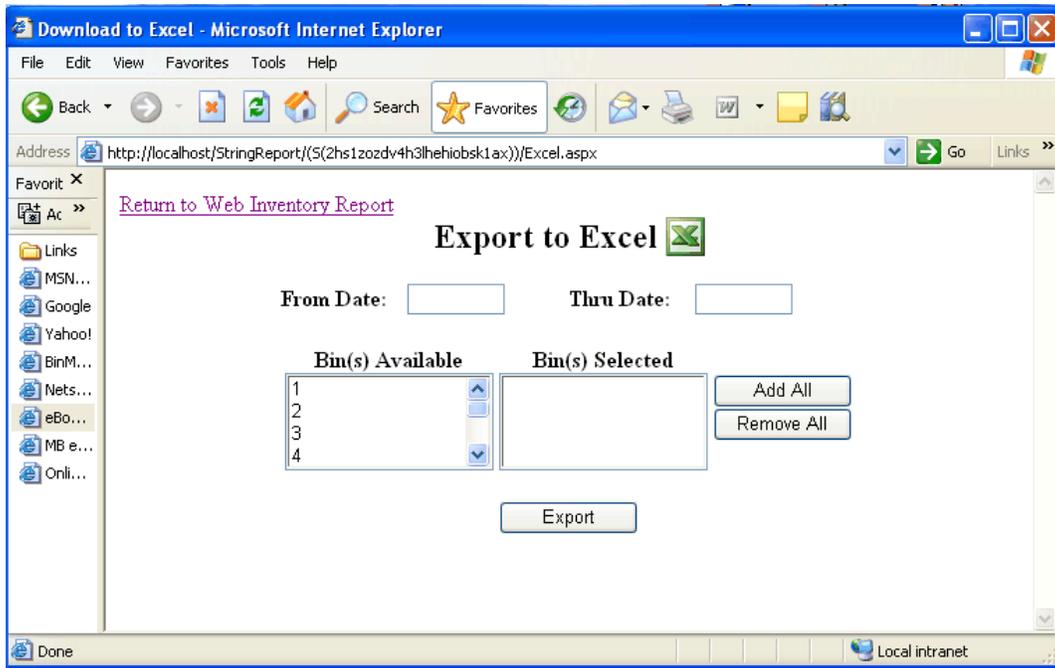
Figure 36

Using the export dialog you can select the Date Range and Individual vessel data to Export. When you click "Export", a standard Windows "Open or Save" dialog box will popup allowing you to save the data locally or open the CSV data directly into Excel.

6.4   Login Passwords

The Login passwords are controlled by an Access database file, "GarnerPassWordCodes.mdb" that resides in the C:\Garner directory of the workstation PC where usernames and login passwords may be setup.

Each entry or record in the database file is a username and password. To create a new User and Password, copy the original record and paste back into the database as a new record. Update the LoginName and Password fields to the desired username and password.

Figure 37

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7.0   Tips and Troubleshooting

If eBob Workstation application terminates abnormally because of a system hang or other OS error, open the windows Task Manager and terminate (End Process) any versions of Excel.exe that are running before re-starting eBob Workstation.
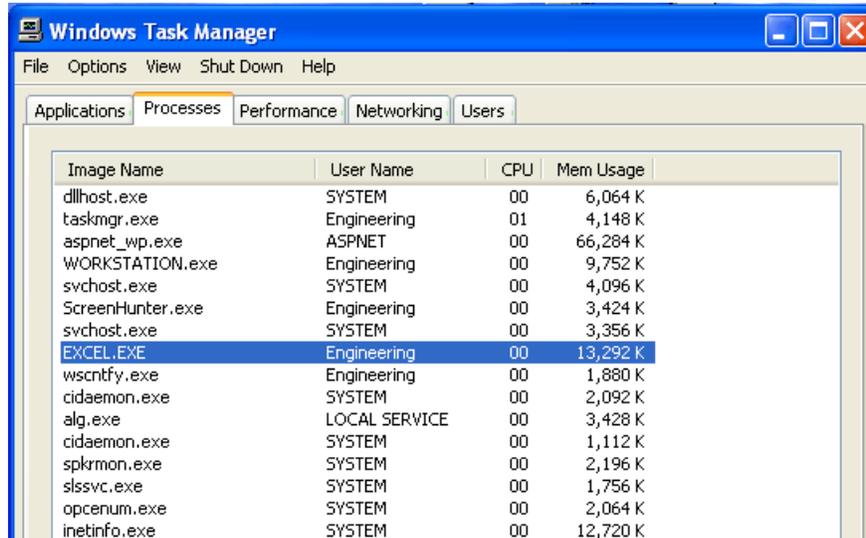
Figure 38

Login screen does display properly

If the login screen does not display properly (as shown in Figure 29), it is possible Windows has not properly registered ASP (Active Server Pages) with IIS, which causes ASP pages to be interpreted as HTML. To fix this problem run RegisterAsp.cmd which is located on the root folder of the eBob Installation CD.


Figure 39

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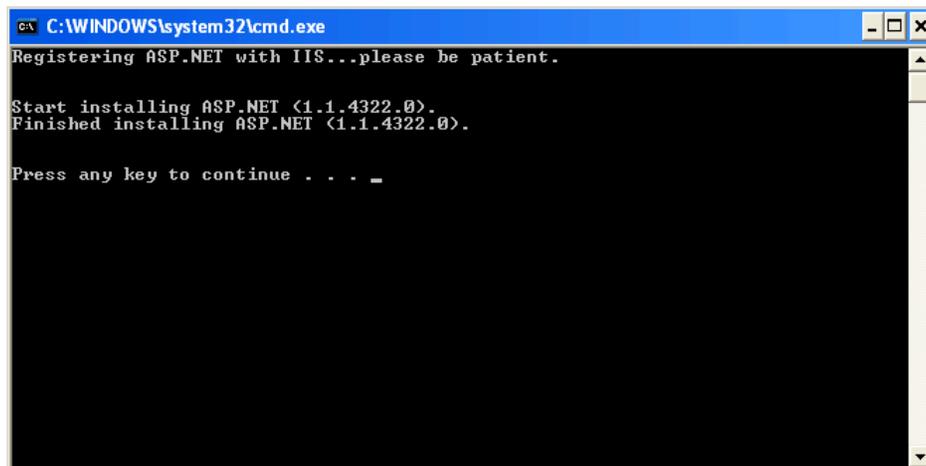
USB to Serial port adapters

If using a USB to Serial Port adapter to connect to the SmartBob II remotes, please note the following setup parameters.

- Install the correct device driver as per the adapter manufacturer's instructions.
- Use Device Manager to verify the COM port number assigned by the USB host.
- This COM port number must be enter in the COMPORT field in the Main Sheet of the BinMasterSystemSetup.xls setup spreadsheet.
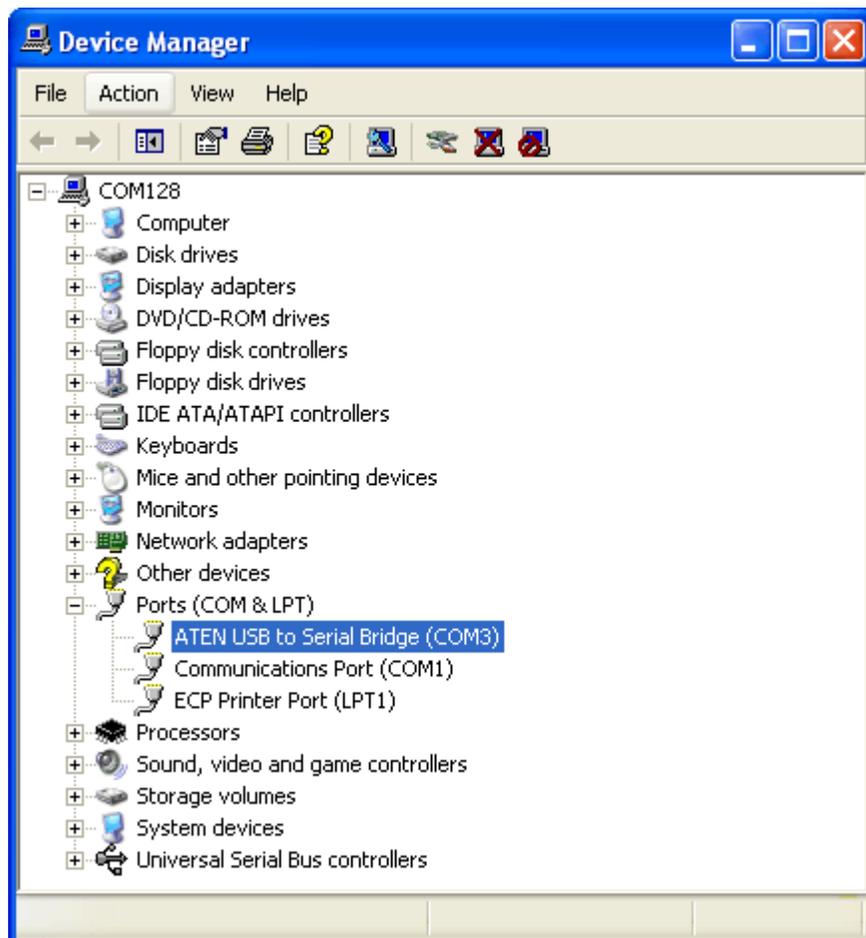

Figure 40

Certain USB to Serial devices may have latency associated with the software driver or the particular hardware. If when using a USB to Serial Port adapter, the eBob Software has problems consistently communicating with the SmartBob II remotes, the communication configuration file may need to be adjusted for proper timing.

1. Using Notepad, open the CONFIG.CFG file located in C:\Garner. Note the default values.

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Figure 41

2. Increase the numeric value of each of the system timing parameters, the first 4 numeric entries (600, 350, 350, 400) of the configuration file by 200. This will add 200 milliseconds to the system timing which will compensate for any latency associated with the USB to Serial Adapter.

3. Restart the eBob Software and check SmartBob II communications. If the system still does not communicate consistently, close the software and increase each parameter by another 100 (ms).

To keep the system as fast as possible in larger bob systems (>30 bobs), reduce each parameter by 100 and retest. Repeat for each parameter until the system starts to have communication errors. Revert back to the previous working value for this parameter and repeat for any unadjusted parameters.

> *NOTE: Do not reduce any timing parameters below the original default values noted in Step 1.*

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7.1 Upgrade from IMS 2.2.3 considerations

PC System Requirements

PC with 300MHz or higher, Intel® Pentium® Processor or compatible
Microsoft® Windows 2000 with Service Pack 4 or Windows XP Professional
      Windows XP Professional required for Internet Access
      Internet Information Services (IIS) installed for Internet Access
      Static IP address required for Internet Access
Microsoft® Internet Explorer 5.5 or higher
Microsoft® .NET framework 1.1
Microsoft® Excel® and Access®
128MB of RAM
40MB of available hard-disk space
1 Serial communications port
RS-485 Interface Module (supplied by BinMaster)
RS-232 Serial Cable (supplied by user)

SmartBob Remotes

The eBob Software requires the Smart Bob II Remote communications protocol is in setting "A", which is implemented by a hardware jumper on the PCB. IMS 2.2.3 used setting "B". See Figure 42 below for jumper location or contact BinMaster Technical Support.

The firmware revision for the microprocessor must be Revision 2.3 or greater. See Figure 42 below for microprocessor location or contact BinMaster Technical Support.

SBC Console

If an SBC console is being used in the system, the change to communications protocol "A" requires the SBC Console be replaced with an SBC-A Console to be compatible with eBob Software.

System Transfer

IMS 2.2.3 may the left installed in the computer until transfer to eBob 4.1 is complete and tested, but the IMS 2.2.3 will NOT be able to run the system because of the change in communications protocol.

It is recommended that users take detailed notes as to the vessel parameters before installing eBob 4.1. This will also allow you to setup the new system consistent with the old system.

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Figure 42

NOTES:

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