

vGauge G12C Color Display firmware can be updated by loading a FLASH MEMORY file from PC/Laptop using the supplied 6-pin to USB cable.

A firmware update utility (BMPLoad) and latest G12C firmware file can be obtained from the vGauge support Web site.

There are two types of updates that can performed on vGauge Color Displays

Display Firmware (\*.upg) – Only needed occasionally to fix problems or add features.

Display Themes (\*.BIN) - Change display graphic elements and gauge styles.

Normally only Display Theme files need to be loaded to alter the look and style of instrument panels. Only one Theme file can be loaded at a time. Display Theme files allow for customization of any vGauge Color display via USB connection to PC/Laptop.

Several Theme libraries have been developed and can be quickly modified to create a large number of graphic styles.

Theme File Name	Day Mode	Night Mode
G12C_Landscape_Blue3D_123009.BIN	2850 FFT 2.8 GH CH CH CH CH CH CH CH CH CH CH CH CH CH	2850 RF 2.8 CH C C C C C C C C C C C C C C C C C C
G12C_Landscape_Classic_123009.BIN	RPM     ENS TEMP     OIL PSI       22650     GPH     Image: Second	RPM     ENC TENP     OIL PSI       2850     OIL PSI     OIL PSI       GPH     OIL PSI     OIL PSI       GPH     OIL PSI     OIL PSI       GPH     OIL PSI     OIL PSI       G2850     OIL PSI     OIL PSI       G2850     OIL PSI     OIL PSI       GPH     OIL PSI     OIL PSI       OIL PSI     OIL PSI     OIL PSI       GPH     OIL PSI     OIL PSI       OIL PSI     OIL PSI     OIL PSI       GPH     OIL PSI     OIL PSI       OIL PSI     OIL PSI     OIL PSI       GPH     OIL PSI     OIL PSI       OIL PSI     OIL PSI     OIL PSI       GIL PSI     OIL PSI     OIL PSI       OIL PSI     OIL PSI     <
G12C_Landscape_White_123009.BIN	216         57           2850         Eva texe           RPM         21           2.8         226           CPH         Eva texe           CPH         Eva texe	2850 РРМ 2.8 2.8 0H 21 21 25 25 25 25 25 25

Theme File names are formatted to identify the display type, orientation, style, and version.

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The first step in performing a firmware update is connecting the supplied USB adapter cable to host PC/Laptop and verifying proper USB drivers are installed and a new COM port number is assigned in DEVICE MANAGER

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- Retco	2
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🕀 🥪 Disk drives	
🕀 😼 Display adapters	
🗄 🚇 DVD/CD-ROM drives	
🗉 🗃 Floppy disk controllers	
🗄 🚽 Floppy disk drives	
😟 🎰 Human Interface Devices	
🖻 📹 IDE ATA/ATAPI controllers	
🕀 🥪 IEEE 1394 Bus host controllers	
🕀 🥩 Imaging devices	
🕀 🦢 Keyboards	
🕀 🐚 Mice and other pointing devices	
🕀 🦕 Modems	
🕀 📑 Monitors	
Network adapters	
1394 Net Adapter	
Marvell Yukon 88E8001/8003/8010 PCI Gigabit Ethernet Controller	
□ □ □ Communications Port (COM1)	
ECP Printer Port (LPT1)	
USB Serial Port (COM5)	
VSNetCom COM port	
Processors	
SCSI and RAID controllers	
😥 🥘 Sound, video and game controllers	

In this example - COM PORT 5 was assigned to the G12C display when the USB cable was attached to the host PC. Verify the correct COM port by disconnecting the USB cable and it should disappear from the list. Reconnect should reinstall the same COM PORT number.



Once you have verified the COM PORT number assigned to the G12C display, proceed to running the BMPLoad.exe utility to connect and download the update.

Download the **vGauge12C\_Color\_Display\_Firmware.zip** file from the Support page on the Chetco Digital Instruments Web Site at <u>http://www.chetcodigital.com/vgauge/support.htm</u>

This is a compressed file format and must be extracted to access the contents.

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Name	Date modified	Туре	>>
] vGauge_Color_Display_Firmware.zip			
	Name	Name Date modified	Name Date modified Type

To extract the contents, right click on the folder and select Extract All.



## G12C Firmware Update App Note

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VGauge_	Color_Dis	pl D	Delete Rename	12/30/2009 1.17 MB	11:03 AM		



When prompted, select the desired location to store the extracted files.



Once extracted, the target folder will contain the BMPLoad.exe application, display firmware upgrade files (\*.upg) and an additional folder for the various display themes.

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Favorite Links Documents File Pictures Music Recently Changed Searches Public	Name DisplayThemes BMPLoad XpStyle.exe G12C_Landscape_110109.upg G12C_Portrait_120309.upg G18S_Landscape_102209.upg	Date modified 12/30/2009 11:08 10/22/2009 3:59 PM 11/1/2009 8:44 AM 12/3/2009 12:28 PM 10/22/2009 3:49 PM	Type File Folder Application UPG File UPG File UPG File	Size 348 KB 512 KB 512 KB 512 KB	Tags



When performing an update – first load the latest firmware then load the desired display theme file. Firmware files are marked with a "\*.upg" extension. Display theme files are a "\*.bin" extension.

Most Theme files can be loaded without need to reload Firmware files as long the Display Orientation (Landscape or Portrait) is not changed. If changing orientation, both Firmware and Theme files will need to be loaded.

This App Note describes how to load both Firmware Files and Theme Files. You may skip the Firmware potion if just changing Themes. The procedures are essentially the same except for the target file.

Start BMPLoad by double clicking on the BMPLoad.exe file. On Windows Vista you may need to right-click and select "Run as Administrator".

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BMPLoad_XpStyl Application	e.exe Date modif	Cut Copy Create Shortcut Delete Rename	ated	: 10/22/2009 3:59 PN	2/2009 3:59 PM	



Once started, select the correct COM PORT number from the drop down list and select 57600 as the BAUD rate.

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	Font List File	
	Add Font List	
Add BMP Remove BMP Load BMP List Save BMP List	Firmware Upgrade	
Sort BMP Files when added / loaded	Add Firmware	
ort Settings Binary Image Load / Save	SLCD Status	
Port COM9	Status Not connected	
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xtra Settings 38400 Set Rower Ord 19200 inable Bitman Compression Custom Palett	High Color	inte CLCD
Power On Macio 9600 Set Aux Esca	e V Orientation	ABURI
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epeat (x10ms) Port Number 0 D	ay (ms)	



After configuring the COM PORT SETTINGS section, verify the EXTRA SETTINGS section are correct. If not, change them to match the values shown in the dialog.

		Selected BMP Information	
		File Name	
		Size	Colors
		Bits per Pixel	Bytes per Line
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		Notes	
		Macro File	
		Add Macro File	
		Font List File	
		Add Font List	
Add BMP Remove BMP	Load BMP List Save BMP List	Firmware Upgrade	
Sort BMP Files when added / loa	aded	Add Firmware	
Port Settings	Binary Image Load / Save	SLCD Status	
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Baud Rate 57600 -	CRC Value	Bytes Available 4128768	3
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Extra Settings Z Set Power On Macro 👘 End	able Bitmap Compression 🔲 Custom Pale	tte 🔽 High	Color Store into SLCD. ABOBT
Power On Macro 1	t Splash Screen 📃 Set Aux Esc	ape 🔍 Orien	tation
Set Typematic Parameters	Bitmap Number 1 ASCII H	Hex Value 0	Quit
Delay mic-	t Control Port 📃 Set Touch S	witch Debounce	



Test the connection by selecting the "Connect" Button. If successful, the SLCD Status will show "Connected"

		Selected BMP Information	
		File Name	
		Size	Colors
		Bits per Pixel	Bytes per Line
		Total bytes	Compressed
		Notes	
		Macro File	
		Add Macro File	
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		Add Font List	
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BMP List		Selected BMP Information	
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		Size	Colors
		Bits per Pixel	Bytes per Line
		Total bytes	Compressed
		Notes	
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Next-select the firmware file to load into the display.



Be sure to select the correct file to match the display type. Also note there may be both Landscape and Portrait versions for each display type.

When choosing a Display Orientation (Landscape or Portrait) be sure to select the correct matching Theme file. Landscape Themes will not work with Portrait Firmware or Portrait Themes with Landscape Firmware.

BMP List				Sele File	ected BM	P Informat	ion		
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bauu nate		File name:	G12C_Landso	ape_110105	).upg		-	Open	
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After choosing the correct file, select the "Store Onto SLCD" button to start loading the new file.

BMP List			Selected BMP Information	
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A status bar will show progress. This can take from 1 to 2 minutes depending on the system.

IMP List		Selected BMP Information	
		File Name	
		Size	Colors
		Bits per Pixel	Bytes per Line
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		Macro File	
		Add Macro File	
		Font List File	
		Add Font List	
Add BMP Remove	e BMP Load BMP List Save BMP List	Firmware Upgrade	
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ort Settings	Binary Image Load / Save	SLCD Status	
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Power On Macro 1	✓ Set Splash Screen Set Aux Esc	cape 🗸 Orien	Itation
Set Typematic Parameters	Bitmap Number 1 ASCII	Hex Value 0	- Quit
Delay	Set Control Port	Switch Debounce	
(epeat (x10ms)	Port Number 0	Delay (ms)	



Once completed, you will be asked to calibrate the touch screen. Skip this step for now as you will need to do this after loading the Theme file.

BMP List		Selected BMP Information	n
		File Name Size Bits per Pixel Total bytes	Colors Bytes per Line Compressed
		Notes	
		Macro File	
Add BMP Remov	ve BMP Load BMP L	No D:\de	evelopment\parts\Reach\vGaugeFirmwareUpdat
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USB Disconne	ect GetScreen	]	
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After performing a firmware update, the unit Baud rate will be reset to the default of 115200. It is recommended to reset the Baud rate to 115200 and test the connection again at the new rate to verify operation. Once the new theme file is loaded, it will reset to the old 57600 rate.

BMP List		Selected BMP Information	
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		Size	Colors
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		Notes	
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		Add Macro File	
		Font List File	
		Add Font List	
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Port COM9	▼ Load from File Save to File	Status Programmed	589824 bytes in 192.0 seconds (3.1KB/s)
Baud Rate 115200	CRC Value 0xFFFF	Bytes Available 3145728	3
460800 230400	Screen Snaphot		
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Set Typematic Parameters	Bitmap Number 1 ASCII H	lex Value 0	Quit
D 1	Set Control Port	witch Debounce	
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Now that the new firmware file is loaded, the next step is to load the desired Theme file. Choose the "Load From File" button.

BMP List	Selected BMP Information	
	File Name	
	Size	Colors
	Bits per Pixel	Bytes per Line
	Total bytes	Compressed
	Notes	
	Macro File	
	Add Macro File	
	Font List File	
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ort Settings	Computer							-
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Baud Rate 11	Network							
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Next, pick the desired theme folder for the target Display type.



And then choose the desired theme file (\*.bin)

MP List					Selected File Nam	BMP Ir e	nformal	tion			
					Size				Colors		
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Baud Rate 11 USB Autobaud	Network	File name: Files of type:	G12C_Lands Binary File (*	cape_B BIN)	ue3D_123	009.BII	N	•	Oper Cance	el	
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2000 CONTRACTOR 100 C		Selected BMP Information	
		File Name	
		Size	Colors
		Bits per Pixel	Bytes per Line
		Total bytes	Compressed
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Sort BMP Files when adder tort Settings Port COM9 Baud Rate 115200 USB Autobaud Disconnect	Binary Image Load / Save Load from File Save to File CRC Value 0x97E1 Screen Snaphot GetScreen	SLCD Status Status Connected Bytes Available 3145721	3

After the Theme file is found, it is checked and verified.



Next, load the Theme File to the target display by selecting the "Store into SLCD" button

MP List			Selected BMP Information	1
			File Name	
			Size	Colors
			Bits per Pixel	Bytes per Line
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			Notes	
			Macro File	
			Add Macro File	
			Font List File	
			Add Font List	
Add BMP	Remove BMP	Load BMP List Save BMP List	Firmware Upgrade	
Sort BMP	Files when added / loa	ded	Add Firmware	
ort Settings		Binary Image Load / Save	SLCD Status	
Port	COM9 -	Load from File Save to File	Status Connected	
Baud Rate	115200 -	CRC Value 0x97E1	Bytes Available 3145728	8
LICD		Screen Snaphot		
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xtra Settings	n Maero 🔲 Enal	ole Bitman Compression 🔲 Custom Palel	te 👿 High	
Power On Ma	cro 1 V Set	Splash Screen 🕅 Set Aux Fsc.	ane 🔽 Orier	ntation
] Set Typemat	ic Parameters	Bitmap Number 1 ASCII H	lex Value 0	
Delay	Set	Control Port 📃 Set Touch S	witch Debounce	
		Port Number o	alau (ma)	



Again, progress will show in the status field. It may take up to 5 minutes to load a theme file. Do not perform any other tasks while loading the file.

Add BMP       Remove BMP       Load BMP List       Save BMP List         Sort BMP Files when added / loaded       Binay Image Load / Save       File Name         Settings       Binay Image Load / Save       Save DMP List         Settings       Binay Image Load / Save       Status         Ort       COM9 w       Load from File         Settings       Binay Image Load / Save       Status         Status       Programming 3955256 Bytes, 33 % Completed         Bytes Available       4128768	MP List			Selected BMP Information	1
Size       Colors         Bits per Pixel       Bytes per Line         Total bytes       Compressed         Notes       Notes         Macro File       Add Macro File         Add BMP       Remove BMP       Load BMP List         Sort BMP Files when added / loaded       Save BMP List         Settings       Binay Image Load / Save         ort       COM9 w         Load from File       Save to File         Add Rate       115200 w         USB       Screen Snaphot         USB       Disconnect				File Name	
Add BMP     Remove BMP     Load BMP List     Save BMP List       Sort BMP Files when added / loaded     Binay Image Load / Save     Font List File       Status     Status     Status       Status     Programming 3955256 Bytes, 33 % Completed       Bytes Available     4128768				Size	Colors
Add BMP       Remove BMP       Load BMP List       Save BMP List         Add BMP       Remove BMP       Load BMP List       Save BMP List         Sort BMP Files when added / loaded       Firmware Upgrade         Sort BMP Files when added / loaded       Save BMP List         Isettings       Binary Image Load / Save         ort       COM9 w       Load from File         Load from File       Save to File         aud Rate       115200 w       Screen Snaphot         USB       Disconnect       GetScreen				Bits per Pixel	Bytes per Line
Add BMP     Remove BMP     Load BMP List     Save BMP List       Add BMP     Remove BMP     Load BMP List     Save BMP List       Sort BMP Files when added / loaded     Firmware Upgrade       Add Rate     115200 *     Load from File       Screen Snaphot     Screen Snaphot				Total butos	Commenced
Notes       Macro File       Add BMP       Remove BMP       Load BMP List       Save BMP List       Sort BMP Files when added / loaded       Sort COM9 *       Load from File       Save Disconnect       Screen Snaphot       USB       Disconnect				Total bytes	Compressed
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Once the file is completed, you will be asked to calibrate the touch area of the display. Select "OK" and proceed with the on screen instruction on the display.

MP List		Selected BMP Information	1
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		Bits per Pixel	Bytes per Line
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BMP List		Selected BMP Information File Name	
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## Once completed, Select OK to finish the operation.

At this point you may disconnect the USB cable from the display and cycle power to reset and initialize at the new Baud Rate of 57600.



Connect your display back to the serial cable from the vGauge Remote Sensor. Since most vGauge color displays require separate power inputs, be sure to reconnect the power cable as well. If power is applied but serial data is not available (not attached to vGauge Remote Sensor unit) the Splash Screen will appear with the current revision number.





Otherwise if serial data is being received, the Display will immediately start showing gauges with the new Theme.



Only one theme file may be loaded at a time. Each theme may require reconfiguration of screen layouts as element sizes may change. Be sure to choose booth Firmware files and Theme files to match Display orientation.

Refer to the **vDash** Users manual on how to layout and design gauge screens using the new themes. Most Themes have several different graphic elements which can be placed and arranged on one of several instrumentation pages.

The most common problem in loading files is improper selection of Baud Rates when connecting to Displays. The normal Baud Rate is 57600. However after loading a Firmware file, the Baud rate will be reset to 115200 until a new Theme file is loaded. If a problem occurs in connecting, try the alternate Baud rate of 115200.