e-BARZ Pro™

FOR Linux/Unix
Windows NT/2000/2003/XP

** This software is based in part on the work of the Independent JPEG Group. **

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INTRODUCING e-BARZ Pro™

An e-commerce version of the popular Unibar bar code printing software, offering graphics output that can be added to HTML documents (or other document types supported by a browser), then viewed and printed from a browser on the client system. This is accomplished without downloading any software to the client PC. The Web application dynamically creates the bar code images by executing *e-BARZ Pro*™. Anyone accessing the target Web site can print through the browser to the PC's local printer. Now, account applications, shipping documents, coupons, order forms, purchase orders, invoices and pick slips, created on Web Servers can contain bar codes that can be viewed and printed locally on any Browser-supported printer.

Installing e-BARZ Pro™

Create a directory in which to store e-BARZ Pro™.
For example:

mkdir *unibar*
cd *unibar*

Environment String

e-BARZ Pro™ uses a base directory. The default directory is "/unibar" or "c:\unibar". The user can change this to any desired directory, but if it is changed, the e-BARZ Pro™ program must be informed. This is done by setting the environment string.

Linux/Unix

$UNIBAR=/usr/unibar or where unibar was installed
$export UNIBAR

The commands above can be inserted in a login script so they are automatically executed when the user logs on.

Windows NT/2000/2003

1) Go to "Control Panel", and then double-click on the "System" icon.
2) Select the 'Environment' tab.
3) Select 'System Variable' by hitting ALT-V
4) Select the 'Variable' text box
5) Type: EBARZ_FILE_PATH
6) Select the 'Value' text box
7) Type: C:\Inetpub\wwwroot\cgi-bin
8) Select the Set button
9) Select the OK button

Registration

You must register e-BARZ Pro™ in order to get a permanent license key.

The serial number can be found by:

UNIX
Using the 'ebarz –ir' command will create the file 'register.txt' for users to email, fax or print and send in.

Windows NT/2000
Go to "Control Panel", then double-click on the "System" icon. The third line under "Registered to:" is the system serial number.

License Key File

e-BARZ Pro™ reads a license key file to determine the features it should enable. The file is named "unibar.key". The program looks for the key file in the directory that e-BARZ Pro™ was installed. (You must set the environment string for e-BARZ Pro™ to read the key file). *The license file is an encrypted file; manually editing the file could damage the encryption.*

*A Note about the **DEMO** Key*

*A **DEMO key** will allow you to use the complete functionality of e-BARZ Pro™ and will **randomly change 1 character in the data**.*

What's New With Version 3.x

UPC Human Readable and Descender Bars

UPC and EAN Barcodes will now print with descender bars and human readable text, at all orientations.

EAN Application Identifiers, New Barcode Types

There are many EAN Application Identifiers (AI's) defined. We support several commonly used AI's. If the user selects EAN-128 and they have, say, an 18 digit number beginning with "00", we will treat it as SSCC-18 as far as human readable format is concerned.

In addition, there are several new barcode types defined. While not actual symbologies, they give a user with limited experience an easy way to select a particular symbology and application e-BARZ Pro currently supports.

PNG Image File as an Output

The default output format for e-BARZ Pro remains a JPG file. The user can now explicitly select PNG or JPG outputs.

Maximum Length of Command Line or CGI Data String

The maximum length of a command line or CGI Data String was originally 510 characters, now users have the ability to input 2048 characters.

AVAILABLE SETTINGS

Default Settings

The settings shown below are e-BARZ Pro™'s built-in Default settings. Each option setting and the available choices for each is listed and defined on the following pages.

Bar Code Symbology	3 of 9
Height	1”
Density	High

Bar Code Symbology

This setting selects the bar code symbology to be used when encoding the data. Each type has its own character sets, specifications, etc. e-BARZ Pro™ adheres to all these criteria when bar coding the data. It assures that the data you bar code follows all guidelines specified by the agencies responsible for the development of the various bar code standards.

3 of 9	EAN-PKG-DATE	SSCC-18
Extended 3 of 9	EAN-SELL-DATE	SCC-14
Interleaved 2 of 5	EAN-EXP-DATE	UPC 2
Code 128	EAN-SHIPLOC	UPC 5
Codabar	EAN-SHIPSPA	UPC A
EAN 8	EAN-SHIPISO	UPC E
EAN 13	EAN-CELL	UPC Version D
EAN-BATCH	MIS	Postnet
EAN-PROD-DATE	UCC EAN 128	PDF417†
PLESSEY	† – indicates available only with 2D option	

Human-Readable

Human-readable allows the user to specify the addition of actual text of the bar code to be included. The text may be placed above or below the bar code. The default is none.

Checksum

Check characters are a method used to assure the integrity of the data read by bar code scanning equipment and software. Though most bar code symbologies are self-checking and highly reliable, occasionally a user may desire the added security a check digit affords. When selected, e-BARZ Pro™ will include in the bar code data a check character, generated by an algorithm specified by the various bar code symbology. When printing human text, this check digit will also be printed. If you do not require a check character, or the data already includes one, leave this option disabled. Some symbologies require a checksum and ignore this option.

Rotation

Rotation allows the user to turn the bar code 90, 180, or 270 degrees. The default is 0.

Height

Height controls the vertical distance that e-BARZ Pro™ will use to bar code data. The height setting is set in 1/100 th of an inch.

Density

The e-BARZ Pro™ density option defines the width to use for the narrowest element in the bar code. This density setting provides the user with three options of controlling the resolution printed. The HIGH setting allows for a narrow element of approximately 10 mils, the medium setting is approximately 15 mils, and the low setting is approximately 23 mils.

HIGH (Command Line Mode ONLY)	highest resolution (thinnest bars) - 10 mils
MEDIUM (Command Line Mode ONLY)	medium resolution - 15 mils
LOW (Command Line Mode ONLY)	lowest resolution (wide bars) - 23 mils
DENSITY=nnn	Set the narrow bar width (nnn is one-tenth mil, i.e. 175 means 17.5 mils)

Bar code densities can be stretched and compressed inside HTML using the <IMG> attribute after you have created the bar code.

Inkjet/Dot Matrix Printers – a minimum narrow bar width of 10 mils is required due to ink spreading. If you still have problems scanning a bar code at high density, please set the narrow bar width to a higher number (example - DENSITY=115)

DPI

The Dots Per Inch (DPI) setting in e-BARZ Pro™ determines the resolution of the bar code. There are only two settings for this option, 100 DPI and 300 DPI. The default is 100 DPI. The 300 DPI setting allows you to set more densities but this will create a bar code 3 times the specified size. If you are using 300 DPI, you can use the <IMG> attribute in HTML to set the height and width of the image.

Rows (PDF417)

Controls the number of rows in the bar code. The range is 3-90. As a default, e-BARZ Pro will automatically determine the correct number of rows.

Columns (PDF417)

Controls the number of columns in the bar code. The range is 1-30. As a default, e-BARZ Pro will automatically determine the correct number of columns.

Ratio (PDF417)

The ratio is cell height to width.

Aspect (PDF417)

The aspect is height:width of the entire bar code. Height is fixed at ‘1’, range is 0.1 to 99.9, and the default is 2.0.

Truncate (PDF417)

The right row indicators are eliminated, and the stop bar can be reduced to a single module bar.

Error Level (PDF417)

The Error Level controls how many codewords are placed in the PDF417 symbology. The higher the Error Level, the more codewords are placed in the PDF417 symbology. Codewords are used to check for two types of problems: erasures (where a character is undecodable), and actual errors (where the position and value of a character are unknown).

Error Correction Level	Number Of Error Correction Codewords
0	2
1	4
2	8
3	16
4	32
5	64
6	128
7	256
8	512

In File (PDF417)

In File determines whether to interpret the data string parameter as a file name or as a string to be encoded. The default is No.

PDF417 Options

The PDF417 is a 2-Dimensional symbology. For more information on the PDF417 parameters, see Appendix A.

ROWS=	Sets the number of rows, range is 3-90, default is 0 (automatic)
COLUMNS=	Sets number of column, range 1-30, default is 0 (automatic)
DENSITY=	Sets cell width (x dimension) in mils, range is 10 to 100, default is 10.
RATIO=	Sets ratio of cell height to width, range is 1.0 to 10.0, default is 3.0. (i.e. a RATIO set to 3.2 sets the cell height to 3.2 times cell width, for a ratio of 3.2:1).
ASPECT=	Sets the "width" of the aspect ratio, which is *"height:width"* of the entire bar code. The height is fixed at '1'. The range is 0.1 to 99.9, the default is 2.0. (i.e. an ASPECT set to 2.0 would result in an aspect ratio of '1:2').
TRUNCATE=	Truncate the bar code, default is normal.
ERRLEVEL=	Selects error level. Range is 0 to 8, default is 0.
IN_FILE=	Determines whether to interpret the data string parameter as a file name or as a string to be encoded, default is 'N', take the data as a string. (i.e. if IN FILE is set to Y then the application will interpret the string as a file name and pass the contents of the file to the encoder. If IN FILE is set to N then the application will interpret the data string as the data to be encoded).

CGI MODE

The following are CGI switches for specifically calling out each selection for the bar code. They must be typed exactly as they appear below, including the "&" leading each switch.

Executing e-BARZ Pro™ (CGI Mode)

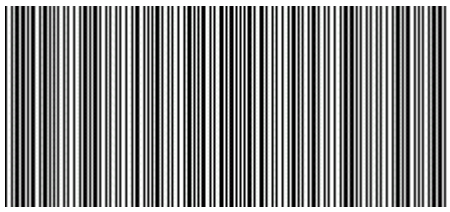
http://<path>/ebarz?-CGI&-data=<data>&<configurations>

URL Path Data Bar Code Characteristics

Example:

To bar code the numbers "1234", using the 2 of 5 symbology, density=14.0mils, ½" tall.

<IMG SRC="http://www.unibar.com/cgi-bin/ebarz.exe?–CGI&data=1234&sym=2&den=140&h=50">



To bar code the name "Your Name", using 3 of 9 Extended symbology, density=7.0mils, 1" tall.

<IMG SRC="http://www.unibar.com/ebarz.exe?-CGI&data=Your%20Name&den=70&h=100&sym=1">

To bar code "a b c 1 2 3", using 3 of 9 Extended symbology, density=23mils, ¼" tall.

<IMG SRC="http://www.unibar.com/ebarz.exe?-CGI&data=a%20b%20c%201%202%203&den=230&h=25">

CGI Mode

-CGI — Sets program to CGI Mode

Symbology

&sym=*nn* — "nn" is a numeric value indicating the symbology

Symbology	Number
Code 39/3 of 9	0
Extended Code 39/3 of 9	1
Interleaved 2 of 5	2
Codabar	3
Code 128	4
EAN 8	5
EAN 13	6
UCC EAN 128	7
UPC 2	8
UPC 5	9
UPC A	10
UPC E	11
UPC Version D	12
<Reserved>	13
Postnet	14
PDF417†	15
SSCC_18	16
SCC_14	17
EAN-BATCH	18
EAN-PROD-DATE	19
EAN-PKG-DATE	20
EAN-SELL-DATE	21
EAN-EXP-DATE	22
EAN-SHIPLOC	23
EAN-SHIPSPA	24
EAN-SHIPISO	25
EAN-CELL	26

† – indicates available only with 2D option

String

&data=<*string*> — "string" is a URL encoded string of the data to be bar coded

URL Encoding Example:

Data to be bar coded = My Data!
URL Encoded String = My%20Data%21

Human-Readable

&hr=<A/B/N> — sets Human-readable to Above, Below or None, default is none

Checksum

&chk=<Y/N> — add a checksum, Yes or No, default is No

Rotation

&r=<*rotation*> — "rotation" is one of: { 0, 90, 180, 270 }, default is 0

Height

&h=<height> — “height” is in .01 inch units

Density

&den=<density>	for all 1-dimensional bar codes, "density" is the width of the narrow bar in 0.1 mil units (e.g., 75 is 7.5 mils), valid numbers are 50 and above

DPI

&dpi=<dots per inch>	"dots per inch" is either 100 or 300 (default is 100)Rows (PDF417)
&rows=<rows>	"rows" is the number of rows, range is 3-90, default is 0 (automatic)

Columns (PDF417)

&cols=<cols>	"cols" is number of columns, range 1-30, default is 0 (automatic)

Ratio (PDF417)

&ratio=<ratio>	"ratio" is cell height to width, range is 1.0 to 10.0, default is 3.0

Aspect (PDF417)

&aspect=<aspect>	"aspect" is *height:width* of the entire bar code, height is fixed at '1', range is 0.1 to 99.9, the default is 2.0.

Truncate (PDF417)

&trunc=<Y/N>	truncate the bar code, default is normal

Error Level (PDF417)

&errlvl=<error level>	selects error level, range is 0 to 8, default is 0.

In File (PDF417)

&infile=<Y/N>	determines whether to interpret the data string parameter (data*filename*) as a file name or as a string to be encoded, default is 'N'

COMMAND LINE MODE

The following are command line switches for specifically calling out each selection for the bar code. They must be typed exactly as they appear below, including the "-" leading each switch.

Executing e-BARZ Pro™ (Command Line Mode)

ebarz -f<filename> -data<data> <configurations>

Program Name Filename Data Bar Code Characteristics

Example:

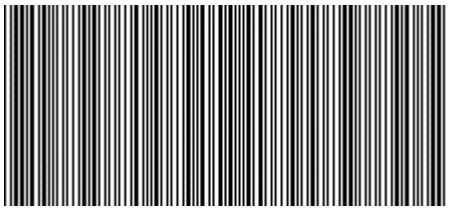
To bar code the numbers "1234", using the 2 of 5 symbology, medium density, ½" tall.

ebarz –fmyfile.jpg –data1234 –2_OF_5 –MEDIUM –HEIGHT=50

To bar code the name "Your Name", using 3 of 9 Extended symbology, high density, 1" tall.

ebarz –fmyfile.jpg "-dataYour Name" –HIGH –HEIGHT=100 –EXT_3_OF_9

Notice the quotes around the data. If the filename or data contains spaces, place quotes around the whole field.



To bar code "a b c 1 2 3" and save the file as "my data", using 3 of 9 Extended symbology, low density, ¼" tall.

ebarz "-fmy data.jpg" "-dataa b c 1 2 3" –LOW –EXT_3_OF_9 –HEIGHT=25

Filename

-f<filename> sets the filename to be used to create the image. *Use quotes around the whole parameter if spaces are in the filename or directory.*

Symbology

-3_OF_9, etc. symbology can be specified by string

-3_OF_9	-EAN-SELL-DATE	-UPC_A
-EXT_3_OF_9	-EAN-EXP-DATE	-UPC_E
-2_OF_5	-EAN_SHIPLOC	-UPC_VERS_D
-CODE128	-EAN_SHIPSPA	-POSTNET
-CODABAR	-EAN_SHIPISO	-PDF417†
-EAN_8	-EAN_CELL	-PLESSEY
-EAN_13	-SSCC_18	-MSI
-EAN-BATCH	-SCC_14	-UCC_EAN_128
-EAN-PROD-DATE	-UPC_2	
-EAN-PKG-DATE	-UPC_5	

† – indicates available only with 2D option

String

-data<string> "string" is data to be bar coded, it is not URL encoded, can have “\xhh”

Human-Readable

-HUMANREAD=A sets Human-readable to Above, Below or None, default is none
A=Above B=Below N or (blank)= None

Checksum

-CHECKSUM=Y add a checksum, Yes or No, default is No
Y=Yes N or (blank)=No

Rotation

-ROTATION=90 "rotation" is one of: { 0, 90, 180, 270 }, default is 0

Height

-HEIGHT=<nnnn> “nnnn” is height in .01 inch units

Density

-DENSITY=<nnn> for all 1-dimensional bar codes, density is the width of the narrow bar in 0.1 mil units (e.g, 75 is 7.5 mils), valid numbers are 50 and above
-HIGH high density is 7.0 mils narrow bar
-MEDIUM medium density is 14.0 mils
-LOW low density is 21.0 mils

DPI

-100DPI sets dpi to 100, (default)
-300DPI sets dpi to 300

Rows (PDF417)

-ROWS=<rows> sets number of rows, range is 3-90, default is 0 (automatic)

Columns

-COLUMNS=<cols> sets number of columns, range 1-30, default is 0 (automatic)

Ratio (PDF417)

-RATIO=<ratio> "ratio" is cell height to width, range is 1.0 to 10.0, default is 3.0
("-RATIO=3.2" sets the cell height to 3.2 times cell width for a ratio of 3.2:1)

Aspect (PDF417)

-ASPECT=<width> sets the "width" of the aspect ratio, height is fixed at '1', range is 0.1 to 99.9, the default is 2.0.
(-ASPECT=2.0 would result in an aspect ratio of '1:2')

Truncate (PDF417)

-TRUNCATE=Y truncate the bar code, default is No
Y=Yes N or (blank)=No

Error Level (PDF417)

-ERRLEVEL=<n> selects error level, range is 0 to 8, default is 0.

In File (PDF417)

-IN_FILE=N determines whether to interpret the data string parameter (-data*filename*) as a file name or as a string to be encoded, default is 'N'

Appendix A - PDF417 Parameters

These parameters are what we use to define a PDF417 bar code across all Unibar products. They are a subset of the parameters defined by the PDF417 symbology.

- **X dimension** – width of a module, or cell, specified in mils, range is 1 to 100, default is 10.
- **Y dimension** – height of a module, specified as a multiple of the x dimension (sometimes referred to as a ratio; e.g., "3.0:1"). The range is 1.0 to 10.0; the default is 3.0.
- **Number of Rows** – number of rows of modules, range is 3 to 90. A value of 0 means 'automatic', let the printer determine the number of rows needed. The default is automatic.
- **Number of columns** – number of columns of codewords, range is 1 to 30. A value of 0 means automatic, like rows. The default is automatic.
- **Error Level** – The range is 0 to 8, default is 0.
- **Truncate** – Yes or no, default is no.
- **Aspect** – Aspect ratio of the bar code, height to width. The height is set as '1', the range of the width is 0.1 to 100. The default is 1:2.

Handling of Rows, Columns and Aspect Ratio of the overall Bar code

By default, the bar code is made as small as possible for the given data, with an overall aspect ratio of 1:2. That is, height to width of the entire bar code.

If the user sets the Row value, the number of rows is fixed at that value, the number of columns is set to *automatic* and the bar code will add columns as needed to handle the given data.

Likewise, if the user sets the Column value, the number of rows is set to automatic.

Thus, the user has a way to control either the width or the height of the bar code. The other direction grows depending on the amount of data.

If the user sets both the Row and Column, the size is fixed.
The user must make sure the data will fit in the specified bar code size.

The aspect ratio is only used if both rows and columns remain at (or set to) zero.

This table shows the support provided by various print devices.

Print Device	x-dim	y-dim	Rows	Columns	Error Level	Truncate	Aspect
JPEG 100	10-100, 10	2.0–4.0, 0.1	Y	Y	Y	Y	
JPEG 300	3-100, 3.33	2.0–4.0, 0.1	Y	Y	Y	Y	

APPENDIX B - Control Characters

You may bar code control characters as permitted by the symbology being used. Code 128 is recommended. The commonly used control characters are Tab and Enter. The format for entering hex data (control characters) is:

(the hex 0B is encoded, the \x tells e-BARZ Pro™ a control character needs to be inserted)
\x0B for Tab
\x0D for Enter

Appendix C - EAN Application Identifiers

Data Content	AI	Plus the data	Cmd Line	CGI Arg.	Human Readable
SSCC-18	00	exactly 18 digits	-SSCC_18	&sym=16	(00) 0 0614141 000000011 1
SCC-14	01	exactly 14 digits	-SCC_14	&sym=17	(01) 1 0 614141 00041 5
Batch Numbers	10	up to 20 alphanumerics	-EAN-BATCH	&sym=18	(10) 12345678901234567890
Production Date (YYMMDD)	11	exactly 6 digits	-EAN-PROD-DATE	19	(11) 001230
Package Date (YYMMDD)	13	exactly 6 digits	-EAN-PKG-DATE	20	(13) 001230
Sell By Date (YYMMDD)	15	exactly 6 digits	-EAN-SELL-DATE	21	(15) 001230
Expiration Date (YYMMDD)	17	exactly 6 digits	-EAN-EXP-DATE	22	(17) 001230
Ship To Location Code	410	exactly 13 digits	-EAN_SHIPLOC	23	(410) 1234567890123
Ship To Postal Code within Single Postal Authority	420	up to 9 alphanumerics	-EAN_SHIPSPA	24	(420) 483093103
Ship To Postal Code with 3-digit ISO Country Code	421	3 digits plus up to 9 alphanumerics	-EAN_SHIPISO	25	(421) ISOabcdefghi
Electronic SN for cell phone	8002	up to 20 alphanumerics	-EAN_CELL	26	(8002) 1A2B3C4D5E6F7G8H

Appendix D - Adding PNG as an Output Option

(Both Command Line & CGI Mode) –Default output format remains JPG File.

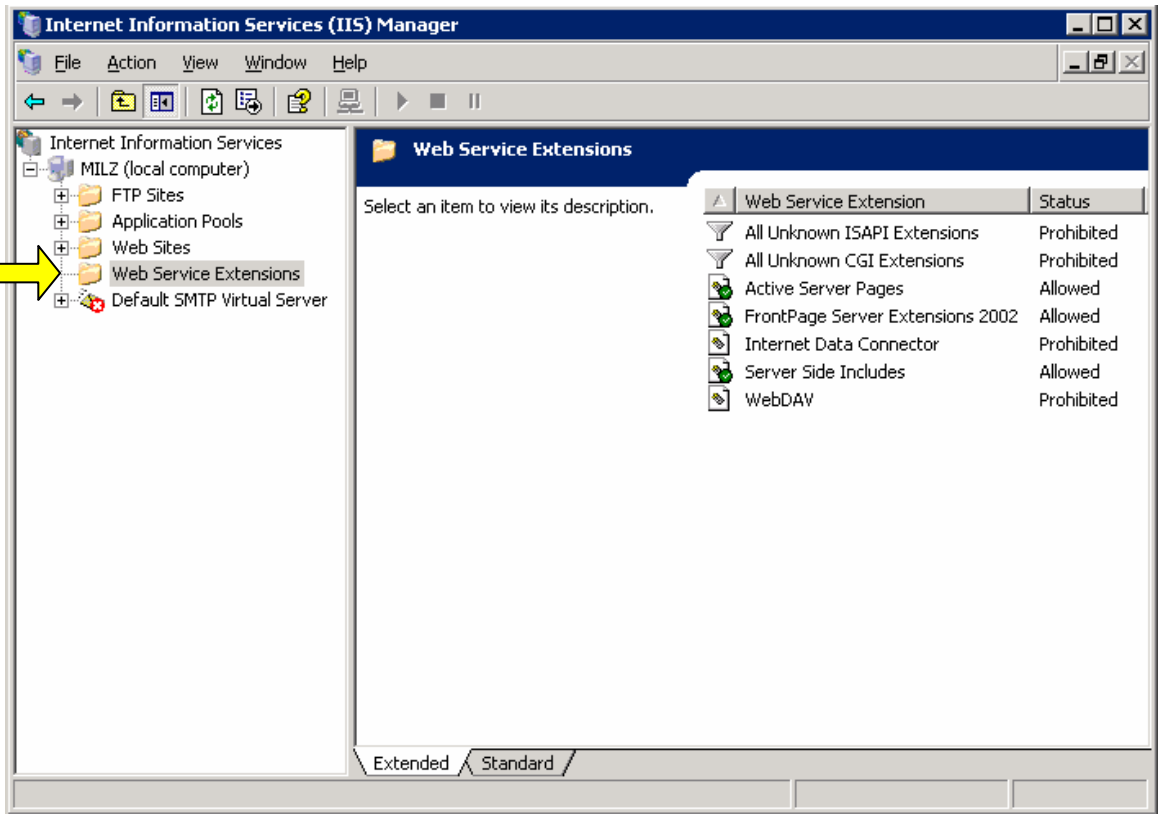
Command Line	**CGI mode**	**Meaning**
<none>	<none>	create JPG output by default
-JPG	&JPG	create JPG output
-PNG	&PNG	create PNG output with default compression
-PNG_SMALL	&PNG_SMALL	create PNG output compressed for smallest size
-PNG_FAST	&PNG_FAST	create PNG output compressed for speed
-PNG_UNCOMPRESSED	&PNG_ UNCOMPRESSED	create PNG output with no compression

Appendix E - Setting up e-BARZ Pro for IIS 6.0 on Window 2003 Server

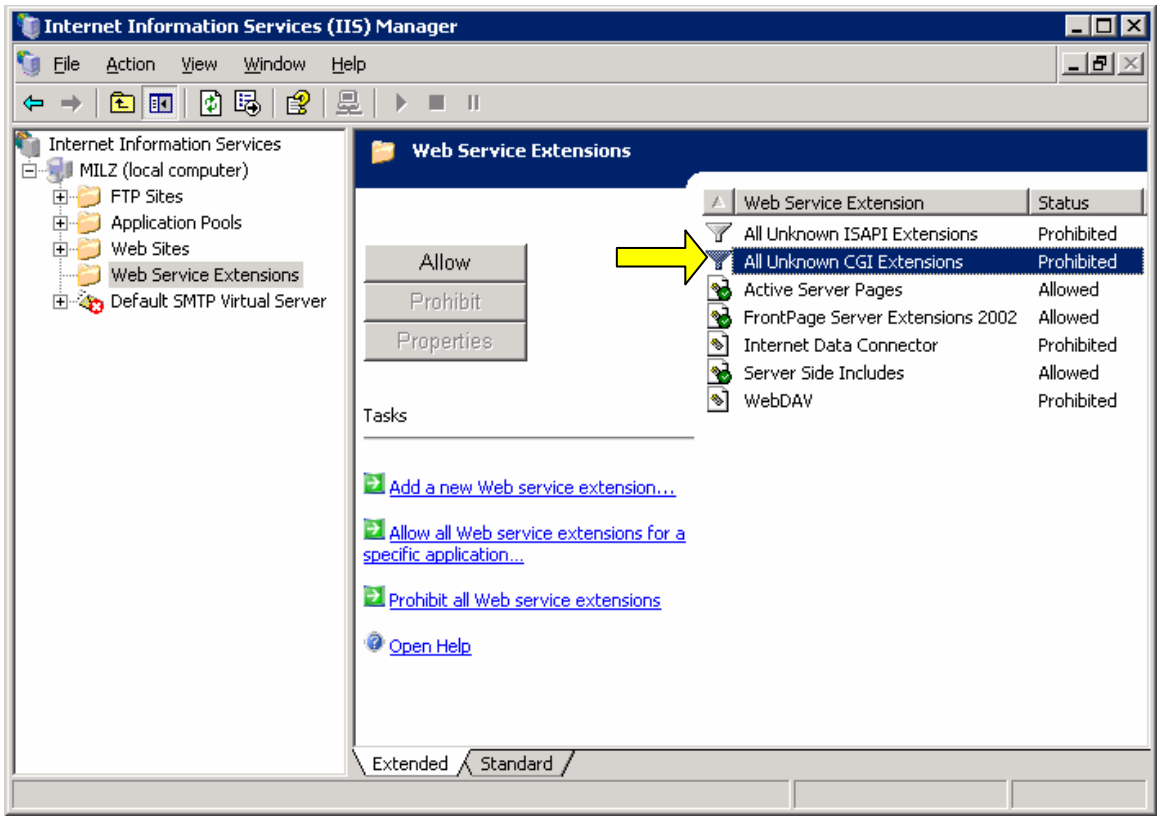
IIS 6.0 has more security than the previous versions. One of the new security features are Web Service Extensions (see IIS 6.0 documentation for more information). In order to run e-BARZ Pro on a server with IIS 6.0 you need to setup a Web Extension and set the Internet Guest user(s) security for the directory e-BARZ Pro is installed at. Follow the instructions below for setting up e-BARZ Pro on a Windows 2003 server running IIS 6.0.

Setup Web Extensions in IIS 6.0

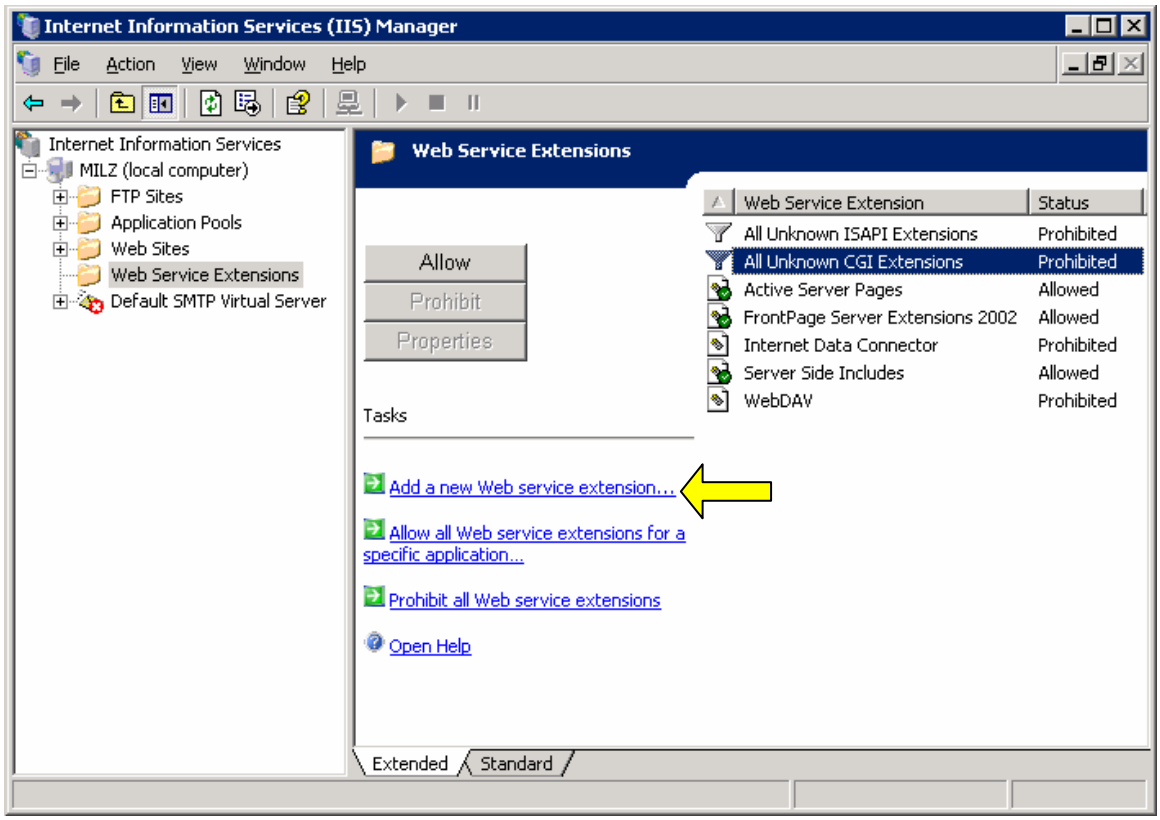
1. In IIS 6.0 click on the folder 'Web Service Extensions'



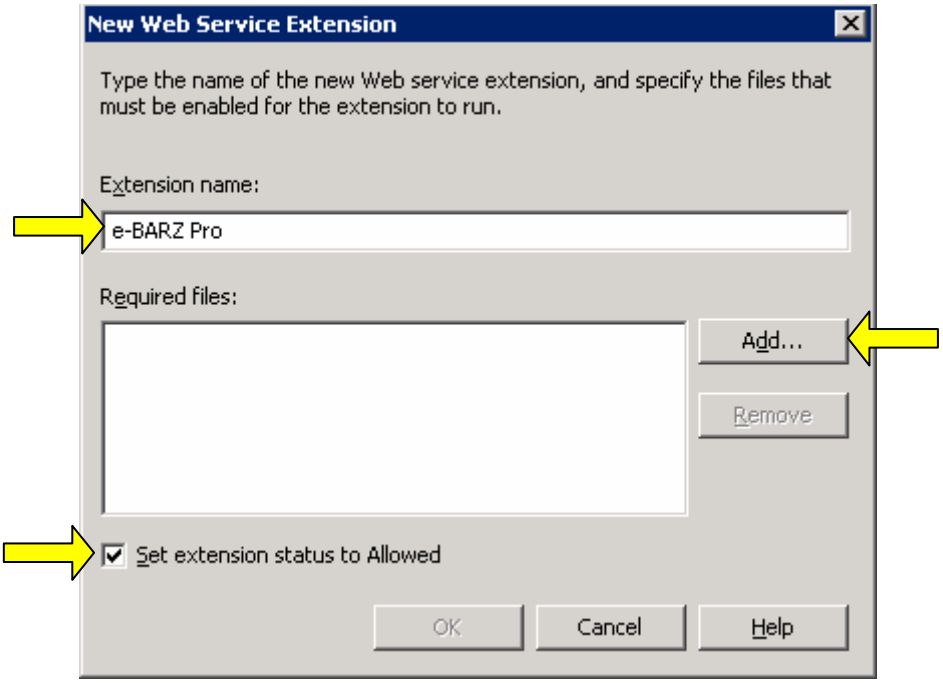
2. Click on the 'All Unknown CGI Extensions'



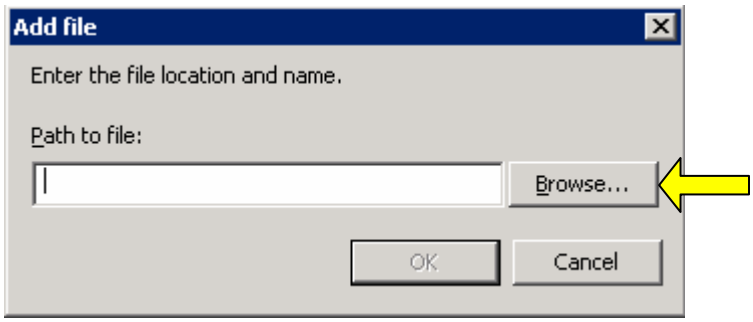
3. Click on 'Add new Web service extension…'



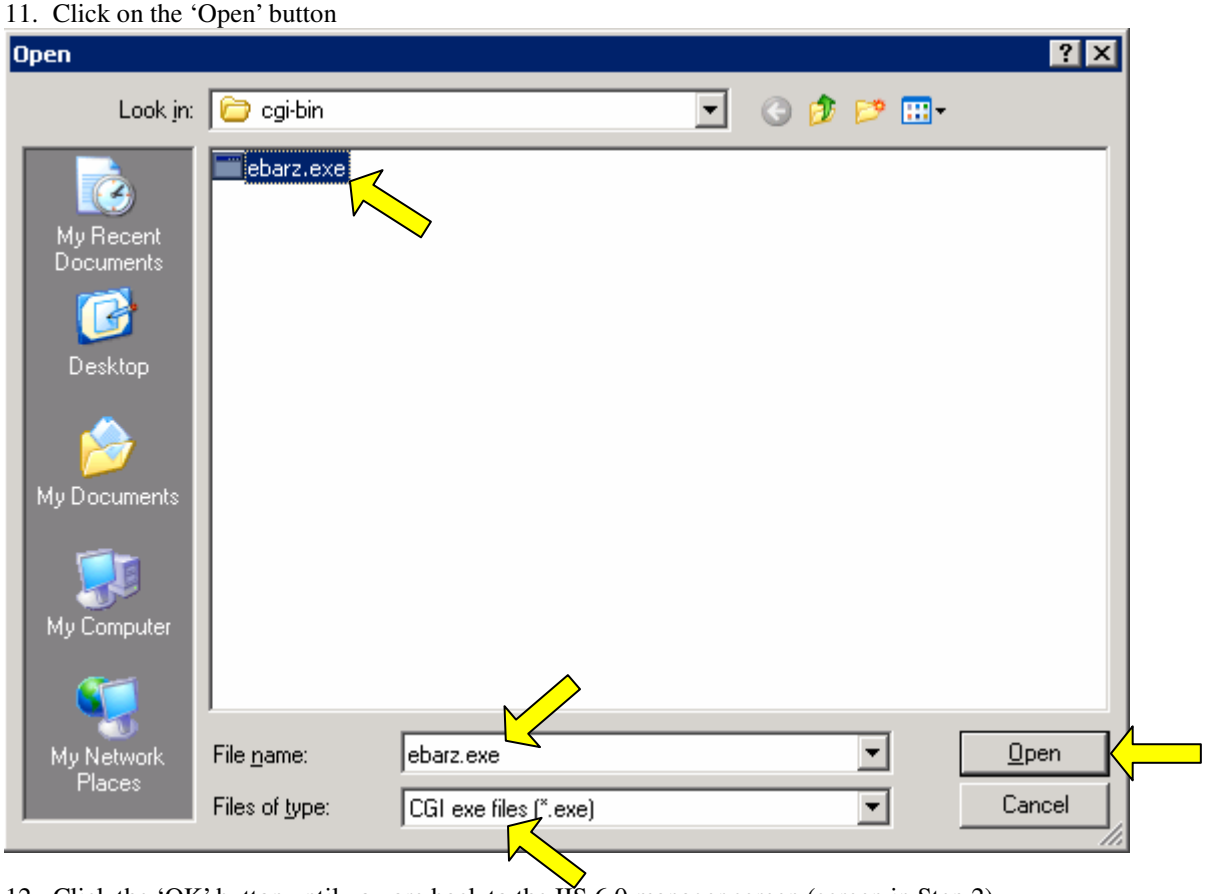
4. Enter a name in the 'Extension name:' text box (example, e-BARZ Pro)
5. Check the 'Set extension status to Allowed' checkbox
6. Click the 'Add' button



7. Click the 'Browse' button



8. Navigate the 'Open' window to where e-BARZ Pro was installed (example, C:\InetPub\wwwroot\cgi-bin)
9. Set the 'File Type' to 'CGI exe file(*.exe)'
10. Click on the 'ebarz.exe' file (filename will display in the 'File name' box)
11. Click on the 'Open' button



12. Click the 'OK' button until you are back to the IIS 6.0 manager screen (screen in Step 2)
13. You should now see the Web Extension you created, added to the list on the right of the 'Web Extensions' and the 'Status' should be set to 'Allowed'

Setup cgi-bin Directory Security

1. Using Windows Explorer, navigate to the directory where ebarz.exe is located (usually located in C:\InetPub\wwwroot\cgi-bin)
2. Right-click on the cgi-bin directory and select 'Properties' for the list
3. Click the 'Security' tab
4. Locate your Internet Guest user(s) accounts and click on the 'Read & Execute' checkbox in the lower box
5. Click the 'OK' button

Setup cgi-bin Directory in IIS 6.0

1. Navigate to the directory where ebarz.exe is located (usually located under the main web site folder
2. Right-click on the cgi-bin directory and select 'Properties' for the list
3. Under the 'Directory' tab, set the 'Execute permissions:' to 'Scripts and Executables'
4. Click the 'OK' button

You should now be able to run e-BARZ Pro from your web site. To test, in your browser type :**http://yourdomain.com/cgi-bin/ebarz.exe?-CGI&data=12345**

A barcode should generate in the browser window. If not, the first thing to check is to make sure unibar.key is located in the same directory as the ebarz.exe.

(yourdomain.com set to your web server and if you installed ebarz.exe to a different directory, then you will need to make that change also in the URL above)