WxTED – Version 1.03

WxTED is a teletext editor for Windows, Mac and Linux. This describes the Windows version. The source is available at Google Projects at https://code.google.com/p/wxted/. In theory it can be recompiled for OSX by changing one #define flag. I leave that to you as an exercise.

wxTED is WYSWYG and unlike other teletext editors it does not clutter the page with palettes and toolbars. The downside of this is it mostly uses keyboard commands rather than the mouse.

If you want to edit more than one page then just run multiple copies of wxTED.

Installing

1. Get the program by download from http://www.teastop.co.uk/teletext/wxTED
2. Unzip into a handy folder.
3. Open the font by double clicking on teletext2,ttf, then press the install button.

This is what is in the distribution:

wxTED.exe – The actual editor program.

wxmsw30u_gcc_custom.dll – A link library used by wxTED.exe

teletext2.ttf – The teletext font.

BBC100.tti – The default starting page

sample pages/ - A folder with tti pages in it.

Manual.pdf – This manual.

Running wxTED

Run wxTED.exe by double clicking on the icon. It will load up a page file called BBC100.tti. If you don't want to read any more of this manual you should do this one thing: Print out the **wxTED quick reference** page or you won't get very far.

Using wxTED

wxTED mainly uses the keyboard. The mouse can be used for moving the cursor location by clicking on the page. You just type text and watch it appear. To access the special graphics codes you need to know the special keyboard combinations. The codes are NOT on any palette or menu but they are on the Quick Reference page which you should print out now.

Teletext Page Files

wxTED reads and saves MRG System format tti files. It can also read ep1 and ttx (Cebra). If you load in ep1 or ttx then it will add tti to the filename so that you don't inadvertently erase your original page. When wxTED is started it loads in a default page which at this moment is a BBC page. You can use the file menu to load in another page file. Save writes the page back to where it came from while Save As lets you change the name. There are a few tti pages bundled in the "sample pages" folder.

Menu

Short description of all the menu options.

- **File**

New	Replaces the current page with a blank page.
Open	Load a tti teletext file (or ep1 or ttx)
Save	Save a teletext file to the same name that it was loaded with.
Save as	Saves the current page to a new file name.
Properties	Set metadata like language and C flags. (Not implemented)
Publish	Publish the current page to an inserter. (Not implemented)

- **Edit**

Undo	Not implemented.
Cut	Not implemented.
Copy	Not implemented.
Paste	Not implemented.
Insert	Inserts a new subpage in a carousel
Delete	Delete this subpage from the carousel

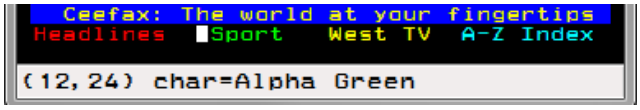
- **Presentation**

Language	Choose one of the seven west Europe options
Properties	Set up page properties like page number and C flags.
Show Header	Displays the header row and allows editing of it.

- **Help**

About	Puts up some information about the program.

About control codes



Control codes are non printing characters which are used to set colours and control attributes like double height and flash. WxTED displays pages exactly as they would appear on a teletext TV. Control codes can only be seen by their effects and not the codes themselves. The status line at the bottom of the screen is used to get around this limitation. In the picture the cursor has been moved in front of Sport and the status line reports that the character in that location is Alpha Green.

The cursor location is also reported so that you can know exactly where you are on the page.

In the example there is yellow text over blue background. In this case you need to use three three codes.

<background colour><new background><foreground colour>

Alpha Blue is SHIFT-F4, new background is CTRL-V and Alpha Yellow is SHIFT-F4.

So the first three characters on that line are <SHIFT-F4><CTRL-V><SHIFT-F3>

Black Background is the only code that lets you modify the background colour directly. It is also the only legal way to select black in teletext level.
In this example there is the Teletext40 strap followed by white text on black. This is done by putting in Alpha White followed by Black Background. Note that to save space the Alpha White is actually inside the green strap after the Teletext40 text. This means that there is only one empty black space where the Black Background character is.

Newer TVs and software implement Alpha Black but wxTED doesn't.

Typing text in alpha mode

By default, teletext starts in Alpha mode showing white text on black. To select new colours there are special codes together with their special key combinations. Choose Alpha colours if you want to add coloured text. Most printable characters can be typed using the corresponding symbol on the keyboard. Some characters are not available on a UK keyboard so there are key mappings implemented. See the page titled Quick Reference for the special character list. You should print this page out until you memorise all of the special codes!

Non printable codes are also listed in the Quick Reference. Not all codes are handled by the editor such as Start Box and End Box. You won't see any effect in the editor. It will however work when you display the page on an inserter or another editor or viewer that supports it.

Graphics

Teletext is famous for its blocky graphics mode. Graphics may be done in a maximum resolution of 78 by 72 pixels.

Preparing a line for graphics

First you need to select graphics mode. For a single freground colour on black, enter one of the graphics codes at the left hand start of the graphic. This makes the rest of the line graphics in that colour. For example, CTRL-F2 would select Graphics Green.
For a different background colour you need to select that colour, send it to the background with "New background", and select the foreground colour.
Yellow on blue would be three codes: Set blue, New Background, Set graphics yellow, for which you would type SHIFT-F4, CTRL-V, CTRL-F3.

Drawing in a graphics region

When the cursor moves into a graphics then the cursor becomes pixel sized. In line with the retro nature of wxTED the mouse is not used for drawing. To toggle the pixel colour under the current cursor location press the space bar. You'll find it easier to work on a graphic if you enlarge the page by dragging one of the corners of the app.

Hold/Release graphics are not implemented yet as it does my head in just thinking about it.

In graphics mode there is a special exception for capital letters. You may type in upper case letters and a few special characters while in graphics mode. You can mix graphics and text without needing gaps caused by the extra control codes. To ensure that your character goes where you expect it, first move the cursor to the location that you want it. Then adjust the cursor position so that the sub pixel numbers are 0. In other words, the number after the decimal points should be 0 like this: (16.0, 15.0). The then shows the top left corner of the 2x3 space where the text will go.
In graphics mode the cursor will usually use the pixel coordinate. But if character code is a control code or a capital letter and not actually a graphic character the cursor will move in whole character steps.

Exercise – Draw your first graphics

1) Select File->New to get a blank page. Put the cursor in column 0 of the first row. CTRL-F3. This makes the rest of each row Graphics Yellow. Notice that the cursor becomes small. Press left arrow key then down arrow to go to the next row and type CTRL-F3 again. Repeat for all the rows so the whole page is graphics yellow..
2) When you click anywhere after the first character on the page the cursor will go small indicating that this is in graphics mode.
3) To set the current pixel press Space. The pixel will go yellow. If you press it again the pixel will toggle between background colour (black) and foreground (yellow).
4) Move the cursor using the arrow keys and toggle pixels using Space to draw a whole picture.

Special Codes in Detail

Hold Graphics (CTRL-W)

Hold graphics is a trick that can put pixels over control codes where there would otherwise be gaps.

In graphics mode the character positions are divided into six pixels as two across and three high.

Hold graphics uses this simple rule:

When you add a Hold Graphics in position that has graphics mode selected, the last graphic character containing graphics pixels is repeated This means that you can have a graphic character in a location where you are putting control codes. So you can change colours and add attributes like flash without needing a gap.

Hold Graphics is cancelled by Release Graphics CTRL-X.

Conceal (CTRL-R)

Conceal is used for quiz pages or hiding a surprise on a page which can be displayed by pressing Reveal on a TV remote control.

If you type CTRL-R the remainder of the line will be concealed. It tells the TV to replace text with spaces and the Reveal button on the TV remote control will toggle the text on and off. Conceal is cancelled by any colour code.

WxTED defaults to showing the concealed text. To preview the effect of Conceal press F11 to toggle the visibility of the text. The menu option Presentation->Toggle Conceal does the same thing as F11.

Black Background (CTRL-U)

The best way to return to a black background is to issue this code. In higher level displays it is possible to issue Black foreground and New background but this method only takes one byte and is compatible at Level 1.

Carousels

A teletext carousel is a set of individual pages that rotate like a slide show. Some of the pages bundled with wxTED are carousels. For a single page the status line underneath the page will show 1/1. If is more than one page then the second number will show the total number of pages. If a page is visible then you can edit it. So you can flick through a page set and edit the one that you want.

To navigate through the pages use the Page Up (Pg Up) and Page Down (Pg Dn) keys. You will see the page/total indicator go up and down as well as the pages changing.

How to add or remove carousel pages

The menu has options to add and remove sub pages.

Edit-->Insert subpage after this one

Edit-->Delete this subpage

The status bar shows you how many pages there are in the carousel, and which one you are currently looking at.

Languages

There are seven language sets. You can assign one language to a page and this is selected by using the Presentation->Language menu. The languages in teletext level 1 are:

- English,
- French,
- Swedish/Finnish/Hungarian
- Czech/Slovak
- German
- Spanish/Portuguese
- Italian

In a carousel, all pages use the same language. This is a restriction of wxTED rather than the teletext standard.

Page Properties

As well as the text, pages have certain properties. To set these properties select the Presentation menu. A dialog appears with various options.

Page Number

A page number is given as a five digit number mppss such as 10000 where

m: The magazine number in the range 1..8.

pp: The hex page number in the range 00 to FF

ss: The subpage number in the range 00..99

If there is only one page then the subpage should be set to 00.

Description

This is a line of text that describes the page. It is usually a helpful comment.

Cycle Time

For carousels this determines how often they change page. If Cycled is set then the page is updated after the whole magazine has been transmitted the number of times counted in the Cycle time.

If Timed is set then it will wait for the specified number of seconds before changing page. Don't use too many timed pages as they will begin to delay each other.

A teletext viewer like Droidfax will always use timed mode and transmission is irrelevant.

C Flags

C flags are transmitted in the page header and are commands to the receiver that affect presentation. They are only useful in an actual teletext stream. For viewers and editors they have no effect. Some of the C flags will get replaced by the inserter as these settings are global to the service rather than a page property.

C4 Erase Page – Erase the page before redrawing it. Erase page guarantees that old information

will be removed. If the page has changed then you might want to send this on the first update to make sure that a page is completely cleared. Normally this bit is left off so that if a line is lost in transmission the gap can be filled on the next transmission of the page. If the bit is left on then updates can be distracting as the screen goes black and redraws.

C5 Newsflash – The inserter will go to overlay mode without a header. Normally a newsflash is displayed in a box.

C6 Subtitle – Text will be mixed over the background video and without a header. Not sure how this is different to C5 except to signal intent to decoders.

C7 Suppress header – Sometimes you don't want a header displayed. This flag will remove the header and make a clean page.

C8 Update – Is used for partial updates where only some of the lines are updated. WxTED does not support partial updates (and probably never will).

C9 Interrupted sequence. This is an inserter function. Not relevant in the page settings.

C10 Inhibit display – Rows should not be displayed. Ensure that special packets don't get displayed accidentally. Also can be used for regional distribution where there header gets replaced by a databridge. In the unlikely event that you require engineering pages with this flag set I will implement it.

C11 Serial Magazine. - Transmit in serial mode. Not relevant at page level so not implemented in wxTED. VBIT will ignore this anyway.

Other control bits:

Substitute page: This is not supported by VBIT. I think it was used to move subtitles to other pages.

Transmit Page: Used to remove a page temporarily. A page can be skipped instead of deleted so it is fast to bring it back when needed. Normally set this flag.

Header

wxTED has a built-in header editor. The header doesn't get saved in a separate page, it is treated as row 0 of the page and is saved embedded with the page.

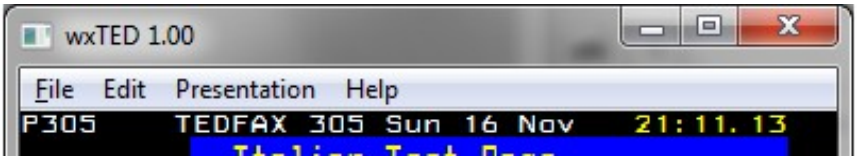
To see the header row, go to the menu item Presentation->Show Header and set the check mark on. The header will then appear.

To edit the header just move the cursor into the header. You can then start editing it almost like a normal text row. While editing the row it will revert to raw data so you can see the template codes. When you move away from row 0 it will return to being the normal header. Any template fields will be replaced.

A template is normal text with some special codes in it. Here is a sample:

XXXXXXXXTEDFAX mpp DAY dd MTH *f* hh:nn.ss

And this is what it generates.



Special codes in this template extract the date and time. The localtime is used so the names will be based on what your PC locale is set to.

VBIT and MRG Systems Templates

The templates are text substitutions. When certain characters are found then they are substituted for a data field. The text part of the header accepts these codes:

mpp – Three digit page number

dd – Two digit date

uu – Two digit month

yy – Year

DAY – Three character abbreviation of the day name. This changes according to PC locale.

MTH – Three character abbreviation of the month name. Depends on PC locale.

The clock uses a slightly different template system.

hh – Two digit hour, nn – Two digit minutes, ss – Two digit seconds

Commonly used clock templates are:

hh:nn:ss	hh:nn/ss	hh:nn.ss	hhnn:ss	hhnn/ss	hhnn.ss	hhnn(ss)

Using Headers

Headers are normally generated by the teletext inserter. Just because wxTED can combine headers with pages doesn't mean that an inserter can do the same. You get one header per service so all the pages must share the same header (except when bridging but wxTED users don't need to know about that). There will be facilities to set the header of a VBIT/Droidfax/ATP620.

Publishing

The exciting bit about teletext is making it go live so that the World can see your creation. WxTED offers publishing by FTP. If required it may be possible to implement publishing to TED Scheduler, VBIT, local folder, MRG Serial, MRG Network or Astet.

FTP

If you have a server with FTP then you can send files directly to it. FTP is used for exchanging files and web servers will typically have FTP available.

If you are running a Droidfax on a website then you can use Publish to make pages live.

To access an FTP server you need an account with uploading privilege. You will need:

1) FTP Server. This is the internet address. Enter the address without the ftp://. This is an example of an FTP server
   ftp.nluug.nl
2) Username: The username that you have been assigned on the FTP server.
3) Password: The password that you have been assigned on the FTP server
4) Remote path: The path on the remote server. Here is an example:
   htdocs/teletext/

If you have trouble then in a Windows file window put this address in, obviously using your own ftp details.:

ftp::<your ftp server>

You will be asked for the password. If you are successful then you will be able to browse the remote folders.

TED Scheduler (Windows only)

TED Scheduler is a program from MRG Systems Ltd. that can control a variety of inserters. WxTED can use the MiniTED interface to TED Scheduler and so gain access to many types of inserter. WxTED writes pages and schedules to a file which TED Scheduler executes. A default installation will create a folder called c:\minited\inserter\ and you should install wxTD in that folder. When Publish is selected then WxTED will copy the page into the OnAir folder with a generic filename **Pnnn.tti.** It will also create a Schedule file with instructions on how to publish the page. When TED Scheduler sees the schedule it executes it. When completed successfully the schedule is archived.

TED Scheduler can also handle inserter configuration and manage time and date. It can also schedule pages for transmission or deletion.

You don't actually need TED Scheduler as it is a useful to be able to publish to an OnAir folder. For example you can configure Droidfax to look at the OnAir folder. The reformatted filenames are exactly what Droidfax needs.

Todo list

This release has many things not implemented.

1) Ports for Linux and Mac OSX. If you want it badly enough and you know any C++ then join the wxTED project on Google Code.
2) Warning about closing an unsaved page.
3) Publishing to an external inserter or viewer. FTP
4) Double height not rendering exactly correct
5) Change double height code to use alternate font set rather than scale

Partly Implemented

In the Menu if an option is not implemented then a pop-up will warn you.

Special codes below can be entered, but they only work when the page is viewed on a TV or a viewer program.

1. End Box/Start Box

Bugs

1. CT command not implemented correctly. It should be possible to set the timing of each page but only the first value is used and it is global. In practise, VBIT ignores it anyway. It will need to be implemented correctly in order to do animation.
2. Save As adds .tti when it shouldn't. You might need to rename files until I fix it.
3. Publish path should add a slash at the end if the user doesn't put one in.
4. Not really a bug but wxTED FTP uses ASCII mode. Apparently this means that CRLF on Windows gets turned into LF on my web server. Droidfax was updated to cope with LF as a line terminator.

wxTED Quick Reference

Code	Key	Code	Key
Alpha Red	SHIFT-F1	Graphics Red	CTRL-F1
Alpha Green	SHIFT-F2	Graphics Green	CTRL-F2
Alpha Yellow	SHIFT-F3	Graphics Yellow	CTRL-F3
Alpha Blue	SHIFT-F4	Graphics Blue	CTRL-F4
Alpha Magenta	SHIFT-F5	Graphics Magenta	CTRL-F5
Alpha Cyan	SHIFT-F6	Graphics Cyan	CTRL-F6
Alpha White	SHIFT-F7	Graphics White	CTRL-F7
Flash	CTRL-H	Contiguous graphics	CTRL-Y
Steady	CTRL-I	Separated graphics	CTRL-T
End Box	CTRL-J	Black background	CTRL-U
Start Box	CTRL-K	New background	CTRL-V
Normal height	CTRL-L	Hold graphics	CTRL-W
Double height	CTRL-M (Enter)	Release graphics	CTRL-X
Conceal display	CTRL-R		

Key →	English	French	Swedish	Czech	German	Spanish	Italian
#	£	é	#	#	#	ç	£
$	$	ï	¤	ů	$	$	$
@	@	à	É	č	§	¡	é
[	←	ë	Ä	ť	Ä	á	°
\	½	ê	Ö	ž	Ö	é	ç
]	→	ù	Å	ý	Ü	í	→
^	↑	î	Ü	í	^	ó	↑
_	#	#	_	ř	_	ú	#
`	—	è	é	é	°	¿	ù
{	¾	â	ä	á	ä	ü	à
|	‖	ô	ö	ě	ö	ñ	ò
}	¼	û	å	ú	ü	è	è
~	÷	ç	ü	š	ß	á	ì
¬	■	■	■	■	■	■	■

Other Special Keys

These are keys that do not modify a page

Page Up – Next carousel page	**Page Down** – Previous carousel page
F11 – Toggle Concealed text	

NAQS – Never Asked Questions

Why can't I edit the whole top row?

The teletext standard steals the first 8 bytes from the row0 for control purposes. wxTED will not let you edit in this region. You may see spaces or XXXXXXXX but these will get removed and replaced at display time.

I put a different header on each page. Why doesn't my inserter show this?

A teletext service can only have one header. Well it could but trust me you wouldn't want that and real inserters don't allow you to do that. Although wxTED has the convenience of being able to add row 0 to a page, sending the page to a real inserter will discard your row 0 and create its own.

Why isn't drawing with a mouse implemented?

It does complicate things a lot to allow the user to draw with a mouse. In practise it isn't possible to draw with the precision that is required. Drawing with the cursor keys and space bar allows you to target individual pixels, especially if you enlarge the canvas.

Why aren't there GUI buttons for special codes?

Buttons are naff clutter in the interface. Buttons are slow to use. Buttons either have puzzling icons or mysterious text. Current teletext editors all have the same rows of buttons. I can't be bothered to do any GUI that isn't the actual page. For all these reasons there are no buttons. If you want buttons I'll put all the source on SVN and you can have a go at writing the code.

Where is the C++ source code?

On Google projects under wxTED. It is open source under an MIT license. The development system uses Code::Blocks and wxWidgets with a little help from wxSmith, hence the wx part of wxTED.

When will it load other teletext file formats?

If there is any demand I'll put it on my list of things to do. I have already written a lot of converters in PHP so I have the methods. They just need to be converted to C++.

Why are there only seven language options?

Language options come in sets of seven called codepages. These sets are West Europe and East Europe. Languages like Greek, Russian or Arabic are available in teletext level 2.5. wxTED is written to level 1 with West Europe. You can either hire this developer to implement more languages for you or much cheaper buy the FAB editor which already does level 2.5.

Can I bundle wxTED with my inserter?

Sure, why not? Talk to me about how to integrate wxTED into a system.

What can I do with any pages that I make?

Pages are saved in MRG tti format. They can be directly loaded into any MRG Systems inserter such as the ATP620 (expensive). They will also work on any VBIT inserter (cheap) and on the Droidfax Javascript viewer (free). If you send them to teletext40.com they might publish it on their teletext service.

What is the roadmap for development in November 2014?

1) Get carousels working. DONE in 0.02beta
2) Get Presentation properties working including language support and control flags. Language support done 0.03b (West Europe only) DONE in release 1.00.
3) Implement Publish, which will send the current page to an inserter or viewer such as VBIT/Droidfax/ATP620/DTP620. FTP Publish DONE for 1.02.

4) Implement the edit menu.
5) Migrate to other platforms. A Debian version so that you can run it on a Raspberry Pi. A Mac version is possible but it will have to wait until somebody lends me a Mac.

Revision History

WxTED 0.00 Beta. 09-11-2014 Released to teletext40 only. Initial version with many things missing.
WxTED 0.01 10-11-2014 Added New menu command. Added Save As dialog. Improved handling of null lines.

WxTED 0.02 11-11-2014 Implemented double height graphics. Applied principal of least astonishment to cursor movement across Graphics/Alpha transitions. Fixed Save As bug. Added carousel. Added OnFocus to kill the cursor while inactive.

WxTed 0.03 13-11-2014 Added Presentation menu and language option.

WxTED 1.00 15-11-2014 Added Properties dialog to Presentation menu.

WxTED 1.01 16-11-2014 Added option to display and edit headers.

WxTED 1.02 25-11-2014 Added: Conceal and Hold Graphics. Persistence for GUI size as frame size etc. Publish FTP dialog with config settings. Frame shows full filename of page.

WxTED 1.03 26-11-2014 New page erases filename. Do not allow double height on rows 23 or 24. File->Open dialog now accepts EP1 and TTX page files.

WxTED 1.04 07-12-2014 Removed duplicate properties menu link. Added Fastext links to Properties. Fixed line validation segfault and other validate() faults. Fixed bug that failed to save the last subpage. Fixed output line OL length for escaped text.//Fixed SaveAs filename bug.