



## Teletext

### Overview

The Xinc teletext system allows an Ubuntu Linux based PC to edit teletext pages and insert them into a video signal.

The software is included in the Debian package `xinc-citifax` and is copyright HBP/Xinc. This version requires Ubuntu 8.04 (Hardy Heron) or later.

### About teletext

Teletext is digital information embedded in the TV signal. A TV signal consists of 50 fields per second, each field consists of 312 lines of which 288 holds the picture; 16 of the remaining lines can hold teletext data. Each line holds one 'row' of teletext data; rows are numbered 0 to 31 and may appear in (almost) any order.

Row 0 indicates the start of a new page, rows 1 to 24 are the 24 lines of text in a teletext page. Row 27 holds information about the functions of the red, green, yellow and blue buttons on the remotecontrol.

Very simple mosaic graphics can be included in the teletext pages. The entire page consists of 78x69 pixels.

Teletext supports many languages, including English, German, French, Swedish, Spanish, Italian, Turkish and Romanian. The languages are not fully supported: for each language up to 13 characters differ from the english set of characters. TV sets in some countries replace some of the languages with other languages.

### Concepts

Here is a brief list of some of the concepts used by the teletext editor:

*Fastext* refers to the coloured links at the bottom line of the page. Hidden information in the page tells the TV which page numbers these links refer to. The links are accessed using the red/green/yellow/blue buttons on the remote control.

A *text field* is an area of the page which can hold text.

The *page title* refers to the middle 24 characters of the top line of the page. It is usually used to hold the title of the TV channel, or date information.

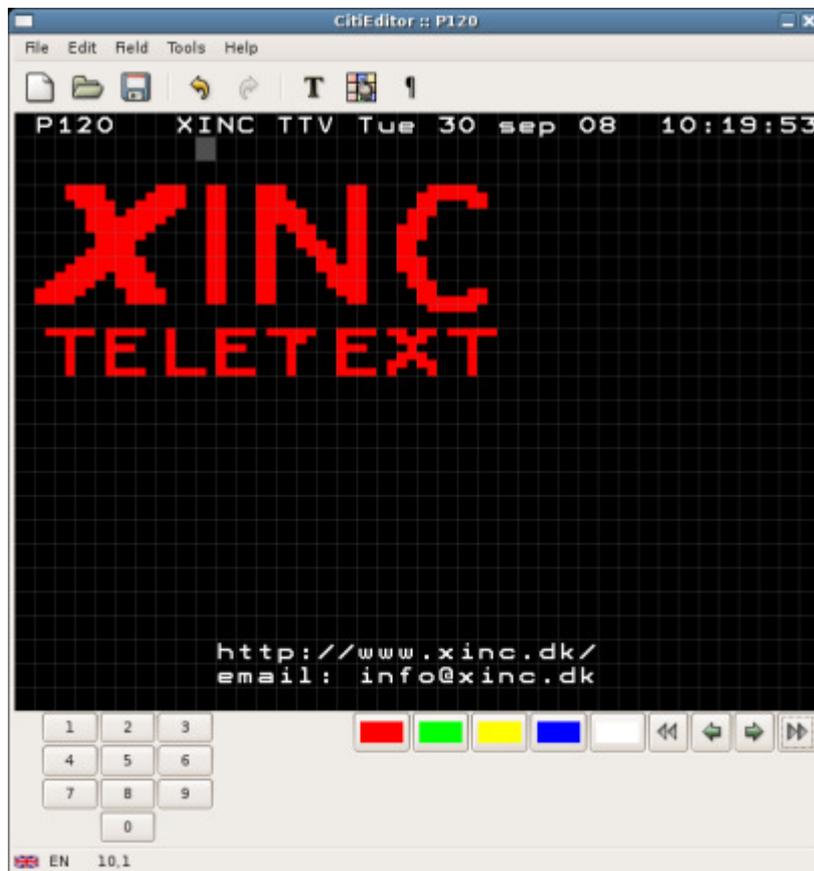
*Control characters* are used for changing colours, switching between text and graphics mode, selecting double height text and so on. Each control character uses 1 character on the screen and is displayed as a blank.

The *scheduler* is the program which communicates with the teletext inserter hardware.

There can be 800 pages (100..899) and each page can have up to 79 *sub pages*, numbered 01..79. The sub pages can be used to create simple slideshows. A sub page is usually specified as eg. 120-03 (page 120, subpage 03).

### The editor

The teletext editor `CitiEditor` is available from the Ubuntu menu, in the *Graphics* submenu and is also available as an icon on the desktop background.

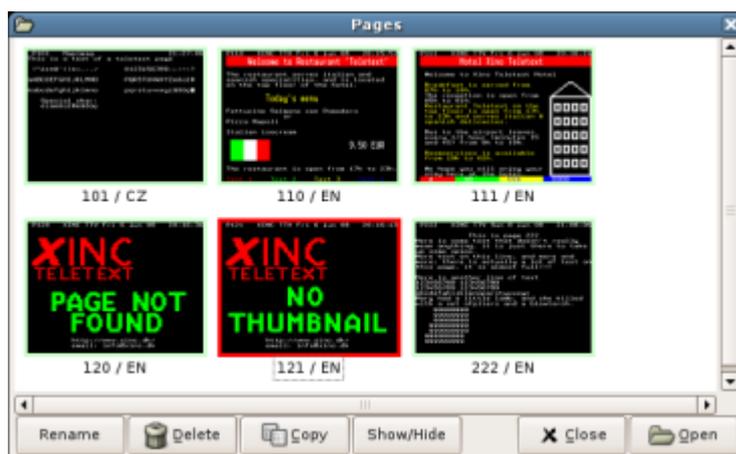


*Teletext editor*

The editor performs all editing in UTF-8, allowing characters from all languages to be entered. The conversion from UTF-8 to the teletext character set is done immediately before the page is transmitted to the teletext inserter.

### **Create, load and save page**

You can create a new page by selecting the *New* item from the *File* menu. Or you can open an existing page by selecting the *Open* item, which will display a list of the available pages. Double clicking on one of the pages will open that page:



*List of pages*

The window also provides facilities for copying, renaming and deleting pages. There are a few things to notice which manipulating sub pages:

- Sub pages are specified as eg. 120-03 (page 120, sub page 03)
- You cannot renumber a page which has sub pages
- Deleting a page also deletes all sub pages for that page
- You cannot renumber a page to become a sub page of a non-existing page

The *Show/Hide* button toggles the selected page between being hidden or not. Hidden pages are marked with a red border and are *not* sent to the inserter.

### Simple editing

If the page doesn't contain any fields then you can simply click anywhere in the page and type in some text. A window is provided which displays all the available text characters for the language being used by the page. The window is available from the *Tools* menu or from the toolbar.

Clicking on a character in the window will insert it at the position of the cursor (the blinking white rectangle).



*All characters*

Teletext allows the characters from A to Z and a few others (the middle two rows of the window) to be mixed with mosaic graphics. When editing a graphics field you can click on one of the characters and then click in the graphics field to insert the character.

You can copy part of the page to an internal buffer, by dragging with the mouse whilst holding the *Ctrl* key pressed. The selected rectangular area will be copy to a buffer and may then be pasted into another page (or elsewhere on the same page) by positioning the cursor somewhere on the page, and then use the *Paste selected area* menu, This only works if the 'destination' area doesn't include any fields, and doesn't extend outside the physical page.

Another window provides access to the control characters. This window is also available from the *Tools* menu or from the toolbar. To insert a control character first click on its icon in the window, then click in the page when you want to insert the character.



*All control characters*

It is beyond the scope of this documentation to described the use and purpose of the control characters.

### Fields

Two types of text fields are available: normal text and double height text. Double height text fields can only hold a single line of text and are intended for headlines.

To create a text field, select a field type from the *Field / Add* menu, then click and drag a box somewhere in the page. You cannot create a new field that overlaps an existing fields, so you must start dragging the box outside all fields. When you've dragged a box to specify the size/position of the new field the field properties window will appear:



Field properties

The window allows you to specify the title of the field. For double height fields you may also specify the alignment of the text.

Notice that the control characters needed to switch to graphics mode *are not inserted automatically* when you create a graphics field. You should therefore afterwards add the control characters manually to the left of the field. The same applies to the double height fields - you should insert a double-height control character to the left of the top line of the double height field. Remember to take this into account before you create the field.

The field properties window also appears if you double click in an existing field.

Fields can be deleted from the *Field* menu. When deleting a field the text in the area previously occupied by the field is left untouched. The menu also allows you to clear the contents of a field, and to copy the contents of a text field, which may then be pasted into another text field.

### Editing the contents of a field

To edit the contents of a text field, simply click in the field and type. The rest of the page will be 'greyed out' to indicate the part of the page occupied by the field.

To edit the graphics in a graphics field, simply click and draw with the mouse. To clear pixels, hold the *Shift* key pressed while you draw.

### Language

The language of the page can be changed by selecting another language from the *Tools / Language* menu.

The language doesn't affect the contents of the page. It is simply an attribute of the page and tells the TV which font to use to display the characters in the page, but it may affect which characters are available in the font.

The editor will attempt to use diacritics to generate the characters, but whether this works depends on the TVs. Some characters cannot be generated using diacritics, for example the character **§** which is only available when using German language. In any other language it will be displayed as **?**.

### Page title

Double clicking in the middle of the top line of the page will open the page title window where you can edit the title of the page.



Editing the page title

The title may include codes for inserting the current date/month/year; a list of the supported codes is included in the window. Notice that some of the codes expand to 3 or 4 characters - the total length of the expanded title is limited to 24 characters, any more than that will be cut off. Also notice that f.ex. the name of the weekday is 2 characters in some languages and 3 in

other.

Since you will often want to have the same title for all pages, the window includes a button to do just that. You will be asked to confirm that you really want to do this.

The page title window is also available from the *Tools* menu.

### Fastext

The bottom line of the screen is reserved for links to other pages. Double clicking on the line will open the Fastext window where you can enter the text and page number for each of the 4 coloured buttons on the remote control. Usually the remote control will also have an index button - the page for this button can also be set.

Instead of typing the page number you can simply click on the coloured button on the page thumbnail at the top. This will open the page list window, where you can simply double click on the page you want to link to.



*Editing Fastext links*

The links can have a coloured background. The control characters needed to set the colours are added automatically by the editor. Notice however that the control characters for the colour background takes up an additional 7 characters of the 40 characters on the line (besides the 4 characters used for setting the text colours), leaving just 29 characters for the actual text.

The Fastext window is also available from the *Tools* menu.

### Limitation of teletext pages

These are some of the limitation imposed by teletext.

If a line includes double height text then the line below cannot hold any text or graphics.

Mosaic graphics is selected by inserting a 'select graphics colour' character on a line. Switch back to text by inserting a 'select text colour' character. The characters A to Z and @ and a few others are allowed amongst the graphics.

You need 3 control characters to display text on a coloured background: first select a foreground (text) colour, then set the background colour from the foreground colour and finally set a new foreground colour.

Some TV sets do not support black text - avoid using black text when designing pages.

### Insenter

The teletext inserter is a piece of hardware which connects to the PC. A small program (the 'scheduler') on the PC continuously reads the pages created by the editor and sends them to the inserter.

### License keys

Some of the features of the software are controlled by 'license keys'. Each license key is a line in the file `/etc/xinc-license.key`. Currently two license keys are required: a key named 'TTEDITOR' to allow the editor to save pages, and a key named 'TELETEXT' to enable the software (the 'scheduler') to control the inserter hardware.

### Translating the editor

All texts in all menus and windows in the editor may be translated by editing the file `/usr/local/share/xinc/translation/teletext.txt`. This should only be attempted by experienced users! The characters are in UTF-8.

If a new version of the software includes texts that wasn't included in the previous version then those texts will *not* automatically be merged into the file containing the translations. Instead you should open the file `/usr/share/doc/xinc-citifax/default-translation.txt` and copy the missing texts from that file.