

maXbox

Code Focus

Posted on ~~June 5, 2025~~ June 5, 2025 by [maxbox4](#)



This is a short story concerning the update of maXbox V5.2.8 with some code insights (6 Topics).

Release Notes maXbox 5.2.8.160 June 2025 mX528 beta64-bit 🌸

- py2,py3,py4,py5,py6,py7,py8(python3) enhanced template bds_delphi.dci
- now 142 Tutorials last: Geocode Distance maxbox_starter142.pdf
- dmath64.dll renew functions data science package
- maxbox_starter_testsequence51.bat added listview events
- new examples on <https://sourceforge.net/projects/maxbox5/files/> (<https://sourceforge.net/projects/maxbox5/files/>).

- o ESC song available: examples/Sternenhaufen_Max_SunoAI.mp3
- o Issue BPM 123/124 has been released May 2025
- o source compatible of previous Version (see below)
- o update compatible for Python3.13 and Python3.14 P4D use
- o GO game menu/view/GoGame5 -TGoForm1-TGoBlock-TGoBoard

04.06.2025 10:17

Release Notes maXbox 5.2.8.160 June 2025

SHA1: 5.2.8.160 maXbox5.exe edd77bf19df1142caa27d14df7607187d7346f55

SHA1: ZIP maxbox52.zip 7745BDAA570DA3BA8E1A482B09F7A1DDEB71F04D

ListView Events

First we start with the listview enhancements. The `OnCustomDrawXXX` event handlers of Delphi's `TListView` can be useful to make minor changes to the appearance of a list view control. They let developers avoid having to owner draw the control if they only want to make a few tweaks to its appearance. `OnCustomDraw` allows drawing on the background of the list view control. We should handle this event if we want to draw or paint anything on the control's background.

This example is much simpler than the preceding one. We will draw alternating list items in different colours, emulating green and white line printer paper. This is achieved by handling just the `OnCustomDrawItem` event as Listing 1 shows:

```

1  const
2      cStripe = $CCFFCC; // colour of alternate list items
3  procedure TForm1.ListView1CustomDrawItem(Sender: TCustomListView;
4      Item: TListItem; State: TCustomDrawState;
5      var DefaultDraw: Boolean);
6  begin
7      if Odd(Item.Index) then
8          // odd list items have green background
9          environmentview.Canvas.Brush.Color := cStripe
10     else
11         // even list items have window colour background
12         environmentview.Canvas.Brush.Color := clWindow;
13 end;
```

Now we move on to demonstrate the `OnCustomDrawSubItem` event handler. Here we will display each list view column in a different colour.

Environment Variables2 mX52	
Environment variable	Value
15 LOCALAPPDATA	C:\Users\User\AppData\Local
16 LOGONSERVER	\\DESKTOP-BTLKHKF
17 NUMBER_OF_PROCESSORS	8
18 OneDrive	C:\Users\User\OneDrive
19 OneDriveConsumer	C:\Users\User\OneDrive
20 OS	Windows_NT
21 Path	C:\Program Files (x86)\Embarcadero\Studio\23.0\b
22 PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;.JSE;.WSF;.WSH;
23 PROCESSOR_ARCHITECTURE	AMD64
24 PROCESSOR_IDENTIFIER	Intel64 Family 6 Model 142 Stepping 10, GenuineIn
25 PROCESSOR_LEVEL	6
26 PROCESSOR_REVISION	8e0a
27 ProgramData	C:\ProgramData
28 ProgramFiles	C:\Program Files
29 ProgramFiles(x86)	C:\Program Files (x86)
30 ProgramW6432	C:\Program Files

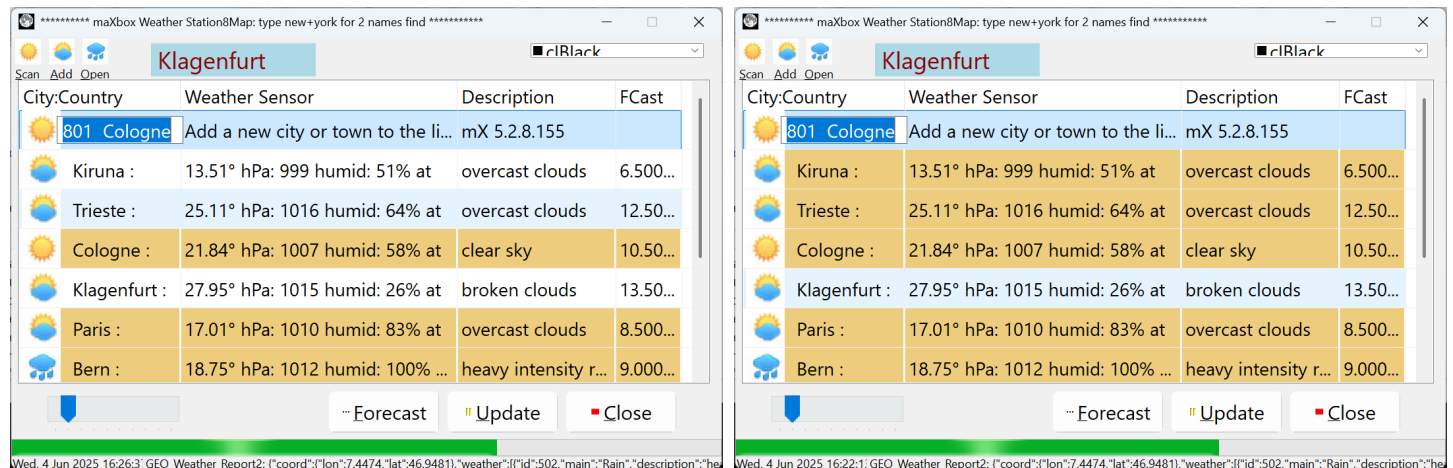
https://sourceforge.net/projects/maxbox5/files/examples/1405_EnvironmentExampleMainForm2.pas/download
https://sourceforge.net/projects/maxbox5/files/examples/1405_EnvironmentExampleMainForm2.pas/download

Geo Code Routines with OWM

Large Language Models (LLMs) are taking the world by storm, I mean you can not watch the news these days without a new LLM heating the market and causing waves, reshaping industries from healthcare to finance and even revolutionizing how we interact with spatial data.

But what does this mean for Geographic Information Systems (GIS) or image analysis? GIS has long been the backbone of spatial mapping, used in fields of environmental science. A new support function is the `writeln(GetWeatherReport_OWM('Bern,CH','you API-Key'))`; from OWM.

As a start to use OpenWeather products, we recommend our **One Call API 3.0** (<https://openweathermap.org/api/one-call-3>). For more functionality, please consider our products, which are included in **professional collections** (<https://openweathermap.org/api#pro>).



https://sourceforge.net/projects/maxbox5/files/examples/1407_weatherapp52.txt/download
https://sourceforge.net/projects/maxbox5/files/examples/1407_weatherapp52.txt/download

OpenWeather provides hyperlocal minute-by-minute forecasts, historical data, current conditions, and weather forecasts ranging from short-term to annual for any location worldwide. All data is accessible via **industry-standard APIs** (<https://openweathermap.org/api>).

Instantly access weather data for any location worldwide with OpenWeather's robust and practical products and APIs. Simply subscribe to our self-service automated products using your email and begin utilizing a range of forecasts, current conditions, historical data, alerts, and maps.

The primary function of an early warning system is to empower individuals and communities to take protective action before a hazard strikes. Studies have shown that providing just 24 hours' notice of an impending hazardous event can reduce the ensuing damage by up to 30 percent. These systems bridge the gap between scientific forecasting and community preparedness, translating complex meteorological data into clear messages that can trigger life-saving responses.

The internal direct function in maXbox5 use state of the art JSON and collection aspects to call the industrial Rest-API:

```
1 function GetWeatherReport(const City, ApiKey: string): string;
2 var
3   HttpClient: THttpClient;
4   Response: IHTTPResponse;
5   JsonResponse: TJSONObject;
6   WeatherDescription: string;
7 begin
8   HttpClient := THttpClient.Create();
9   try
10    // Replace with the OpenWeatherMap API endpoint
11    Response := HttpClient.Get(Format('https://api.openweathermap.org/data/2.5/weather?q=%s&appid=%s&units=met
12
13    if Response.StatusCode = 200 then begin
14      JsonResponse := TJSONObject.ParseJSONValue(Response.ContentAsString) as TJSONObject;
15      try
16        // Extract weather description from JSON response
17        WeatherDescription:= JsonResponse.GetValue<TJSONArray>('weather').Items[0].GetValue<string>('descripti
18        WeatherDescription:= WeatherDescription + ', temp: ' + floattostr(JsonResponse.GetValue<TJSONObject>('mai
19
20        //Writeln('Weather in ', City, ': ', WeatherDescription);
21        result:= 'Weather in ' + City + ': ' + WeatherDescription;
22      finally
23        JsonResponse.Free;
24      end;
25    end;
26  else
27    Showmessage('Failed to fetch weather data. HTTP Status: ' + inttostr(Response.StatusCode));
28  finally
29    HttpClient.Free;
30  end;
31 end;
```

Continuously refining its models using real-time data, OpenWeather delivers reliable forecasts worldwide, covering both remote and densely populated areas. <https://openweathermap.org/guide> (<https://openweathermap.org/guide>)

Image manipulation

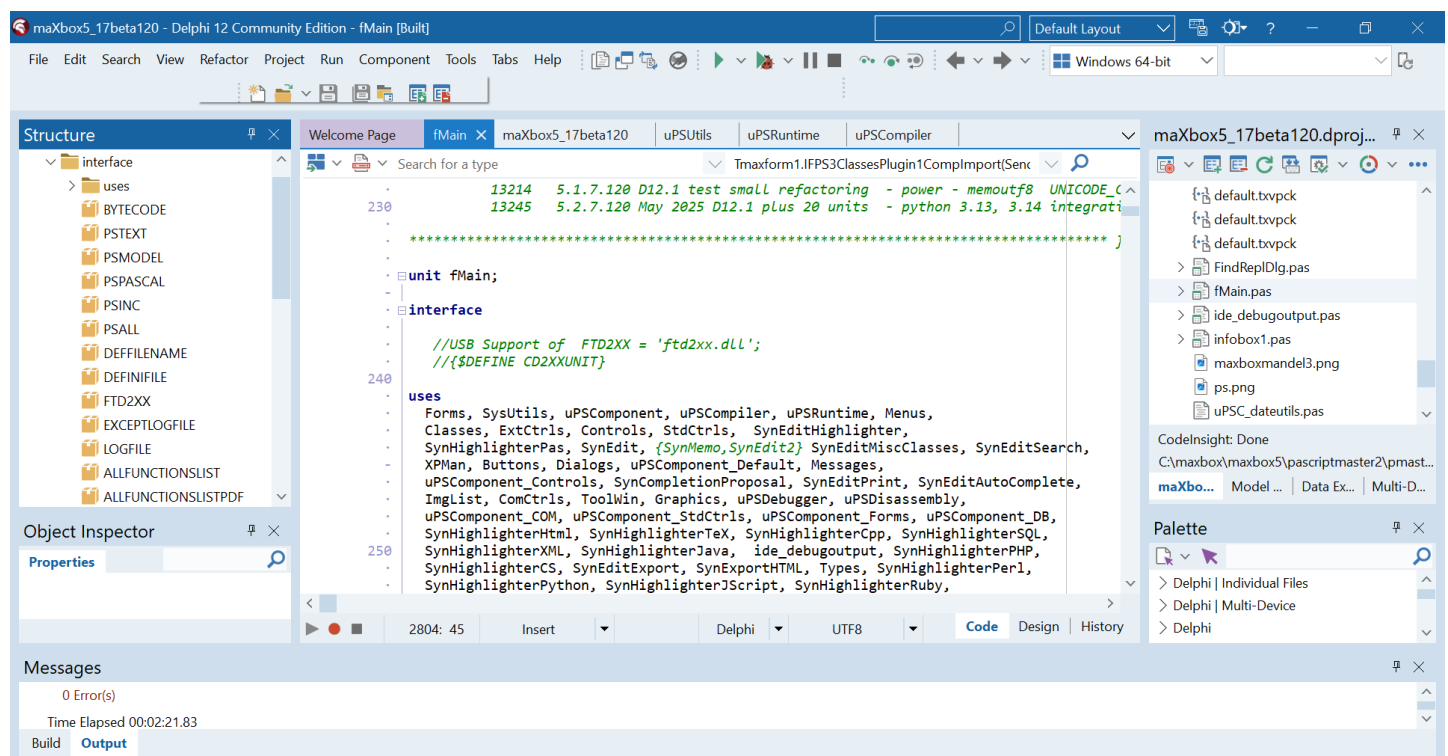
In Delphi, the TBitmap class provides a method called CopyFromBitmap that allows you to copy the content of one bitmap to another. This is particularly useful when you want to duplicate or manipulate bitmap data. Here's an example of how you can use it with your own needs:

```

1  function cropImage(originBitmap : TBitmap; Xpos, Ypos, width, height: integer): TBitmap;
2  begin
3      //result := TBitmap.Create;
4      //result.Width := Width;
5      //result.Height := Height;
6      //result.CopyFromBitmap(originBitmap, TRect.Create(Xpos, Ypos, Xpos + Width, Ypos + Height), 0, 0);
7      // Create the target bitmap
8      result:= TBitmap.Create;
9      try
10         // Set the dimensions of the target bitmap
11         result.Width := Width;
12         result.Height := Height;
13         // Copy the content from the source bitmap to the target bitmap
14         result.Canvas.CopyRect(
15             Rect(0, 0, result.Width, result.Height),
16             originBitmap.Canvas,
17             Rect(xpos, ypos, originBitmap.Width, originBitmap.Height)
18         );
19     finally
20         originBitmap.Free;
21     end;
22 end;

```

- Key Points:
- Initialization: Ensure both bitmaps are properly initialized and have the desired dimensions.
- Copying: Use Canvas.CopyRect to copy the content from one bitmap to another.
- Memory Management: Always free the bitmaps after use to avoid memory leaks.

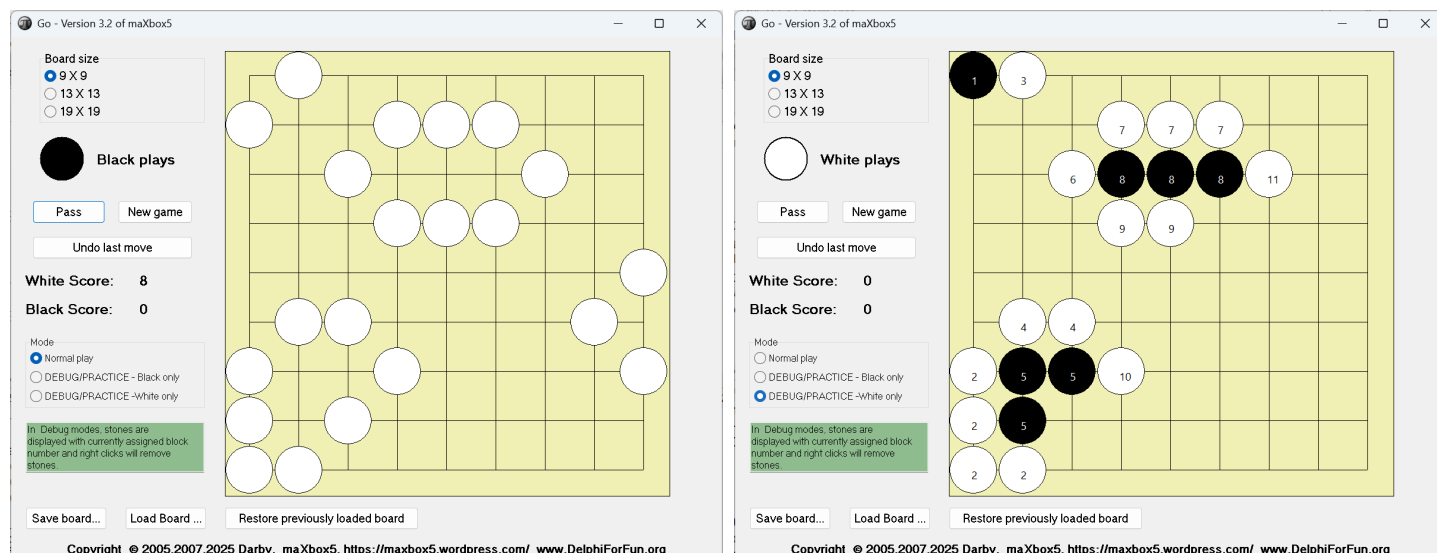


Compile the V5.2.8.160

The GO Board

Go is one of those simple but complex board games. Two opponents take turns placing black and white stones on a square board. If you surround a group of opponents stones with yours, the stones are removed and you get credited with a point for each stone captured.

If you are not familiar with the game just do a web search on “Go game rules” or “Go game tutorial” and you’ll find plenty of sites. We with D4F integrate the game in this maXbox. Identifying groups of stones and determining when a group was surrounded by stones of the opposite color was harder to code than expected.



https://sourceforge.net/projects/maxbox5/files/examples/1406_U_Go3_1form2.pas/download
https://sourceforge.net/projects/maxbox5/files/examples/1406_U_Go3_1form2.pas/download

The game is played by placing stones on the intersections of gridlines. A group is a set of one or more stones of the same color connected by horizontal and vertical grid lines. A group is captured by surrounding it with stones of the opposite color. “Surrounding” means that each horizontal and vertical grid line extending from the edges of a group is filled with a stone of the opposite color.

System and CPU Information

In Delphi, the FastLocate2Bytes function is often used for optimized searching of a two-byte sequence within a larger data block. While Delphi itself doesn’t have a built-in FastLocate2Bytes function, you can implement a highly efficient version tailored for 64-bit systems by leveraging modern CPU instructions and memory alignment.

Here’s an example implementation for a 64-bit environment:

This implementation is straightforward and works well for most cases. If you need even faster performance for large datasets, consider using SIMD (Single Instruction, Multiple Data) or platform-specific optimizations like AVX2 instructions. To measure such things we updated the JCLSysInfo Library.

<https://github.com/project-jedi/jcl/blob/master/jcl/source/common/JclSysInfo.pas> (<https://github.com/project-jedi/jcl/blob/master/jcl/source/common/JclSysInfo.pas>)

```

1  function GetEnvironmentVarsX(const Vars: TStrings; Expand: Boolean): Boolean;
2  var
3      Raw: PChar;
4      Expanded: string;   I: Integer;
5  begin
6      Vars.BeginUpdate;
7      try
8          Vars.Clear;
9          Raw:= GetEnvironmentStrings;
10         try
11             MultiSzToStrings(Vars, Raw); fix
12             Result:= True;
13         finally
14             FreeEnvironmentStrings(Raw);
15         end;
16         if Expand then begin
17             for I:= 0 to Vars.Count - 1 do begin
18                 Expanded:= Vars[I];
19                 if ExpandEnvironmentVar(Expanded) then
20                     Vars[I]:= Expanded;
21             end;
22         end;
23     finally
24         Vars.EndUpdate;
25     end;
26 end;
```

File Overview

Category	E	Entropy ⓘ	6.390972938704053
File Type	Executable File	Scanned	06/03/2025 15:53 PM GMT
File Extension	exe	Duration	a few seconds
TrID	InstallShieldsetup	MD5 ⓘ	763836BD9B6279E45A2079CA430CE065 
LibMagic	PE32+ executable (GUI) x86-64, for MS Windows, 11 sections	SHA-1 ⓘ	EDD77BF19DF1142CAA27D14DF7607187D7346F55 
Magika	PEBIN	SHA-256 ⓘ	ED0640A5B801409A97F3D7647EE5ED9D369BD1AAFA0... 72F23 
File Size	75.9 MB	Company Name	kk
Uploaded	06/03/2025 15:53 PM GMT	File Description	maXbox5_28beta150 Code Studio
SSDEEP ⓘ	786432:2ZP1nj0j4lGdH3Rp+drfGe6Mfjir77X4tynObOH.y... 02YOH 	File Version	5.2.8.160
Architecture	64 Bits binary	Internal Name	maXbox5.2
Is DotNet ⓘ	False	Legal Copyright	maXbox
Is Packed ⓘ	False	Original File Name	maXbox52.exe
Is Digitally Signed ⓘ	False	Product Name	maXbox5_28beta150
		Product Version	5.2.8.160

https://metadefender.com/results/file/bzI1MDYwM2pod1RIWUZLeTZUOTV1RWhzWjd6ZG0_mdaas
https://metadefender.com/results/file/bzI1MDYwM2pod1RIWUZLeTZUOTV1RWhzWjd6ZG0_mdaas

Python Updates

To get compatible with Python 3.13 and 3.14 some small engineering was done. It was only meant to be release day for 3.13.4 today, but poor number 13 looked so lonely... And hey, we had a couple of tarfile CVEs that we had to fix. So most of the Release Managers and all the Developers-in-Residence (including Security Developer-in-Residence Seth Michael Larson) came together to make it a full release party.

```

C:\Windows\System32\cmd.e  x  +  v

C:\maxbox\maxbox5\pascripmaster2\pmaster2\restunits\Indy9\maxbox5>py -0
-V:3.13 *      Python 3.13 (64-bit)
-V:3.12      Python 3.12 (64-bit)
-V:3.11      Python 3.11 (64-bit)
-V:3.11-32   Python 3.11 (32-bit)
-V:3.10-32   Python 3.10 (32-bit)
-V:3.8       Python 3.8 (64-bit)

C:\maxbox\maxbox5\pascripmaster2\pmaster2\restunits\Indy9\maxbox5>py -3.13 -m pip install nltk
Collecting nltk
  Using cached nltk-3.9.1-py3-none-any.whl.metadata (2.9 kB)
Collecting click (from nltk)
  Downloading click-8.2.1-py3-none-any.whl.metadata (2.5 kB)
Requirement already satisfied: joblib in c:\users\user\appdata\local\programs\python\python313\lib\site-packages (from n
ltk) (1.5.0)
Collecting regex>=2021.8.3 (from nltk)
  Downloading regex-2024.11.6-cp313-cp313-win_amd64.whl.metadata (41 kB)
Collecting tqdm (from nltk)
  Downloading tqdm-4.67.1-py3-none-any.whl.metadata (57 kB)
Requirement already satisfied: colorama in c:\users\user\appdata\local\programs\python\python313\lib\site-packages (from
click->nltk) (0.4.6)
Using cached nltk-3.9.1-py3-none-any.whl (1.5 MB)
Downloading regex-2024.11.6-cp313-cp313-win_amd64.whl (273 kB)
Downloading click-8.2.1-py3-none-any.whl (102 kB)
Downloading tqdm-4.67.1-py3-none-any.whl (78 kB)
Installing collected packages: tqdm, regex, click, nltk
Successfully installed click-8.2.1 nltk-3.9.1 regex-2024.11.6 tqdm-4.67.1

[notice] A new release of pip is available: 25.0.1 -> 25.1.1
[notice] To update, run: python.exe -m pip install --upgrade pip

```

<https://www.python.org/> (<https://www.python.org/>)

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