***********************Draft***********************

QEMU Ultibo Bare Metal
Screen Output
07/21/21

***********************Draft***********************

https://en.m.wikipedia.org/wiki/QEMU

QEMU is a hosted virtual machine monitor: it emulates the machine's processor through dynamic binary translation and provides a set of different hardware and device models for the machine, enabling it to run a variety of guest operating systems. It also can be used with Kernel-based Virtual Machine (KVM) to run virtual machines at near-native speed (by taking advantage of hardware extensions such as Intel VT-x). QEMU can also do emulation for user-level processes, allowing applications compiled for one architecture to run on another.[3]

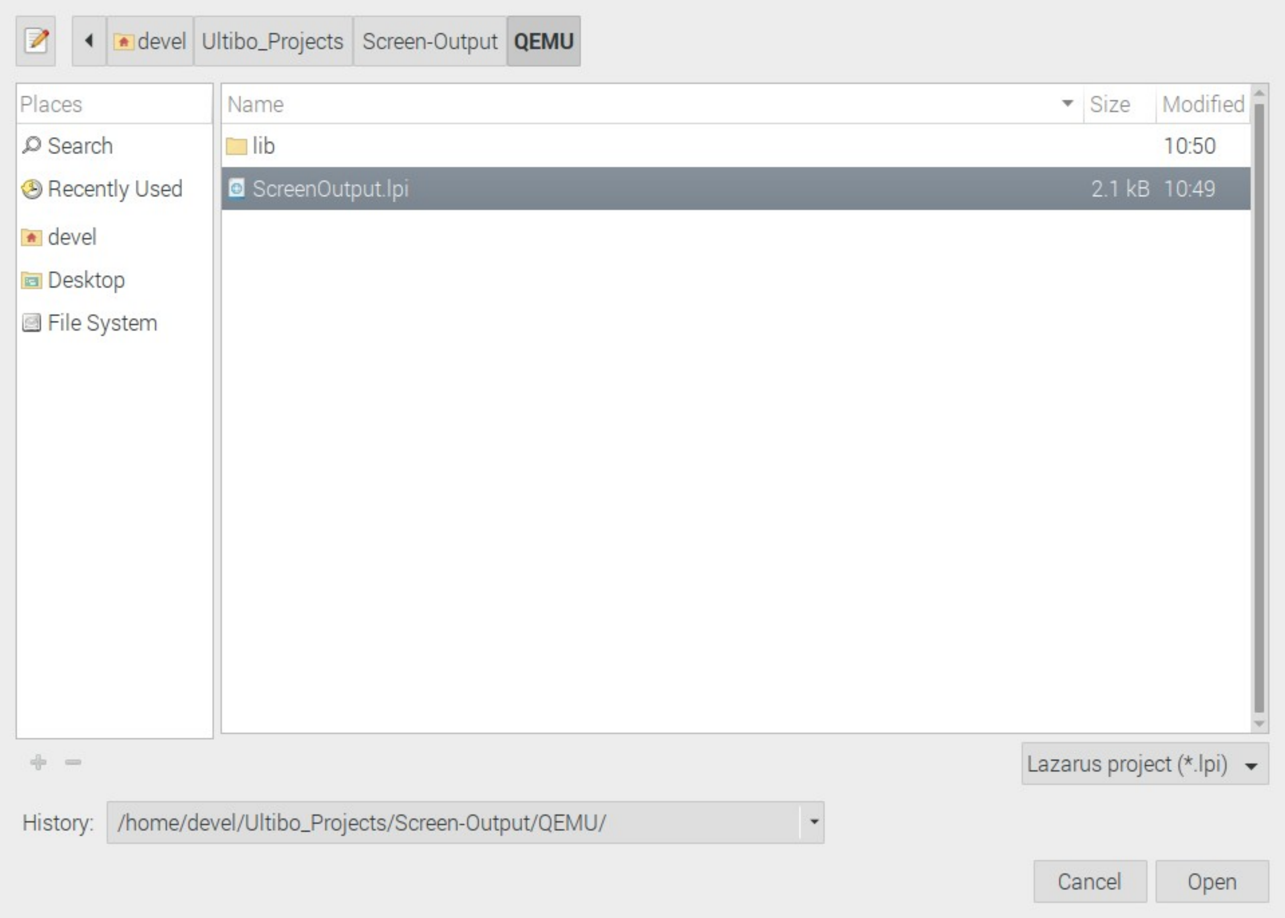
Note : Additional software is needed to run QEMU "sudo apt-get install qemu-system-arm". The following programs are added.

```
/usr/bin/qemu-img  /usr/bin/qemu-nbd        /usr/bin/qemu-system-aarch64
/usr/bin/qemu-io   /usr/bin/qemu-pr-helper  /usr/bin/qemu-system-arm
```

The command line for starting **Lazarus IDE (Ultibo Edition) "~/ultibo/core/lazarus.sh"**

Project/Project Open

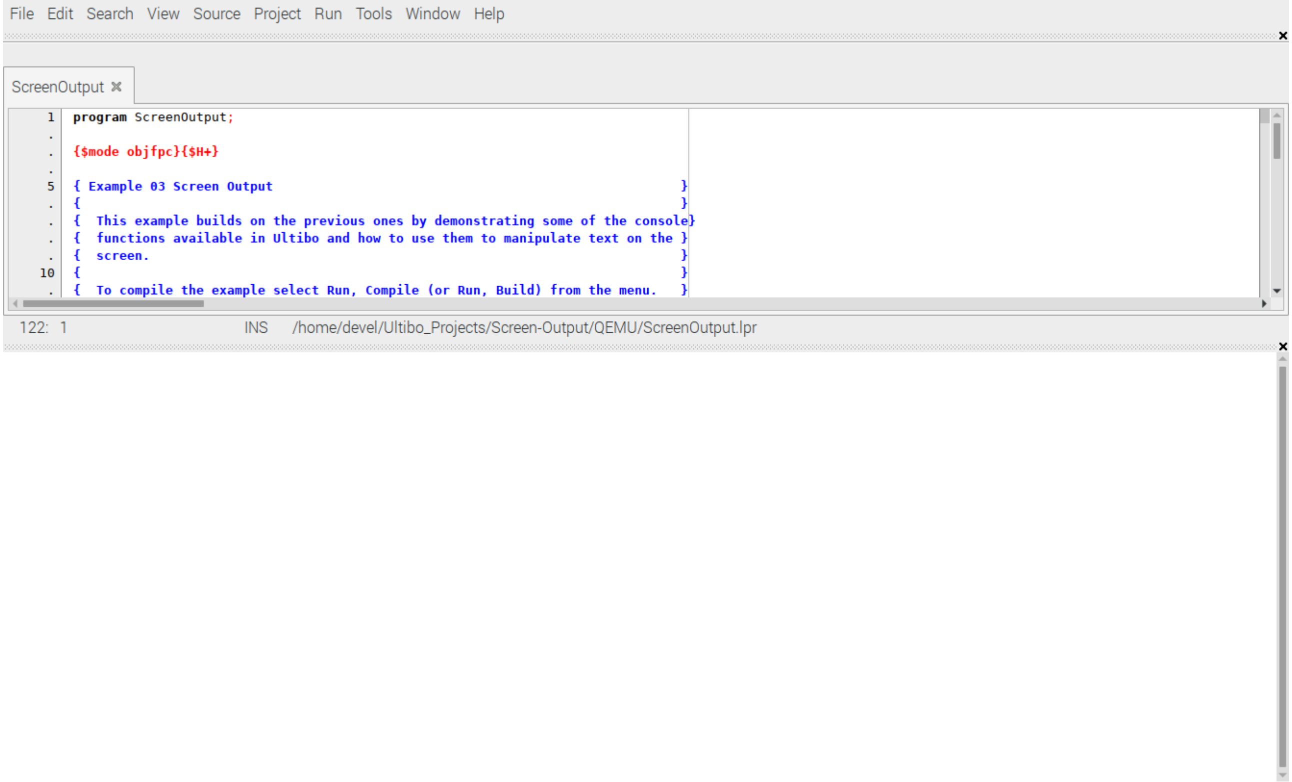
Select ScreenOutpt.lpi



Name	Size	Modified
lib		10:50
ScreenOutput.lpi	2.1 kB	10:49

History: /home/devel/Ultibo_Projects/Screen-Output/QEMU/

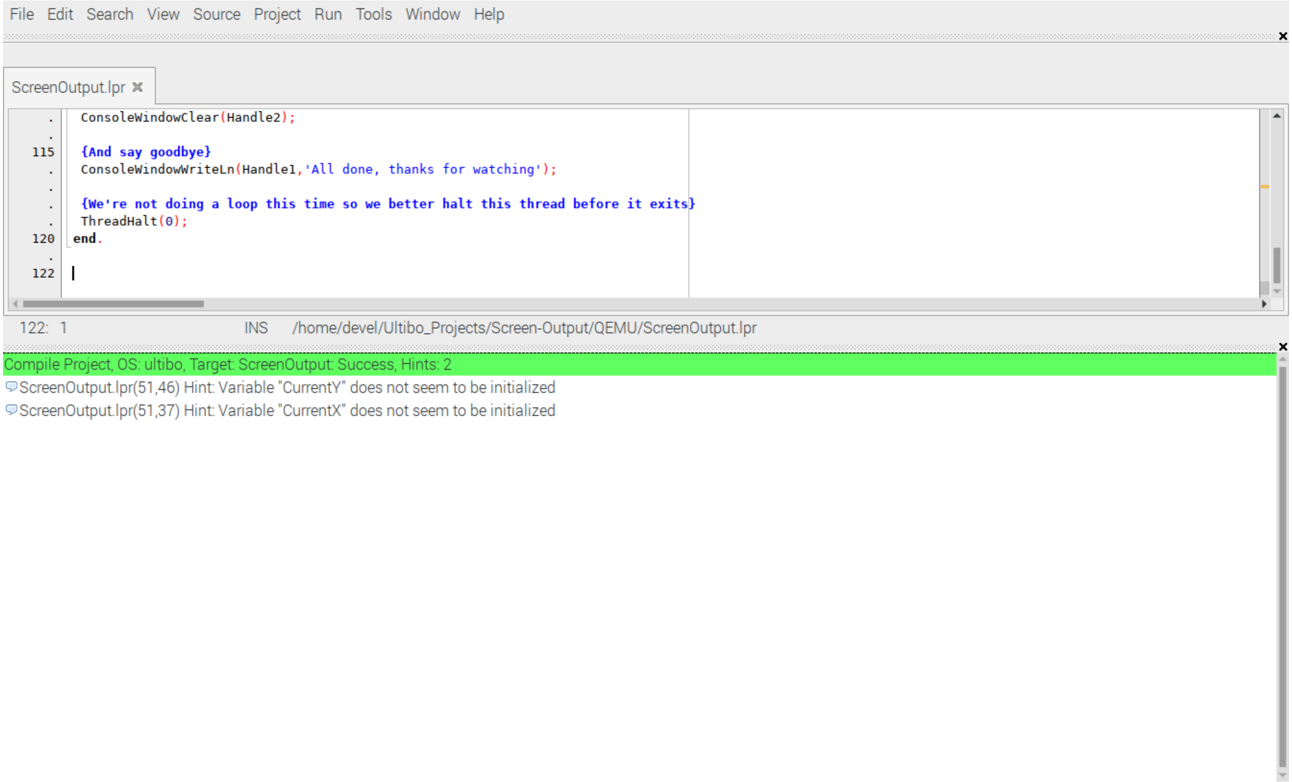
Depress Open



```
program ScreenOutput;

{$mode objfpc}{$H+}

{ Example 03 Screen Output                                            }
{                                                                     }
{  This example builds on the previous ones by demonstrating some of the console}
{  functions available in Ultibo and how to use them to manipulate text on the }
{  screen.                                                            }
{                                                                     }
{  To compile the example select Run, Compile (or Run, Build) from the menu.   }
```

122: 1   INS   /home/devel/Ultibo_Projects/Screen-Output/QEMU/ScreenOutput.lpr

Run/Compile The kernel.bin is created when the Grean bar appers.



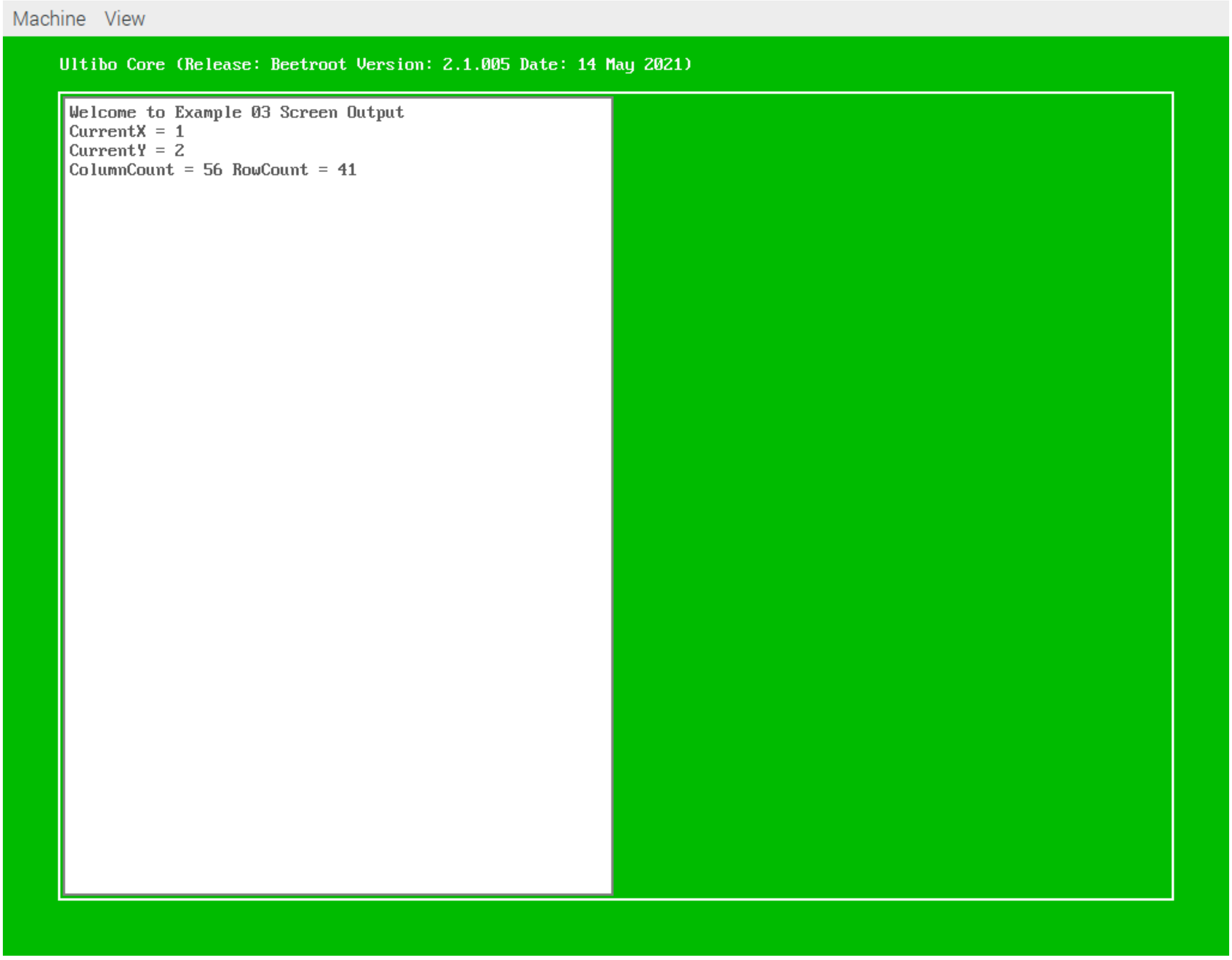
```
  ConsoleWindowClear(Handle2);

  {And say goodbye}
  ConsoleWindowWriteLn(Handle1,'All done, thanks for watching');

  {We're not doing a loop this time so we better halt this thread before it exits}
  ThreadHalt(0);
 end.

```

```
122: 1                INS    /home/devel/Ultibo_Projects/Screen-Output/QEMU/ScreenOutput.lpr
```

```
Compile Project, OS: ultibo, Target: ScreenOutput: Success, Hints: 2
ScreenOutput.lpr(51,46) Hint: Variable "CurrentY" does not seem to be initialized
ScreenOutput.lpr(51,37) Hint: Variable "CurrentX" does not seem to be initialized
```

~/Ultibo_Projects/Screen-Output/QEMU $

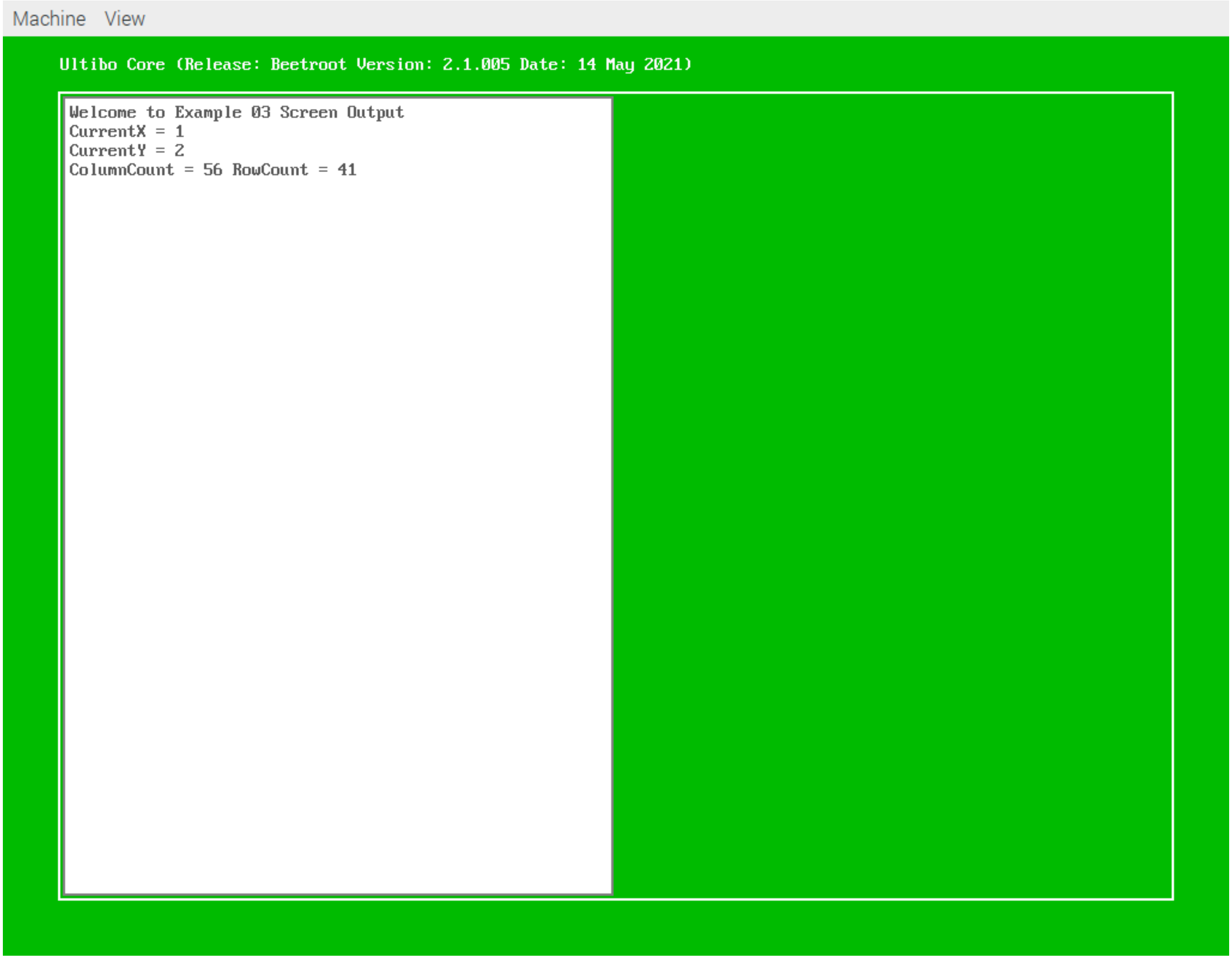
qemu-system-arm -machine versatilepb -cpu cortex-a8 -kernel kernel.bin



```
Ultibo Core (Release: Beetroot Version: 2.1.005 Date: 14 May 2021)
```

```
Welcome to Example 03 Screen Output
CurrentX = 1
CurrentY = 2
ColumnCount = 56 RowCount = 41
```

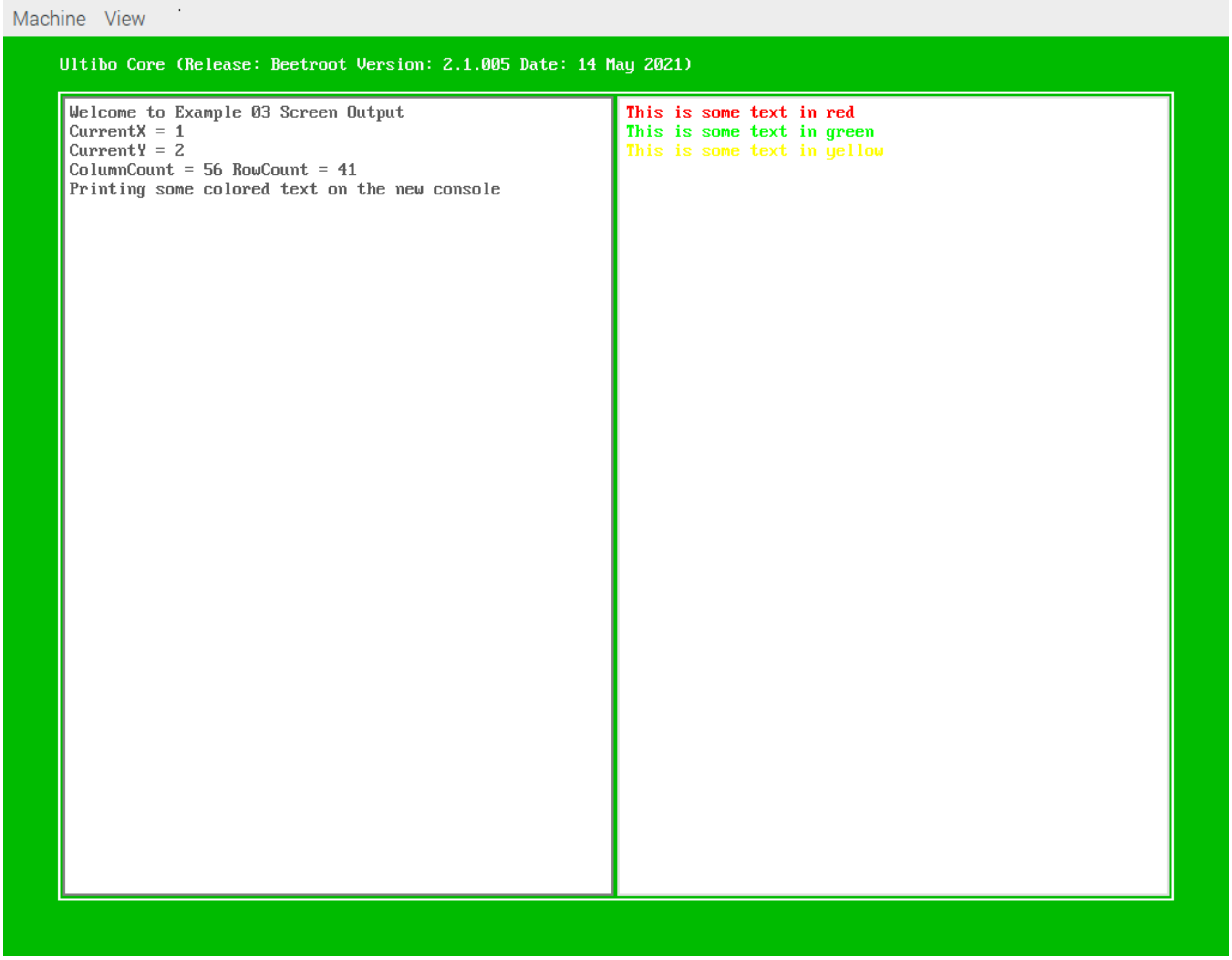
Following a Pause



```
Ultibo Core (Release: Beetroot Version: 2.1.005 Date: 14 May 2021)
```

```
Welcome to Example 03 Screen Output
CurrentX = 1
CurrentY = 2
ColumnCount = 56 RowCount = 41
```

Following a Pause



```
Ultibo Core (Release: Beetroot Version: 2.1.005 Date: 14 May 2021)
```

```
Welcome to Example 03 Screen Output
CurrentX = 1
CurrentY = 2
ColumnCount = 56 RowCount = 41
Printing some colored text on the new console
```

```
This is some text in red
This is some text in green
This is some text in yellow
```

Following a Pause