MicroEJ SDK Errata

Reference	TLT-0785-MAN-Errata
Revision	2.1

Confidentiality & Intellectual Property

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1 MicroEJ SDK 4.1.0

1.1 Tools Limitations

1.1.1 Addon processor builder is not triggered when reactivating Automatic Build

Issue #19491

Description

If Project > Build Automatically is enabled after creating a project which may use and Addon processor, this Addon processor is not triggered.

Workaround

Clean manually the project: click on the project and go to Project > Clean..., choose Clean projects selected below and press OK.

1.1.2 Virtual device build error when platform location contains accents

Issue #16126

Description

This is an issue related to projects generated by an EasyAnt skeleton. If the path where the project is generated or the name of the project itself contains accents, the module.ivy, .classpath, and .project files contains invalid characters, and would not be understood by the IDE.

Workaround

Avoid generating an EasyAnt project into a path containing accents.

2 MicroEJ SDK 4.0.0

2.1 Core Engine Limitations

2.1.1 MicroEJ Launch silently ignored when license unavailable

Issue #16262

Description

When executing a MicroEJ launch with no license, nothing happens. The same happens when there are errors in the MicroEJ launch configuration.

Workaround

Plug a dongle or add a valid Evaluation license.

2.1.2 ByteArray.set() and ByteArray.clear() don't modify the first byte

Issue #16434

Description

The methods `ByteArray.set()` and `ByteArray.clear()` skip the first byte and they don't check correctly the bounds.

Workaround

Set the offset parameter at `offset - 1` and the length parameter at `length + 1`.

2.1.3 Error when inlining a method that calls an abstract method

Issue #16502

Description

The SOAR may generate invalidate code when inlining a method that calls an abstract method with one implementation. This occurs when the implementation of the abstract method has try/catch blocks.

Workaround

none.

2.1.4 Debug/Variables view doesn't display correct values for static final double

Issue #17032

Description

When adding a static final double variable in the Debug/Variables the value is not displayed correctly.

Workaround

Display the value with a System.out.println().

2.2 MicroUI Limitations

2.2.1 Image width in format A1 is sometimes invalid

Issue #16233

Description

A wrong width is stored in RAW image. Rendering is correct but the value returned by Image.getWidth() may be invalid.

Workaround

Use RAW format A2 instead.

2.2.2 Transformation of A1, A2 and A4 images is wrong

Issue #16278

Description

Deform, rotate and scale renderings are wrong. Read a pixel from this kind of image returns an invalid value.

Note: transformation "flip" is working.

Workaround

use A8 images instead.

2.2.3 A built-in bold font is not tagged as bold font

Issue #16455

Description

A built-in bold font is not recognized as a bold font but as a plain font. So retrieve this kind of font using style Font.STYLE_BOLD does not work.

Workaround

Use a specific font identifier to retrieve the font.

2.2.4 Wrong rendering when rotating images in format A1, A2 or A4

Issue #16579

Description

When rotating an image stored in RAW format A1, A2 or A4, the rendering is invalid.

Workaround

Use RAW format A8 instead.

2.2.5 Wrong rendering when drawing a part of image in format A1, A2 or A4

Issue #16632

Description

When drawing a part of an image stored in RAW format A1, A2 or A4, the rendering may be invalid.

Workaround

Use RAW format A8 instead.

2.2.6 Runtime exception when converting an image on the MicroEJ Simulator

Issue #16701

Description

A call to Image.convert() throws a runtime exception.

Workaround

none.

2.2.7 Some drawings may not performed when using a GraphicsContext created by a call to Display.getNewGraphicsContext

Issue #17400

Description

This kind of GraphicsContext forces a LCD refresh after each drawing action. When the last drawing is hardware accelerated and asynchronous, the LCD refresh is not waiting the end of drawing. The rendering is so invalid.

Workaround

Use a GraphicsContext created by a call to Display.getNewExplicitFlush and manage yourself the LCD refresh.

2.2.8 A RAW image in A1, A2 or A4 format is rendered with "too bright" pixels.

Issue #17901

Description

The original is first converted in a grayscale image. This first convertion outs pixels "too bright".

Workaround

Use A8 images instead.

2.3 Network Limitations

2.3.1 IPv4 addresses containing a ".0." string are considered invalid

Issue #17125

Description

When setting the IP address, the values containing a ".0." string are considered invalid, which makes it impossible to setup a static IPv4 address in the 192.168.0.0 subnet (for example).

Workaround

none.

2.3.2 Unknown hosts on multiple CNAME entries

Issue #17923

Description

When resolving multiple CNAME entries (meaning a chain of aliases), an unknown host exception is incorrectly thrown.

Workaround

none.

2.3.3 Receiving UDP datagrams are limited on reception

Issue #17949

Description

If the size exceeds an internal limit (256 bytes), the whole packet is not read without warnings or errors and 256 is returned as the processed reading length.

Workaround

When allocating a datagram packet specifying an Immortal byte array of the wanted size solves the issue.

2.4 Tools Limitations

2.4.1 Plugin installation issue with platform import.

Issue #11022

Description

After installing a XPFP UI with a newer version of the frontpanel than the SDK, the workbench seems "to see" the plugin (cf configuration details) but it doesn't install it.

Workaround

Install the plugin manually.

3 MicroEJ SDK 3.1.2

3.1 Low Level API Implementation Limitations

3.1.1 Core engine scheduling stopped on uCOS-II or uCOS-III

Issue #12202

Description

The core engine may stop to schedule MicroEJ application threads when a task with a higher priority than the core engine task prevents the execution of the core engine.

Workaround

The LLMJVM implementation must be updated:

LLMJVM over uCOS-II

```
static INT32U LLMJVM_UCOSII_timeToTick(int64_t time)
{
 if(time < 0)
 {
  return 0;
 }
 int64_t ticks64 = ((time * (int64_t)OS_TMR_CFG_TICKS_PER_SEC) + 999LL) / 1000LL;
 INT32U ticks = (INT32U) ticks64;

 // Saturate the value to the max value for a INT32U.
 if(ticks != ticks64)
 {
  ticks = DEF_INT_32U_MAX_VAL;
 }
 return ticks;
}
```

LLMJVM over uCOS-III

```
static OS_TICK LLMJVM_UCOSIII_timeToTick(int64_t time)
{
 if(time < 0)
 {
  return 0;
 }
 int64_t ticks64 = ((time * (int64_t)OSCfg_TmrTaskRate_Hz) + 999LL) / 1000LL;
 OS_TICK ticks = (OS_TICK) ticks64;

 // Saturate the value to the max value for an OS_TICK.
 if(ticks != ticks64)
 {
  return DEF_INT_32U_MAX_VAL;
 }
 return ticks;
}
```

3.2 Tools Limitations

3.2.1 Heap Dumper does not strip XML comments related to string literals

Issue #15348

Description

Heap Dumper is not able to load heap files which contains some Unicode characters whereas these characters are allowed in XML comments.

Workaround

Remove all Unicode characters in XML comments.

3.2.2 Plugin installation issue with platform import.

Issue #11022

Description

After installing a XPFP UI with a newer version of the frontpanel than the SDK, the workbench seems "to see" the plugin (cf configuration details) but it doesn't install it.

Workaround

Install the plugin manually.

4 MicroEJ SDK 3.1.1

4.1 Low Level API Implementation Limitations

4.1.1 Core engine scheduling stopped on uCOS-II or uCOS-III

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 OS_TICK ticks = (OS_TICK) ticks64;

 // Saturate the value to the max value for an OS_TICK.
 if(ticks != ticks64)
 {
  return DEF_INT_32U_MAX_VAL;
 }
 return ticks;
}
```

4.2 Tools Limitations

4.2.1 Heap Dumper does not strip XML comments related to string literals

Issue #15348

Description

Heap Dumper is not able to load heap files which contains some Unicode characters whereas these characters are allowed in XML comments.

Workaround

Remove all Unicode characters in XML comments.

4.2.2 Plugin installation issue with platform import.

Issue #11022

Description

After installing a XPFP UI with a newer version of the frontpanel than the SDK, the workbench seems "to see" the plugin (cf configuration details) but it doesn't install it.

Workaround

Install the plugin manually.

5 MicroEJ SDK 3.1.0

5.1 Low Level API Implementation Limitations

5.1.1 Core engine scheduling stopped on uCOS-II or uCOS-III

Issue #12202

Description

The core engine may stop to schedule MicroEJ application threads when a task with a higher priority than the core engine task prevents the execution of the core engine.

Workaround

The LLMJVM implementation must be updated:

LLMJVM over uCOS-II

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```

LLMJVM over uCOS-III

```
static OS_TICK LLMJVM_UCOSIII_timeToTick(int64_t time)
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 OS_TICK ticks = (OS_TICK) ticks64;

 // Saturate the value to the max value for an OS_TICK.
 if(ticks != ticks64)
 {
  return DEF_INT_32U_MAX_VAL;
 }
 return ticks;
}
```

5.2 MicroUI Limitations

5.2.1 Software layers mode can throw an hardfault

Issue #12027

Description

The software layers mode (mode used when the platform implementation does not support hardware acceleration to manage the layers) can throw an hardfault when the flushing of the software layers buffer is required. The ymax coordinate is 1 pixel too high.

Workaround

The LLDisplay implementation must be updated in order to check the ymax coordinate. This value must not be higher than the LCD height minus one.

5.2.2 Built-in platform throws an hard fault when MicroEJ application fills a polygon

Issue #12186

Description

A wrong linker file is copied during the built-in platforms builds instead of using the file available in the display module. This is an old file which does not manage the GraphicsContext.fillPolygon() algorithm memory allocation. So when a MicroEJ application tries to fill a polygon on a built-in platform, an hard fault can occur (segmentation fault).

This error never occurs on platform built in the MicroEJ workspace.

Workaround

none.

5.2.3 Alternate PNG image decodings and mutable image creations can throw an hard fault

Issue #12334

Description

When an image is created using the runtime PNG decoder, a transparency array is created to store the pixels transparency. When this image is garbaged collected, it can be re-used to create a mutable image (Image.createImage(width, height)). This kind of images cannot hold a transparency array. When this second image is garbaged collected too, the transparency array of first image is garbaged collected a second time, which can throw an hard fault exception.

Workaround

none.

5.3 Tools Limitations

5.3.1 Heap Dumper does not strip XML comments related to string literals

Issue #15348

Description

Heap Dumper is not able to load heap files which contains some Unicode characters whereas these characters are allowed in XML comments.

Workaround

Remove all Unicode characters in XML comments.

5.3.2 Plugin installation issue with platform import.

Issue #11022

Description

After installing a XPFP UI with a newer version of the frontpanel than the SDK, the workbench seems "to see" the plugin (cf configuration details) but it doesn't install it.

Workaround

Install the plugin manually.

6 MicroEJ SDK 3.0.0

6.1 Core Engine Limitations

6.1.1 Error when returning from a method invoked from a nested call under certain circumstances

Issue #11441

Description

Under certain circumstances, returning from a method invoked from a nested call may lead to a system hardfault. Here is an example of a nested call that may produce the issue:

```
foo(a, bar(b));
```

The issue may occur when returning from the bar() method.

Workaround

Split the nested call into several instructions. Here is the work around for the previous example:

```
tmp = bar(b);
foo(a, tmp);
```

6.2 MicroUI Limitations

6.2.1 Software layers mode can throw an hardfault

Issue #12027

Description

The software layers mode (mode used when the platform implementation does not support hardware acceleration to manage the layers) can throw an hardfault when the flushing of the software layers buffer is required. The `ymax` coordinate is 1 pixel too high.

Workaround

The LLDisplay implementation must be updated in order to check the `ymax` coordinate. This value must not be higher than the LCD height minus one.

6.3 Tools Limitations

6.3.1 Plugin installation issue with platform import.

Issue #11022

Description

After installing a XPFP UI with a newer version of the frontpanel than the SDK, the workbench seems "to see" the plugin (cf configuration details) but it doesn't install it.

Workaround

Install the plugin manually.

7 Document History

Date	Revision	Description
September 8th 2014	1.0	Initial release for MicroEJ SDK 3.0.0.
December 30th 2014	1.1	Added “Software layers mode can throw an hardfault” for MicroEJ SDK 3.0.0.
January 20th 2015	1.2	Added “Software layers mode can throw an hardfault” for MicroEJ SDK 3.1.0.
February 10th 2015	1.3	Added “Built-in platform throws an hard fault when MicroEJ application fills a polygon” for MicroEJ SDK 3.1.0.
February 13th 2015	1.4	Added “Core engine scheduling stopped on uCOS-II or uCOS-III” for MicroEJ SDK 3.1.0.
March 9th 2015	1.5	Added “Alternate PNG image decodings and mutable image creations can throw an hard fault” for MicroEJ SDK 3.1.0.
April 8th 2015	1.6	Added “Core engine scheduling stopped on uCOS-II or uCOS-III” for MicroEJ SDK 3.1.1.
November 20th 2015	1.7	Added “Core engine scheduling stopped on uCOS-II or uCOS-III” for MicroEJ SDK 3.1.2.
February 5th 2016	1.8	Added “Heap Dumper does not strip XML comments related to string literals” for MicroEJ SDK 3.1.0, MicroEJ SDK 3.1.1 and MicroEJ SDK 3.1.2.
October 24th 2016	2.0	Added “MicroEJ SDK 4.0.0” errata section.
February 1th 2017	2.1	Added “Plugin installation issue with platform import.” for MicroEJ SDK 3.0.0, MicroEJ SDK 3.1.0, MicroEJ SDK 3.1.1 and MicroEJ SDK 3.1.2, MicroEJ SDK 4.0.0.