TOSHIBA POS Terminal

ST-A10/ST-A20/ST-B10/ST-B20

Line Display Application Programmer's Guide Toshiba TEC JavaPOS

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Introduction

The Line Display Application Programmer's Guide (hereinafter referred to as "this manual") was documented in accordance with the "UnifiedPOS Specifications Version 1.11" (hereinafter refered to as "UPOS Specification") which was published by the UnifiedPOS Committee for the purpose of standardization.
This manual mainly describes the specifications which are different from those described in the UPOS Specification and which are not described in it because they are Toshiba TEC's own specifications. For specifications not provided in this manual, please refer to the UPOS Specification.
Unless otherwise specified, this manual focuses on DeviceService.
The UPOS Specification can be downloaded from the following web site:

ARTS Home Page: http://www.nrf-arts.org/

Target Reader of This Manual

This document assumes that the reader is familiar with the following:

- General characteristics of POS peripheral devices
- General characteristics of Toshiba POS terminals and their peripheral devices
- General features of Windows and Linux
- Java terminology and architecture

Notes

Before reading this manual, please note the following:

- It is prohibited to use or duplicate a part or whole of this manual without the permission of Toshiba TEC Corporation.
- This manual is subject to change without prior notice.

1. LineDisplay

1.1 LineDisplay JavaPOS Device ["TECLineDisplay"]

Class name of this Device Service is as follows:
“jpos.toshibatec.linedisplay”

1.1.1 Supported Operating Systems

This Device Service supports the following operating systems.
- Windows 2000
- Windows Embedded for Point of Service1.1(WEPOS1.1)
- Windows XP Professional
- Windows Vista
- SUSE Linux Enterprise Desktop 10 SP1
- SUSE Linux Enterprise Desktop 11

1.1.2 Supported JavaVM

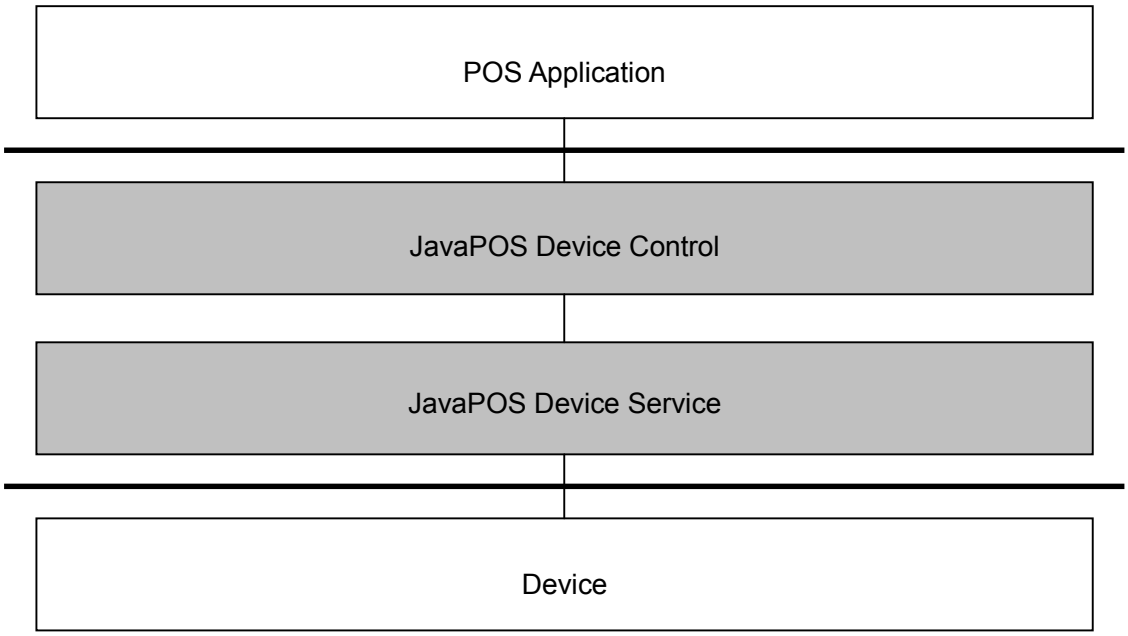
This Device Service supports the following JavaVM.
- Java2 Runtime Environment v1.4.2

1.1.3 Supported Device

This Device Service supports the following device.
- LIUST-A10 line display
- LIUST-51 line display
- LIUST-53 line display
- LIUWD-111 line display

1.1.4 Architecture Overview

The JavaPOS Device provides an Application Programming Interface (API) for the POS Application to communicate with the Device.



: The gray area indicates the JavaPOS Device.

1.1.5 Property Specifications

The Line Display Device properties are as follows.
The specifications of these properties are in accordance with the UPOS Specification.

Common Property	Enable Condition	Description
CapCompareFirmwareVersion	open	Support/not support of the function to compare firmware version number
CapPowerReporting	open	Support/not support of the power reporting function
CapStatisticsReporting	open	Support/not support of the statistics reporting function
CapUpdateFirmware	open	Support/not support of the firmware update function
CapUpdateStatistics	open	Support/not support of the statistics update function
CheckHealthText	open	Result of the most recent call to the checkHealth method
Claimed	open	Status of being claimed or released
DeviceEnabled	open & claim	Enable/disable of Device
FreezeEvents	open	Temporarily stops/not stop event generation
PowerNotify	open	Enable/disable of the power notification function of the Device
PowerState	open	Current power condition of the Device
State	None	Current state of the Device
DeviceControlDescription	None	Holding of Device Control strings
DeviceControlVersion	None	Holding of Device Control version number
DeviceServiceDescription	open	Holding of Device Service strings
DeviceServiceVersion	open	Holding of Device Service version number
PhysicalDeviceDescription	open	Holding of Physical Device strings
PhysicalDeviceName	open	Holding of Physical Device name
Specific Property	**Enable Condition**	**Description**
CapBlink	open	Support/not support of the function to select a character blink type of the Device
CapBitmap	open	Support/not support of the function to display bitmaps
CapBlinkRate	open	Support/not support of the Device's blink rate control function
CapBrightness	open	Support/not support of the Device's brightness control function
CapCharacterSet	open	Support/not support of the function to select the Device's default displayable character sets
CapCursorType	open	Support/not support of the function to select a cursor type
CapCustomGlyph	open	Support/not support of the Device's custom glyph function
CapDescriptors	open	Support/not support of the descriptor function
CapHMarquee	open	Enable/disable of the horizontal marquee scrolling function
CapICharWait	open	Support/not support of the intercharacter wait function
CapMapCharacterSet	open	Support/not support of the Service to map the characters of the application to the selected character set
CapReadBack	open	Support/not support of the function to hold the capability of the video device to read back the data displayed
CapReverse	open	Support/not support of the Device's reverse video function
CapScreenMode	open	Support/not support of the function to change the screen mode
CapVMarquee	open	Support/not support of the vertical marquee scrolling function
BlinkRate	open	On-Off-On blink cycle of displayed text
CharacterSet	open & claim & enable	Selection of default character set
CharacterSetList	open	List of the character sets supported
Columns	open	Number of columns for the current window
CurrentWindow	open	Number assigned to the current window
CursorColumn	open	Column in the current window to which the next characters to be displayed will be output
CursorRow	open	Row in the current window to which the next characters to be displayed will be output
CursorType	open	Cursor type for the current window
CursorUpdate	open	Enable/disable of the function to update the cursor properties
CustomGlyphList	open	Setting of character codes that are available for definition as glyphs

Specific Property (continued)	Enable Condition	Description
DeviceBrightness	open & claim & enable	Setting of the Device's brightness value expressed in percentage between 0 and 100
DeviceColumns	open	Number of columns on the Device
DeviceDescriptors	open	Number of descriptors on the Device
DeviceRows	open	Number of rows on the Device
DeviceWindows	open	Maximum window number supported by the Device
GlyphHeight	open	Indication of the glyph height based on the number of pixels for a character cell
GlyphWidth	open	Indication of the glyph width based on the number of pixels for a character cell
InterCharacterWait	open	Wait time between displaying each character
MapCharacterSet	open	Enable/disable of the mapping function
MarqueeFormat	open	Marquee scrolling format for the current window
MarqueeRepeatWait	open	Wait time between marquee scrolling
MarqueeType	open	Marquee scrolling type for the current window.
MarqueeUnitWait	open	Wait time between marquee scrolling of each column or row in the window
MaximumX	open	Maximum number of horizontal pixels supported by the Device
MaximumY	open	Maximum number of vertical pixels supported by the Device
Rows	open	Number of rows for the current window
ScreenMode	open & claim	Screen mode value of the Device
ScreenModeList	open	List of screen modes that are supported by the Device

Table 1 LineDisplay JavaPOS Device – Property List

1.1.6 Method Specifications

The Line Display Device methods are as follows.

Common Method	Requirement	Remarks
open	None	
close	open	
claim	open	
release	open & claim	
checkHealth	open & claim & enable	
compareFirmwareVersion	open & claim & enable	
directIO	open	
resetStatistics	open & claim & enable	
retreveStatistics	open & claim & enable	
updateFirmware	open & claim & enable	
updateStatistics	open & claim & enable	
Specific Method	**Requirement**	**Remarks**
clearText	open & claim & enable	
displayText	open & claim & enable	
displayTextAt	open & claim & enable	
scrollText	open & claim & enable	
clearDescriptors	open & claim & enable	
setDescriptor	open & claim & enable	
createWindow	open & claim & enable	
destroyWindow	open & claim & enable	
refreshWindow	open & claim & enable	
defineGlyph	open & claim & enable	
readCharacterAtCursor	open & claim & enable	
displayBitmap	open & claim & enable	
setBitmap	open & claim & enable	

Table 2 LineDisplay JavaPOS Device – Method List

1.1.7 Exception Specifications

This Device Service throws the following exception.
For the exception specifications, refer to the UPOS Specification.

Exception	Remarks
JposException	Method execution or a property setting failed.

Table 3 LineDisplay JavaPOS Device – Exception List

1.1.7.1 JposException Specifications

Syntax: JposException(int errorCode);
JposException(int errorCode, int errorCodeExtended);
JposException(int errorCode, String description);
JposException(int errorCode, int errorCodeExtended, String description);
JposException(int errorCode, String description, Exception origException);
JposException(int errorCode, int errorCodeExtended, String description, Exception origException);

Result of Method Execution/Property Setting (errorCode name) and Values:

errorCode	Value
JPOS_E_CLOSED	101
JPOS_E_CLAIMED	102
JPOS_E_NOTCLAIMED	103
JPOS_E_NOSERVICE	104
JPOS_E_DISABLED	105
JPOS_E_ILLEGAL	106
JPOS_E_NOHARDWARE	107
JPOS_E_OFFLINE	108
JPOS_E_NOEXIST	109
JPOS_E_EXISTS	110
JPOS_E_FAILUER	111
JPOS_E_TIMEOUT	112
JPOS_E_BUSY	113
JPOS_E_EXTENDED	114

Table 4 LineDisplay JavaPOS Device – ErrorCode List

1.1.8 Log

This Device Service outputs a log using Commons Logging.
Depending on a situation, a log at either “INFO", "WARN", or "ERROR" level is output.

1.1.8.1 Log at INFO Level

A log at INFO level is output to check performance at a start and end of a method and a start and end of a property setting and when an event is thrown.

1.1.8.2 Log at WARN Level

A log at WARN level is output when an error, which is so minor that there is no need to throw an exception, has occurred. For example, the Device operates using a default value in the module because an unexpected value has been specified to jpos.xml.

1.1.8.3 Log at ERROR Level

A log at ERROR level is output when a process in operation stops due to an error. Usually, this type of log is output when an exception is thrown.

1.2 TEC LineDisplay JavaPOS Device [“LIUST-A10”]

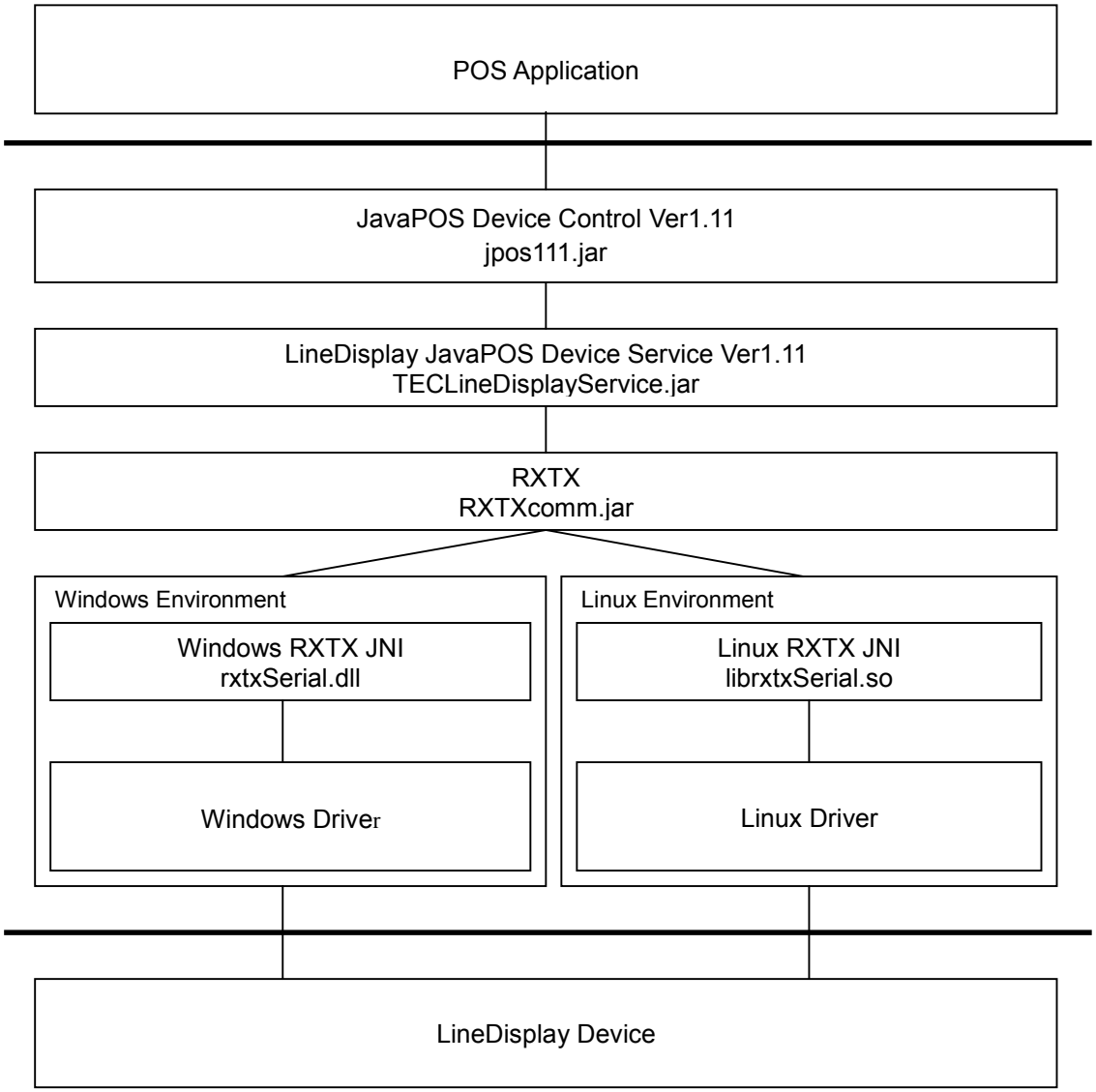
1.2.1 Supported Device

The LIUST-A10 Serial LineDisplay of this Device Service supports the following devices provided by Toshiba TEC.

- LineDisplay device attached to the ST-A10
  LIUST-A10
- LineDisplay device attached to the ST-A20
  LIUST-A10

1.2.2 Architecture Structure

The LineDisplay JavaPOS Device uses some software to perform functions.
The software components shown below are required to build an execution environment.



1.2.3 Supported Functions

Supported/not supported functions by the LIUST-A10 Serial LineDisplay Device Service are as follows:

Common Properties

Function	Property	UPOS Ver.	Supported or Not
Power status notification	CapPowerReporting	1.3	Not supported
Accumulation of statistics	CapStatisticsReporting	1.8	Not supported
Update of statistics	CapUpdateStatistics	1.8	Not supported
Update of firmware	CapUpdateFirmware	1.9	Not supported
Comparison of firmware version	CapCompareFirmwareVersion	1.9	Not supported

Table 5 LineDisplay JavaPOS Device – Supported Functions (Common Properties)

Specific Properties

Function	Property	UPOS Ver.	Supported or Not
Blinking of each character/device	CapBlink	1.0	Not supported
Display of bitmaps	CapBitmap	1.7	Not supported
Selection of blink rate	CapBlinkRate	1.6	Not supported
Device's brightness control	CapBrightness	1.0	Supported
Selection of displayable character set	CapCharacterSet	1.5	Not supported
Selection of cursor type	CapCursorType	1.8	Not supported
Selection of custom glyphs	CapCustomGlyph	1.6	Not supported
Of/off of descriptors	CapDescriptors	1.0	Supported
Horizontal marquee scrolling	CapHMarquee	1.0	Supported
Intercharacter wait	CapICharWait	1.0	Supported
Mapping of characters	CapMapCharacterSet	1.7	Not supported
Read back of data displayed	CapReadBack	1.6	Not supported
Reverse video of each character/device	CapReverse	1.6	Not supported
Change of screen mode	CapScreenMode	1.7	Not supported
Vertical marquee scrolling	CapVMarquee	1.0	Supported

Table 6 LineDisplay JavaPOS Device – Supported Functions (Specific Properties)

Others

Function	UPOS Ver.	Supported or Not
Blinking of descriptor	1.0	Not supported
Display mode	1.0	Supported
Escape sequence	1.8	Not supported

Table 7 LineDisplay JavaPOS Device – Supported Functions (Others)

Extended Functions (DirectIO)

Function	UPOS Ver.	Supported or Not
Country code setting	-	Supported

Table 8 LineDisplay JavaPOS Device – Supported Functions (DirectIO)

1.2.4 Property Specifications

1.2.4.1 Initial Value of LIUST-A10 Serial LineDisplay Properties (when opening the Service)

Common Property	**Mutability**	**Value**
CapCompareFirmwareVersion	R	false
CapPowerReporting	R	JPOS_PR_NONE
CapStatisticsReporting	R	false
CapUpdateFirmware	R	false
CapUpdateStatistics	R	false
CheckhealthText		“” (empty string)
Claimed		false
DeviceEnabled		false
FreezeEvents		false
PowerNotify		JPOS_PN_DISABLED
PowerState		JPOS_PS_UNKNOWN
State		JPOS_S_IDLE
DeviceControlDescription		“JavaPOS LineDisplay Device Control”
DeviceControlVersion		“1011000”
DeviceServiceDescription		“TEC JavaPOS LineDisplay Device Service”
DeviceServiceVersion		“1011XXX” **(*1)**
PhysicalDeviceDescription		“LIUST-A10 Serial Line Display”
PhysicalDeviceName		“LIUST-A10” **(*2)**
Specific Property	**Mutability**	**Value**
CapBlink	R	DISP_CB_NOBLINK
CapBitmap	R	FALSE
CapBlinkRate	R	FALSE
CapBrightness	R	TRUE
CapCharacterSet	R	DISP_CCS_ASCII
CapCursorType	R	DISP_CCT_NONE
CapCustomGlyph	R	FALSE
CapDescriptors	R	TRUE
CapHMarquee	R	TRUE
CapICharWait	R	TRUE
CapMapCharacterSet	R	FALSE
CapReadBack	R	DISP_CRB_NONE
CapReverse	R	DISP_CR_NONE
CapScreenMode	R	FALSE
CapVMarquee	R	TRUE
BlinkRate		0
CharacterSet		DISP_CS_ASCII
CharacterSetList		“998”
Columns		20
CurrentWindow		0
CursorColumn		0
CursorRow		0
CursorType		DISP_CT_NONE
CursorUpdate		TRUE
CustomGlyphList		“” (empty string)
DeviceBrightness		100
DeviceColumns	R	20
DeviceDescriptors	R	20
DeviceRows	R	2
DeviceWindows	R	999
GlyphHeight	**R**	0
GlyphWidth	**R**	0
InterCharacterWait		0
MapCharacterSet	**R**	false
MarqueeFormat		DISP_MF_WALK

Specific Property (continued)	Mutability	Value
MarqueeRepeatWait		0
MarqueeType		DISP_MT_NONE
MarqueeUnitWait		0
MaximumX	R	0
MaximumY	R	0
Rows		2
ScreenMode	R	0
ScreenModeList	R	“” (empty string)

(*1) Build version is indicated as “XXX” because this manual may not be revised as soon as the module is updated.
(*2) Depending on the descriptions of the XML file, the Device’s module name is obtained and displayed.

Table 9 LineDisplay JavaPOS Device – Property Initial Value List (in part)

1.2.4.2 Details of Properties

[Common Properties]

CapCompareFirmwareVersion Property

Type

boolean CapCompareFirmwareVersion;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
Usually set to TRUE, when the Service/Device supports the function to compare firmware version number and a firmware version can be upgraded.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapPowerReporting Property

Type

boolean CapPowerReporting;

Mutability

Read Only

Remarks

Always set to JPOS_PR_NONE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapStatisticsReporting Property

Type

boolean CapStatisticsReporting;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
UPOS sets this property to TRUE when the function to report various statistics such as product life is supported.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapUpdateFirmware Property

Type

boolean CapUpdateFirmware;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
UPOS sets this property to TRUE when the function to update a firmware via the UPOS is supported.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapUpdateStatistics Property

Type

boolean CapUpdateStatistics;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
UPOS sets this property to TRUE when the function to collect statistics is supported and the statistics can be reset.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CheckHealthText Property

Type

String CheckHealthText;

Mutability

Read Only

Remarks

Holds the result of the most recent call to the CheckHealth method.
A CheckHealth property value is initialized to empty string by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Claimed Property

Type

boolean Claimed;

Mutability

Read Only

Remarks

If TRUE, an exclusive access to the Device has been obtained.
If FALSE, the Device is released for sharing with other applications. In many cases, an access to methods and properties and an occurrence of events are allowed after an exclusive access to the Device is obtained.
A **Claimed** property value is initialized to FALSE by the **open** method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceEnabled Property

Type

boolean DeviceEnabled;

Mutability

Read / Write

Remarks

If TRUE, the Device is enabled (in an operational state). Whenever changed to TRUE, the Device is enabled.
If FALSE, the Device is disabled. Whenever changed to FALSE, the Device is disabled and cannot be accessed.
Before using the Device, an application must set this property to TRUE.
This property is initialized to FALSE by the **open** method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.
Refer to: **PowerNotify property**

FreezeEvents Property

Type

boolean FreezeEvents;

Mutability

Read / Write

Remarks

If TRUE, the Control does not deliver events. The Control holds the events until the FreezeEvents state is cleared.
If FALSE, the Control delivers events. If there are some events which have been held in a **FreezeEvents** state, changing this property to FALSE will allow these events to be delivered.
If an interruption by an event is not desirable, the application can choose whether or not the event is to be frozen.
This property is initialized to FALSE by the **open** method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PowerNotify Property

Type

int PowerNotify;

Mutability

Read / Write

Remarks

Always set to JPOS_PN_DISABLED because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PowerState Property

Type

int PowerState;

Mutability

Read Only

Remarks

Always set to JPOS_PS_UNKNOWN because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

State Property

Type

int State;

Mutability

Read Only

Remarks

Indicates a current state of the Control. Always set to JPOS_S_IDLE.
This property is always readable.

Value	Meaning
JPOS_S_CLOSED	The Control is closed.
JPOS_S_IDLE	The Control is in a normal state and is not busy.
JPOS_S_ERROR	In an error state. The value is read within the ErrorEvent event handler.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceControlDescription Property

Type

String DeviceControlDescription;

Mutability

Read Only

Remarks

This property describes a Device Control class.
This property is always readable.
”JavaPOS LineDisplay Device Control” is set to the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceControlVersion Property

Type

int DeviceControlVersion;

Mutability

Read Only

Remarks

This property indicates the version number of the Device Control class.
This property is always readable.
The version number of the Device is 1011000, which indicates the Device is in accordance with the JPOS 1.11.000.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceServiceDescription Property

Type

String DeviceServiceDescription;

Mutability

Read Only

Remarks

This property describes the Device Service class.
It is ”TEC JavaPOS LineDisplay Device Service” for the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceServiceVersion Property

Type

int DeviceServiceVersion;

Mutability

Read Only

Remarks

This property indicates the version number of the Device Service class.
The version number of the Device is ”1011XXX”.
The value, “XXX” indicates a build version, which is incremented from 001.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PhysicalDeviceDescription Property

Type

String PhysicalDeviceDescription;

Mutability

Read Only

Remarks

This property describes a Physical Device.
It is set to “LIUST-A10 Serial Line Display” for the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PhysicalDeviceName Property

Type

String PhysicalDeviceName;

Mutability

Read Only

Remarks

This property describes a name of the Physical Device.
It is set to ” TECLineDisplay” for the DeviceService.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

[Specific Properties]

CapBlink Property

Type

int CapBlink;

Mutability

Read Only

Remarks

Always set to “DISP_CB_NOBLINK” because this function is not supported by the Device.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapBitmap Property

Type

boolean CapBitmap;

Mutability

Read Only

Remarks

If TRUE, bitmaps are displayed. This property is initialized by the open method.
Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapBlinkRate Property

Type

boolean CapBlinkRate;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapBrightness Property

Type

boolean CapBrightness;

Mutability

Read Only

Remarks

If TRUE, brightness can be controlled.

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCharacterSet Property

Type

int CapCharacterSet;

Mutability

Read Only

Remarks

Indicates the Device's default displayable character sets .

Always set to "DISP_CCS_ ASCII" because this function is not supported by the Device.

Value	Meaning (Displayable character set)
DISP_CCS_NUMERIC	Numerals 0 to 9, space, minus (' – '"), period (' . ')
DISP_CCS_ALPHA	In addition to displayable characters when DISP_CCS_NUMERIC is selected, uppercase alphabets
DISP_CCS_ASCII	ASCII characters from 0x20 to 0x7F
DISP_CCS_KANA	Partial code page 932, including 1-byte Japanese Kana characters from 0xA1 to 0xDF and all ASCII characters from 0x20 to 0x7F, but excluding Japanese Kanji characters
DISP_CCS_KANJI	Code page 932, including 1-byte Japanese Kana characters from 0xA1 to 0xDF, all ASCII characters from 0x20 to 0x7F, Shift-JIS Kanji characters Levels 1 and 2.
DISP_CCS_UNICODE	Unicode characters

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCursorType Property

Type

int CapCursorType;

Mutability

Read Only

Remarks

Always set to " DISP_CCT_NONE" because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCustomGlyph Property

Type

boolean CapCustomGlyph;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapDescriptors Property

Type

boolean CapDescriptor;

Mutability

Read Only

Remarks

If TRUE, the descriptor is supported.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapHMarquee Property

Type

boolean CapHMarquee;

Mutability

Read Only

Remarks

If TRUE, horizontal marquee scrolling is supported.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapICharWait Property

Type

boolean CapICharWait;

Mutability

Read Only

Remarks

If TRUE, intercharacter wait is supported.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapMapCharacterSet Property

Type

boolean CapMapCharacterSet;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Refer to:

PowerNotify property

CapReadBack Property

Type

int CapReadBack;

Mutability

Read Only

Remarks

Always set to “DISP_ CRB_NONE“ because this function is not supported by the Device.

Value	Meaning
DISP_CRB_NONE	Read back is not supported.
DISP_CRB_SINGLE	Read back of a single character at a time is supported.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapReverse Property

Type

int CapReverse;

Mutability

Read Only

Remarks

Always set to “DISP_CR_NONE“ because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapScreenMode Property

Type

boolean CapScreenMode;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapVMarquee Property

Type

boolean CapVMarquee;

Mutability

Read Only

Remarks

If TRUE, vertical marquee scrolling is supported.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

BlinkRate Property

Type

int BlinkRate;

Mutability

Read / Write

Remarks

A blink rate time, a period of cycle time when a displayed text is turned on-off-on, is expressed in milliseconds.
Always set to "0" because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CharacterSet Property

Type

int CharacterSet;

Mutability

Read / Write

Remarks

Character set to be used for the characters being displayed is selected from the following values.

Always set to "998" because this Device supports only "DISP_CS_ASCII".

Value	Meaning
Range from 101 to 199	Device-specific character sets that do not match a code page, ASCII, or Windows ANSI character sets
Range from 400 to 990	Code page; one of the standard values
DISP_CS_UNICODE	UNICODE The value of this constant is 997.
DISP_CS_ASCII	ASCII characters from 0x20 to 0x7F The value of this constant is 998.
DISP_CS_ANSI	ANSI characters The value of this constant is 999.

This property is initialized to an appropriate value when the Device is enabled after the open method is called. This value is supported even when characters which can be set by the CapCharacterSet property is insufficient.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CharacterSetList Property

Type

String CharacterSetList;

Mutability

Read Only

Remarks

A list of the character sets supported.
Always set to "998" because this Device supports only "DISP_CS_ASCII"

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Columns Property

Type

int Column;

Mutability

Read Only

Remarks

Indicates the number of columns for this window. For Window 0, this property sets the same value as the one set by the DeviceColumns property. For other windows, the value may be less or greater than the one set by the DeviceColumns property.
This property is initialized to DeviceColumns by the open method, and is updated when CurrentWindow is set or when createWindow or destroyWindow is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CurrentWindow Property

Type

int CurrentWindow;

Mutability

Read / Write

Remarks

A current window number, to which text is to be displayed, is set.
This property is initialized to "0" (device window) by the open method, and updated when createWindow method or destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorColumn Property

Type

int CursorColumn;

Mutability

Read / Write

Remarks

The column in the current window, to which the next displayed character will be output, is set. The effective values range from "0" to (Columns). (Refer to "displayText method→"CursorColumns" →"Remarks".)
This property is initialized to "0" by the open and createWindow methods, and is updated when the CurrentWindow property is set or the clearText method or the destroyWindow method is called. If the CursorUpdate property is TRUE, this property is also updated when the displayText method or the displayTextAt method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorRow Property

Type

int CursorRow;

Mutability

Read / Write

Remarks

The row in the current window, to which the next displayed character will be output, is set. The effective values range from “0” to (Rows – 1).

This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the clearText method or the destroyWindow method is called.

If the CursorUpdate Property is TRUE, this property is also updated when the displayText method or the displayTextAt method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorType Property

Type

int CursorType;

Mutability

Read / Write

Remarks

Always set to “DISP_CT_NONE “ because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorUpdate Property

Type

boolean CursorUpdate;

Mutability

Read / Write

Remarks

If TRUE, the CursorRow and CursorColumn properties are updated to point to the character beyond the last character output when characters are displayed using the displayText or displayTextAt method. If FALSE, the cursor properties are not updated even when characters are displayed. This property is maintained for each window.

This property is initialized to TRUE by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CustomGlyphList Property

Type

String CustomGlyphList;

Mutability

Read Only

Remarks

Always set to “ “ because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceBrightness Property

Type

int DeviceBrightness;

Mutability

Read / Write

Remarks

The device brightness value is set in percentage between 0 and 100.

Any device can support 0% (blank) and 100% (full intensity). Blanking can, at a minimum, be supported by sending spaces to the device.

If the CapBrightness property is TRUE, the Device supports one or more brightness levels. If the Device does not support a specified brightness value, the Device Service sets an appropriate value. This property is initialized to 100 when the Device is first enabled after the open method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceColumns Property

Type

int DeviceColumns;

Mutability

Read Only

Remarks

The number of columns on the Device is set.

This property is initialized by the open method and updated when the ScreenMode property is changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceDescriptors Property

Type

int DeviceDescriptors;

Mutability

Read Only

Remarks

The number of descriptors on the Device is set. If the CapDescriptors property is TRUE, this property is set to a value other than “0”.

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceRows Property

Type

int DeviceRows;

Mutability

Read Only

Remarks

The number of rows on the Device is set.

This property is initialized by the open method and updated when the ScreenMode property is

changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceWindows Property

Type

int DeviceWindows;

Mutability

Read Only

Remarks

The maximum number of windows, which can be supported by the Device, is set. When this property is set to “0”, it indicates only the Device window is supported and a new window cannot be created. This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

GlyphHeight Property

Type

int GlyphHeight;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

GlyphWidth Property

Type

int GlyphWidth;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

InterCharacterWait Property

Type

int InterCharacterWait;

Mutability

Read / Write

Remarks

This property is used only when the window is not in Marquee mode (that is, the MarqueeType property is set to DISP_MT_NONE).

When this property is a value other than “0” and the window is not in Marquee mode, the window is in Teletype mode: requests from the displayText method and the displayTextAt method are enqueued and processed in the order they are received. This property specifies a time to wait between displaying each character. The wait time is expressed in milliseconds. (Note an error may be generated depending on the accuracy of the timer.) If the CursorUpdate property is TRUE, the

CursorRow property and the CursorColumn property are updated to their appropriate values before the displayText method or the displayTextAt method returns, even when all character strings have not been displayed.
When this property is “0” and the window is not in Marquee mode, Immediate mode is in effect where characters are processed as quickly as possible. If some display requests are enqueued at the time this property is set to “0”, the requests are completed as quickly as possible. If CapICharWait is FALSE, intercharacter wait is not supported, and the value of this property is not used.
This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception
In case of an error when this property is accessed, a Java exception is thrown.

MapCharacterSet Property

Type
boolean MapCharacterSet;

Mutability
Read / Write

Remarks
Always set to FALSE because this function is not supported by the Device.

Exception
In case of an error when this property is accessed, a Java exception is thrown.

MarqueeFormat Property

Type
int MarqueeFormat;

Mutability
Read / Write

Remarks
The following marquee scrolling formats are set for the current window.

Value	Meaning
DISP_MF_WALK	Starts marquee scrolling by walking data from the opposite side. For example, if the marquee type is “left,” characters are placed at the right side of the viewport and are scrolled to the left.
DISP_MF_PLACE	Starts marquee scrolling in a manner so that characters are placed. For example, if the marquee type is “left,” the characters are placed from the left side of the viewport and scrolling starts when the viewport is filled with the characters.

This property is initialized to DISP_MF_WALK by the open and createWindow methods, and updated when the CurrentWindow property is set or the destroyWindow is method is called.
This property is read when the mode is changed to Marquee On mode. It is not used in a mode other than Marquee mode.

Exception
In case of an error when this property is accessed, a Java exception is thrown.

MarqueeRepeatWait Property

Type
int MarqueeRepeatWait;

Mutability
Read / Write

Remarks
A wait time between marquee scrolling is set in milliseconds. (Note an error may be generated depending on the accuracy of the timer.)

This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.
This property is not used when the mode is not in Marquee mode.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MarqueeType Property

Type

int MarqueeType;

Mutability

Read / Write

Remarks

The following marquee scrolling types are set for the current window. When the value is not DISP_MT_NONE, the window is in Marquee mode.

Value	Meaning
DISP_MT_NONE	Marquee scrolling is disabled.
DISP_MT_INIT	Marquee Initialization mode. Until the value of this property is set to other value, any change to the window is not reflected in the viewport.
DISP_MT_UP	Scrolls the window upward. Illegal if the value of the Rows property is less than the viewportHeight value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.
DISP_MT_DOWN	Scrolls the window downward. Illegal if the value of the Rows property is less than the viewportHeight value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.
DISP_MT_LEFT	Scrolls the window to the left. Illegal if the value of the Columns property is less than the viewportWidth value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.
DISP_MT_RIGHT	Scrolls the window to the right. Illegal if the value of the Columns property is less than the viewportWidth value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.

This property is initialized to DISP_MT_NONE by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MarqueeUnitWait Property

Type

int MarqueeUnitWait;

Mutability

Read / Write

Remarks

A wait time between marquee scrolling of each column or row in the window is set in milliseconds. (Note an error may be generated depending on the accuracy of the timer.)
This property is not used when the MarqueeType property is DISP_MT_NONE.
This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MaximumX Property

Type

int MaximumX;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MaximumY Property

Type

int MaximumY;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Rows Property

Type

int Rows;

Mutability

Read / Write

Remarks

The number of rows for the current window. For Window 0, the value of this property is the same as that of the DeviceRows property. For other windows, it may be less or greater than that of the DeviceRows property.

This property is initialized to the DeviceRows property by the open method, and is updated when the CurrentWindow property is set or the createWindow method or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

ScreenMode Property

Type

int ScreenMode;

Mutability

Read / Write

Remarks

Always set to “0” because this function is not supported by the Device.

For example: 0=Default value
1= First setting in ScreenModeList
2= Second setting in ScreenModeList, etc.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

ScreenModeList Property

Type

int ScreenModeList;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

1.2.5 Method Specifications

1.2.5.1 Method List

Supported/unsupported methods by this Device (LIUST-A10 Serial LineDisplay) are as follows:

Common Method	Requirement	Remarks
open	None	Mandatory supported
close	open	Mandatory supported
claim	open	Mandatory supported
release	open & claim	Mandatory supported
checkHealth	open & claim & enable	Only Interactive Check Health is supported
compareFirmwareVersion	open & claim & enable	Not supported
directIO	open	Supported
resetStatistics	open & claim & enable	Not supported
retreveStatistics	open & claim & enable	Not supported
updateFirmware	open & claim & enable	Not supported
updateStatistics	open & claim & enable	Not supported
Specific Method	**Requirement**	**Remarks**
clearText	open & claim & enable	Supported
displayText	open & claim & enable	Supported
displayTextAt	open & claim & enable	Supported
scrollText	open & claim & enable	Supported
clearDescriptors	open & claim & enable	Supported
setDescriptor	open & claim & enable	Supported
createWindow	open & claim & enable	Supported
destroyWindow	open & claim & enable	Supported
refreshWindow	open & claim & enable	Supported
defineGlyph	open & claim & enable	Not supported
readCharacterAtCursor	open & claim & enable	Not supported
displayBitmap	open & claim & enable	Not supported
setBitmap	open & claim & enable	Not supported

Table 10 LineDisplay JavaPOS Device – Method List

1.2.5.2 Details of Methods

[Common Properties]

open Method

Type

void open (String *logicalDeviceName*) throws JPOSException;

The ***logicalDeviceName*** parameter specifies the Device name to open.

The Device name specifies the “logicalName” specified by JPOS.xml.

Remarks

This method is called to open the Device.

The device name specifies the Device which should be used among the Devices supported by this Control class.

The ***logicalDeviceName*** must be the one specified by JPOS.xml.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

close Method

Type

void close ( ) throws JPOSException;

Remarks

Thie method is called to release the Device and its resources.

If the **DeviceEnabled** property is TRUE, the Device is disabled first.

If the **Claimed** property is TRUE, an excessive access to the Device is released first.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

claim Method

Type

void claim (INT *Timeout*) throws JPOSException;

Remarks

The *Timeout* parameter indicates the maximum wait time in milliseconds to obtain an exclusive access. If “0”, the method immediately returns the result even when the method failed to obatin the exclusive access.

If JPOS_FOREVER (-1), this method waits as long as needed until the exclusive access is obtained.

This method is called when an exclusive access to the Device is requested. The Device cannot be used unless the exclusive access is obtained.

When the exclusive access is successuly obtained, the **Claimed** property is changed to TRUE.

When the **Claim** method is executed, a connection is established with the Device and it is checked to see if processes can be performed. If yes, the **Claim** method is completed successfully.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

release Method

Type

void release () throws JPOSException;

Remarks

This method is called to release an exclusive access to the Device.

If the **DeviceEnabled** property is TRUE and the Device is exclusively used, the Device is disabled.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

checkHealth Method

Type

void checkHealth (INT *Level*) throws JPOSException;

Remarks

The *Level* parameter indicates the following types of health check to be performed on the Device.

Value	Meaning
JPOS_CH_INTERNAL	Internal test This parameter is not supported.
JPOS_CH_EXTERNAL	Thorough test This parameter is not supported.
JPOS_CH_INTERACTIVE	Performs an interactive test with the Device. The supporting Service Object will typically display a modal dialog box to present test options and results.

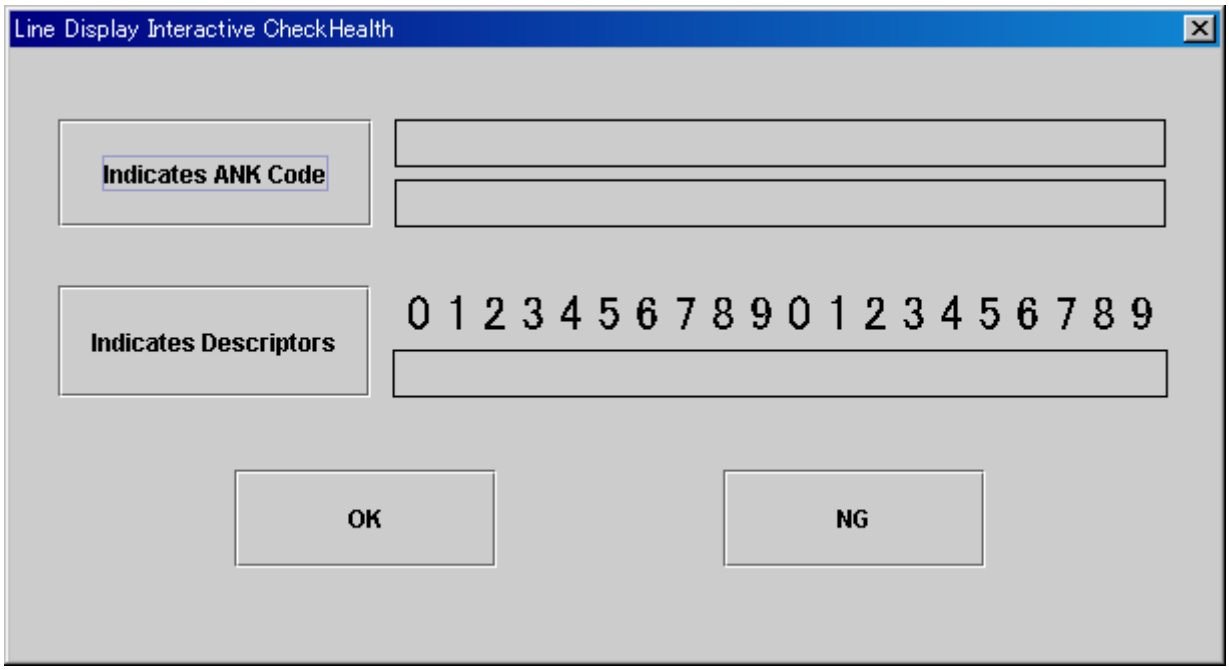
When the checkHealth method is performed at an interactive level, the following dialog box is displayed.

Click each command button to check if the line display can be successfully performed.

The “Indicates ANK Code” button scrolls 20H to 7EH line by line.

The “Indicates Discriptors” button displays descriptors.

Visually check the display and press the button, either “OK” or “NG” to complete the check.



Exception

In case of an error when this method is invoked, a JPOSException is thrown.

This Device Service only supports the healthCheck method at an interactive level.
Regardless of level, the checkHealth method throws the following exceptions.

Value (exception's ErrorCode)	CheckHealthText Property	Meaning
JPOS_E_CLOSED	No change	The Device has been closed.
JPOS_E_DISABLED	"HCheck:Disabled"	The Device has been disabled.
JPOS_E_ILLEGAL	"HCheck:Illegal"	Illegal level parameter
JPOS_E_FAILURE	"HCheck:failure"	Captures an exception other than JavaPOS

1) Internal Level (level=JPOS_CH_INTERNAL)
Checks a connection status with the Device from a line status.

Value (ResultCode)	CheckHealthText	Meaning
JPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not supported

2) External Level (level=JPOS_CH_EXTERNAL)
The following character strings are thrown from the right side on the upper and lower rows of the line display.
"TEC Line Display LIUST-5X OPOS CheckHealth:External"

Value (ResultCode)	CheckHealthText	Meaning
JPOS_E_ILLEGAL	"External HCheck:Illegal"	Not supported

3) Interactive Level (level=JPOS_CH_INTERACTIVE)

Value (ResultCode)	CheckHealthText	Meaning
JPOS_SUCCESS	"Interactive HCheck: Successful"	Completed with the "OK " button
JPOS_E_FAILURE	"Interactive HCheck: Error"	Completed with the "NG " button
JPOS_E_NOTCAIMED	"HCheck: Exclusive"	Exclusive error
JPOS_E_DISABLED	"HCheck: Disabled"	The Device has been disabled.

directIO Method

Type

void directIO (INT *Command*, INT *pData*, Object *pString*) throws JPOSException;

Remarks

This Control supports the following extension functions using the DirectIOMethod.
For details of each method of the extension functions, refer to the section "1.1.8.2 directIO Method Specifications".

Command	Function
DISP_DIO_COUNTRYCODE	Country code setting

This file may be revised in accordance with an update of the module. It is reccommended to use the file which specifies a correct version of the module.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.
This directIO method throws the following exceptions regardless of command parameter values.
For details of the exceptions for each method of the extension functions, refer to the section "1.1.8.2 directIO Method Specifications".

Value (exception's ErrorCode)	Exception's ErrorCodeExtended	Meaning
JPOS_E_CLOSED	0	The Device has been closed.
JPOS_E_ILLEGAL	0	The Device is not supported.

compareFirmwareVersion Method

Type

void compareFirmwareVersion(String firmwareFileName, INT result) throws JPOSException;

Remarks

The Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

resetStatistics Method

Type

void resetStatistics(String statisticsBuffer) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

retreveStatistics Method

Type

void retreveStatistics(String StatisticsBuffer) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

updateFirmware Method

Type

void updateFirmware(String firmwareFileName) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

updateStatistics Method

Type

void updateStatistics(String statisticsBuffer) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

[Specific Methods]

clearText Method

Type

void clearText () throws JPOSException;

Remarks

This method clears the current window to blanks, and sets the CursorRow property and the CursorColumn property to "0". The viewport moves to the beginning of the window. All bitmaps on the window are also cleared. In Immediate mode or Teletype mode, the viewport is also cleared immediately.

In Marquee Init mode, the viewport is not changed.
In Marquee On mode, use of this method is prohibited.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

Refer to

displayText method

displayText Method

Type

void displayText (String data, int atribute) throws JPOSException;

Parameter	Description
data	Character strings to be displayed
attribute	Display attribute: either of DISP_DT_NORMAL, DISP_DT_BLINK, DISP_DT_REVERSE, or DISP_DT_BLINK_REVERSE

Remarks

Character strings specified by the data parameter is displayed from the position specified by CursorRow and CursorColumn. Displaying the characters contines to the next row when the end of a window row is reached. If there are still characters to be displayed when the end of the window is reached, the window is scrolled upward by one row.
If the CursorUpdate property is TRUE, the CursorRow property and the CursorColumn property are updated to point to the character position following the last character of data.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

displayTextAt Method

Type

void displayTextAt (int row, int column,String data, int attribute) throws JPOSException;

Parameter	Description
row	Start row for text
column	Start column for text
data	Character string to display
attribute	Display attribute: either of DISP_DT_NORMAL, DISP_DT_BLINK, DISP_DT_REVERSE, or DISP_DT_BLINK_REVERSE

Remarks

Character strings specified by the Data parameter is displayed from the position specified by the Row and Column parameters. The result is the same when the Row parameter is set to the CursorRow property and the Column parameter is set to the CursorColumn property and the displayText method is called.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

scrollText Method

Type

void scrollText (int direction, int units) throws JPOSException;

The Direction parameter indicates the following scrolling directions.

Value	Meaning
DISP_ST_UP	Scrolls the window upward.
DISP_ST_DOWN	Scrolls the window downward.
DISP_ST_LEFT	Scrolls the window to the left.
DISP_ST_RIGHT	Scrolls the window to the right.

The Units parameter indicates the number of columns or rows to scroll.

Remarks

This method scrolls the current window. This scrolling does not influence the CursorRow and CursorColumn properties.

The scrollText method is only used in Immediate mode.

If the window size in the scroll direction is the same as its viewport size, the window data is scrolled, the last units rows or last units columns are set to spaces, and the viewport is updated. If the window contains bitmap data, it is also scrolled.

If the window size in the scroll direction is larger than its viewport, the window data is not changed. Instead, the mapping of the window into the viewport is moved in the specified direction. The window data is not changed, but the viewport is updated. If scrolling by units would go beyond the beginning of the window data, the window is scrolled in a manner so that the first viewport row or column contains the first window row or column. If scrolling by units would go beyond the end of the window data, the window is scrolled in a manner so that the last viewport row or column contains the last window row or column.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

clearDescriptors Method

Type

void clearDescriptors () throws JPOSException;

Remarks

This method turns off all descriptors.
If the CapDescriptors property is FALSE, this method is disabled.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

setDescriptor Method

Type

void setDescriptor (int descriptor, int attribute) throws JPOSException;

The Descriptor parameter indicates a descriptor of which state is to be changed. The effective range is from "0" to (DeviceDescriptors-1). The Attribute parameter sets the following descriptor values.

Value	Meaning
DISP_SD_ON	Turns the descriptor on.
DISP_SD_BLINK	Sets the descriptor to blink.
DISP_SD_OFF	Turns the descriptor off.

Remarks

Sets a state of one of the descriptors which are small indicators with a fixed label.
This function is disabled if CapDescriptors is FALSE.
The physical position of the descriptor specified by the Descriptor parameter is set between the Device and its Device Service.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

createWindow Method

Type

void createWindow (int viewportRow, int viewportColumn,int viewportHeight, int viewportWidth,int windowHeight, int windowWidth) throws JPOSException;

Parameter	Description
viewportRow	Viewport's start device row
viewportColumn	Viewport's start device column
viewportHeight	Number of device rows in the viewport
viewportWidth	Number of device columns in the viewport
windowHeight	Logical number of rows in the window
windowWidth	Logical number of columns in the window

Remarks

Creates a viewport over the physical position of the display given by the ViewportRow, viewportColumn, viewportHeight, or viewportWidth parameter . The window size is specified by the WindowHeight and WindowWidth parameters. The effective window row range is from "0" to (windowWidth-1) and the effective window column range is from "0" to (windowWidth-1).
The window size must be at least as large as the physical viewport size allocated on the display. The window size can be larger than the viewport size in one direction. Using the window marquee properties, that is, MarqueeType, MarqueeFormat, MarqueeUnitWait, and MarqueeRepeatWait, such a window can be continuously scrolled in a marquee fashion.
When the window is created, the createWindow method sets a window number assigned to this window to the CurrentWindow property. The following properties are maintained for each window, and are initialized as given:

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

destroyWindow Method

Type

void destroyWindow () throws JPOSException;

Remarks

Deletes the current window. The characters being displayed are not changed.
The CurrentWindow property is set to Window 0. Properties associated with the device window are updated.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

refreshWindow Method

Type

void refreshWindow (int window) throws JPOSException;
The Window parameter specifies the window number to be refreshed.

Remarks

This method changes the current window to the window specified by the Window parameter, and redisplays its previous data. Neither the mapping of the window to its viewport nor the window's cursor position is changed.
This method is used to restore a window after other window has overwritten some of its viewport.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

defineGlyph Method

Type

void defineGlyph(int glyphCode, int(byte[]) glyph) throws JPOSException;

Parameter	Description
glyphCode	Character code to be defined
glyph	Data to define glyph

Remarks

The Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

readCharacterAtCursor Method

Type

void readCharacterAtCursor(int[] cursorData) throws JPOSException;

Parameter	Description
cursorData	Characters read from the display

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

displayBitmap Method

Type

void displayBitmap(String Filename, int width, int alignmentX, int alignmentY)
throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

setBitmap Method

Type

void setBitmap(int bitmapNumber, string fileName, int Width, int alignmentX, int alignmentY) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

1.2.5.3 directIO Method Specifications

Syntax: directIO(int command, int[] data, Object object) throws JposException;
This Control supports the following extension functions using the DirectIO method.

Command	Function
DISP_DIO_COUNTRYCODE	Country code setting

(1) Country Code Setting

Function Sets a country code to the Device.

Type

Parameter	Description
Command	DISP_DIO_COUNTRYCODE
pData	Country code
pString	Not used (Specify empty string (“”).)

Remarks Requirement: open, Claim, DeviceEnabled=TRUE
Sets a country code to the Device.

Country Code List

Country Code	Country	Country Code	Country
0	US	10	Denmark 2
1	France	11	Spain 2
2	Germany	12	Latin America
3	UK	13	East Europe
4	Denmark 1	14	Iceland
5	Sweden	15	Greek
6	Italy	16	Greek 2
7	Spain 1	17	Cyrillic
8	Japan	99	Japan 2
9	Norway		

Note The country code is restored while the Device is enabled.
After the country code is changed, characters being displayed are also changed for the new country code.

Exception One of the following is stored to the ErrorCode property.

Value	Meaning
JPOS_E_CLOSED	The Device has been closed.
JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.
JPOS_E_DISABLED	The Device has been disabled.
JPOS_E_OFFLINE	The Device power is not turned on or the Device is not connected.
JPOS_E_ILLEGAL	Invalid country code
JPOS_E_NOHARDWARE	The power was shut down.
JPOS_E_TIMEOUT	A specified timeout period expired.
JPOS_E_FAILURE	Communication error

1.2.6 Event Specifications

This Device Service throws no event.

1.2.7 Exception Specifications

1.2.7.1 Exceptions Thrown by Methods

This Device Service throws the following exceptions when methods are invoked

1) Results When Methods Other Than open and DirectIO Are Executed

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
open	JPOS_E_NOEXIST –	XML description for the name of the file to be opened does not exist.	Check the name of the file to be opened.
	JPOS_E_ILLEGAL –	The Device has been open.	–
		Other errors occurred.	Investigate the error
claim	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_CLAIMED -	Recognition of the exclusive access failed.	Try again after other application releases the exclusive access.
	JPOS_E_ILLEGAL -	The CheckHealth method of POS_CH_INTERACTIVE level is being executed.	Try again after the CheckHealth method is completed.
		Startup of the thread failed.	Investigate the error.
		When opening the Device, an invalid parameter was specified.	Investigate the error.
		Other errors occurred.	Investigate the error
	JPOS_E_TIMEOUT -	While waiting for other application to release the exclusive access to the Device, a specified timeout (milliseconds) period expired.	Try again after other application releases the exclusive access.
	JPOS_E_NOHARDWARE -	When opening the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_FAILURE -	When opening the Device, an error occurred.	Investigate the error. (LIUST-A10 is not supported)
release	JPOS_E_CLOSED -	The Device has been closed.	–
	JPOS_E_ILLEGAL -	The application does not have the exclusive access to the target Device.	–
		The CheckHealth method of POS_CH_INTERACTIVE level is being executed.	Try again after the CheckHealth method is completed.
		Other errors occurred.	Investigate the error
close	JPOS_E_CLOSED -	The Device has been closed.	–
	JPOS_E_ILLEGAL -	The CheckHealth method of POS_CH_INTERACTIVE level is being executed.	Try again after the CheckHealth method is completed.
		Other errors occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
checkHealth	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The specified health check level is illegal.	Specify a valid health check level.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (LIUST-A10 is not supported)
compareFirmware Version	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_
updateFirmware	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_
resetStatistics	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_
retrieveStatistics	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_
updateStatistics	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
displayText	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The specified attribute is illegal.	Specify a valid attribute.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILUER -	While communicating with the Device, an error occurred.	Investigate the error. (LIUST-A10 is not supported)
displayTextAt	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The specified attribute is illegal.	Specify a valid attribute.
		The specified row or column is illegal.	Specify a valid row or column.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (LIUST-A10 is not supported)

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
clearText	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (LIUST-A10 is not supported)
scrollText	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid direction was specified.	Specify a valid direction.
		An invalid units was specified.	Specify a valid units.
		The current window is in Teletype mode.	Try again after setting the InterCharacterWait property to “0”.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (LIUST-A10 is not supported)

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
setDescriptor	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid descriptor was specified.	Specify a valid descriptor.
		An invalid attribute was specified.	Specify a valid attribute.
		The Device does not support the method.	—
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (LIUST-A10 is not supported)
clearDescriptors	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (LIUST-A10 is not supported)
createWindow	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid parameter was specified.	Specify a valid parameter.
		Other errors occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
destroyWindow	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	Window number is set to “0”. This window cannot be deleted.	Try again after setting the CurrentWindow property to a value other than “0”.
		Obtaining information of the current window failed.	Investigate the error.
		Other errors occurred.	Investigate the error
refreshWindow	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid window was specified.	Specify a valid window.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (LIUST-A10 is not supported)
readCharacterAtCursor	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error
defineGlyph	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error
displayBitmap	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
setBitmap	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error

3) Results When The DirectIO Method Is Executed

Because the result of the DirectIO method varies depending on each command, the DirectIO method is separately described from others.

Command	ErrorCode	Meaning	Error Handling
All	JPOS_E_CLOSED	The Device has been closed.	Try again after executing the open method.
	JPOS_E_ILLEGAL	The command is illegal.	Specify a valid command.
DISP_DIO_COUNTRYCODE	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL	The country code is invalid.	Specify a valid country code.
	JPOS_E_NOHARDWARE	The Device power is not turned on or the Device is not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT	A communication timeout with the Device expired.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILURE	A communication error with the Device occurred.	Investigate the error. (LIUST-A10 is not supported)

1.2.7.2 Exceptions Thrown by Property Setting

This Device Service throws the following exceptions when property settings are performed.
Common Results for All Properties and Results Specific to Each Property

Property	ErrorCode	Meaning	Error Handling
All properties	JPOS_E_CLOSED	The Device has been closed.	Perform a setting again after executing the open method.
DeviceEnabled	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Perform a setting again after executing the Claim method.
	JPOS_E_NOHARDWARE	The Device power is not turned on or the Device is not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
PowerNotify	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
	JPOS_E_ILLEGAL	Since CapPowerReporting is invalid, this cannot be set.	―
BlinkRate	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
	JPOS_E_ILLEGAL	Since CapBlinkRate is false, this cannot be set.	―
DeviceBrightness	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Perform a setting again after executing the Claim method.
	JPOS_E_DISABLED	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL	The invalid value, which is not within a range from 0 to 100, was specified.	Specify a valid value (0 to 100).
		Since CapDeviceBrightness is invalid, this cannot be set.	―
	JPOS_E_NOHARDWARE	The Device power is not turned on or the Device is not connected.	Check the Device power or Device connection. (LIUST-A10 is not supported)
	JPOS_E_TIMEOUT	A communication timeout with the Device expired.	Investigate the error. (LIUST-A10 is not supported)
	JPOS_E_FAILURE	A communication error with the Device occurred.	Investigate the error. (LIUST-A10 is not supported)
CharacterSet	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Perform a setting again after executing the Claim method.
	JPOS_E_DISABLED	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL	An invalid parameter value was specified.	Specify a valid parameter value.
		Since CapCharacterSet is invalid, this cannot be set.	―
MapCharacterSet	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
CurrentWindow	JPOS_E_ILLEGAL	An invalid window value was specified.	Specify a valid value.
CursorRow	JPOS_E_ILLEGAL	An invalid cursor row value was specified.	Specify a valid value.
CursorColumn	JPOS_E_ILLEGAL	An invalid cursor column value was specified	Specify a valid value.
CursorType	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
	JPOS_E_ILLEGAL	Since CapCharacterSet is invalid, this cannot be set.	―

Property	ErrorCode	Meaning	Error Handling
MarqueeType	JPOS_E_ILLEGAL	An invalid value was specified.	Specify a valid value.
		The property setting was performed for Window number 0.	MarqueeType property cannot be set for Window number 0. Perform a setting again after setting the CurrentWindow property to a value other than “0”.
		The window size is illegal.	Perform a setting after checking the window size.
		Since CapHMarquee is false, this cannot be set.	―
		Since CapVMarquee is false, this cannot be set.	―
MarqueeFormat	JPOS_E_ILLEGAL	An invalid value was specified.	Specify a valid value.
		The property setting was performed for Window number 0.	MarqueeType property cannot be set for Window number 0. Perform a setting again after setting the CurrentWindow property to a value other than “0”.
ScreenMode	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
	JPOS_E_ILLEGAL	Since CapScreenMode is false, this cannot be set.	―

1.2.8 Setting Information

Setting information of this Device Service is set in the XML file called "jpos.xml".
The <prop> tag in the XML file is a setting item specific to this Device. For details of other tags, <creation>, <vendor>, <jpos>, and <product>, refer to the UPOS Specification.
In order that the service to open may recognize that it is this device service, the "name" property of a product tag is used. Therefore, please specify this property as the following setting.

```
<JposEntries>
    <JposEntry logicalName="LineDisplayLogicalName">
        <creation factoryClass="jpos.toshibatec.loader.linedisplay.JavaPOSServiceFactory"
            serviceClass="jpos.toshibatec.linedisplay.services.LineDisplayService"/>
        <vendor name="TOSHIBA TEC Corporation" url="http://www.toshibatec.co.jp"/>
        <jpos category="LineDisplay" version="1.11"/>
        <product description=" TEC LUIST-A10 Serial LineDisplay"
            name="TECLineDisplay" url="http://www.toshibatec.co.jp"/>

        <prop name="portName" type="String" value="{port name}"/>
        <prop name="baudRate" type=" String " value="{baud rate}"/>
        <prop name="countryCode" type="String" value="{country code}"/>
        <prop name="deviceBus" type="String" value="{device type}"/>
        <prop name="modelName" type="String" value="{model name}"/>
    </JposEntry>
```

Item Name	Value
JposEntry logicalName	The logic device name of the service to be used. (Arbitrary names) It corresponds with logicalDeviceName of an Open method.
product name	A property for the service to open to recognize that it is this device service. (Note) If it changes, it will not operate. Setting a fixed value : “TECLineDisplay”
portName	Connection port name. [Default value: COM4] (Windows) Select a value from COM1 to COM10. (Linux) Select a value from /dev/ttyS0 to /dev/ttyS9.
baudRate	Baud rate [Default value: 9600] Only 9600 is supported with this device service.
countryCode	Country code [Default value: 2] Depending on a country code setting, a part of the ASCII characters are changed to the characters specific to each country or for business uses. Optimal characters are selected for each country 0 US 10 Denmark 2 1 France 11 Spain 2 2 Germany 12 Latin America 3 UK 13 East Europe 4 Denmark 1 14 Iceland 5 Sweden 15 Greek 6 Italy 16 Greek2 7 Spain 1 17 Cyrillic 8 Japan 99 Japan 2 9 Norway
deviceBus	device type [Default value: RS232C] RS232C,(USB,PARALLEL) Only RS232C is supported with this device service.
modelName	model name [Default value: LIUST-A10] Only LIUST-A10 is supported with this device service.

Table 11 LineDisplay JavaPOS Device –Setting Information List

1.2.9 Limitations and Precautions

This section describes the limitations and precautions for using this Device Service, including the differences from the UPOS Specifications.

1) Descriptor

The LIUST-A10 supports in total of 20 descriptors.
The numbers 0, 1, 2, 3, 4 to 19 are assigned to the descriptors respectively starting from the descriptor on your left. The Descriptor parameter of the SetDescripter method uses these numbers to control ON/OFF of each descriptor.
When DISP_SD_BLINK is specified by the Attribute parameter, an OPOS_E_ILLEGAL error will result. (Blinking is not supported.)

2) Brightness in Percentage and Brightness of Physical Device

DeviceBritness Property Value n	Brightness of LIUST-A10 (Physical Device)
0	0%
1 to 20	20%
21 to 40	40%
41 to 60	60%
61 to 80	80%
81 to 100	100%

Table 12 LIUST-A10 Line Display - Brightness

3) Character Set for Each Country Code

The LIUST-A10 provides characters for each country.
Graphic characters are assigned to the twelve ASCII characters (23H, 24H, 40H, 5BH to 5EH, 60H, 7BH to 7EH) for each country and for business uses.
The Japan 2 code can display the Kana characters.

Country Code	Country	Country Code	Country
0	US	10	Denmark 2
1	France	11	Spain 2
2	Germany	12	Latin America
3	UK	13	East Europe
4	Denmark 1	14	Iceland
5	Sweden	15	Greek
6	Italy	16	Greek 2
7	Spain 1	17	Cyrillic
8	Japan	99	Japan 2
9	Norway		

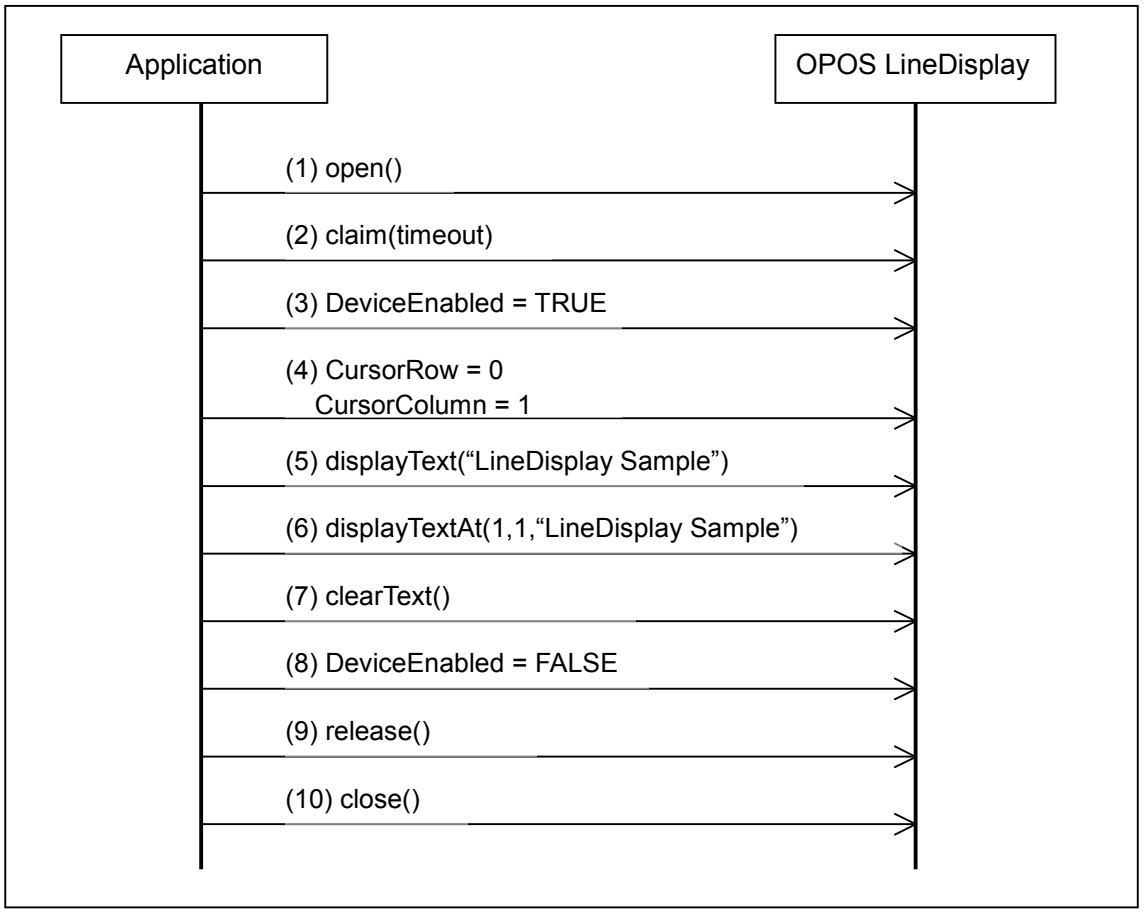
Table 13 LIUST-A10 Line Display - CountryCode

1.2.10 Usage Example

This section describes a usage example of each function of this Device Service.

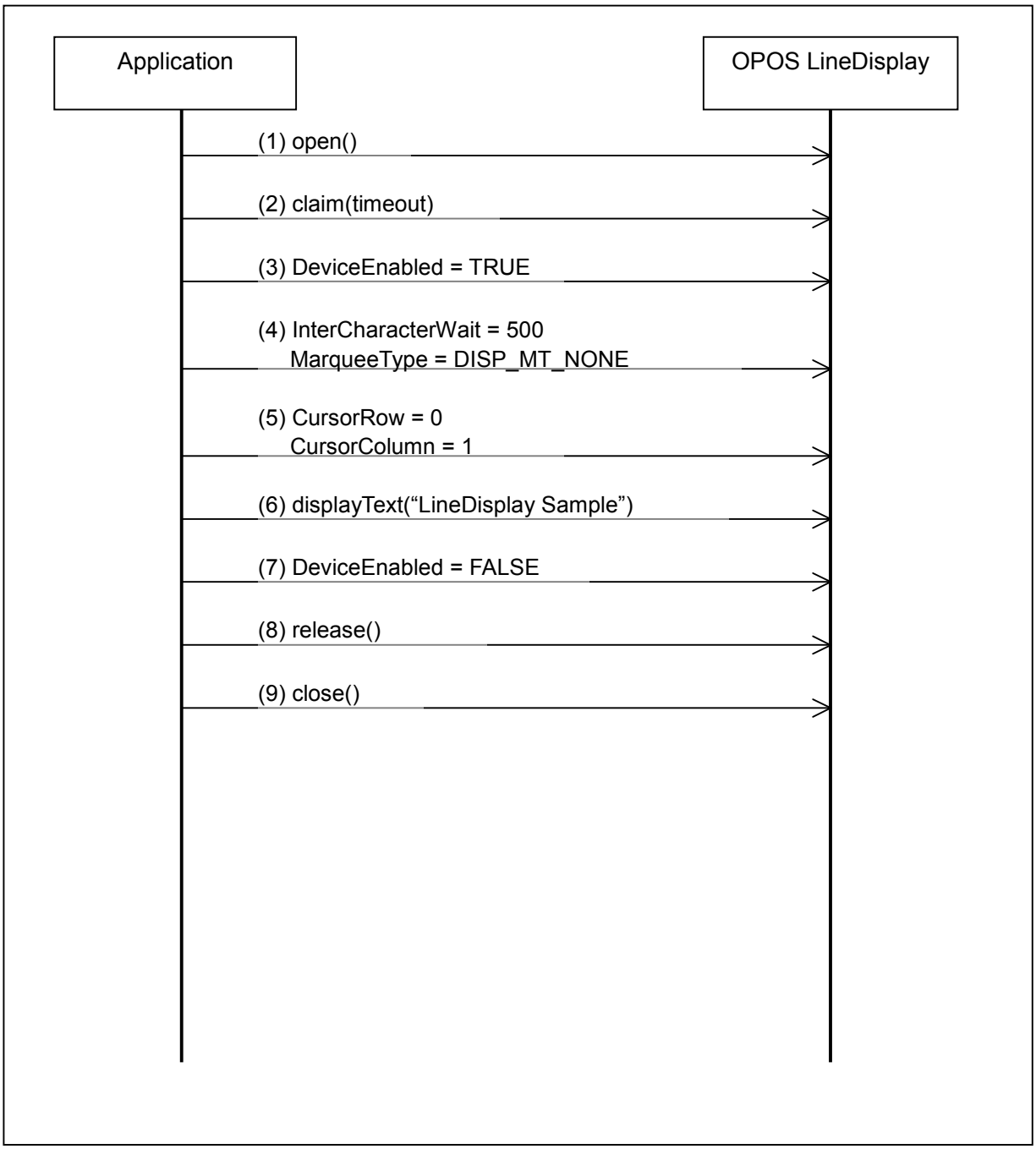
1.2.10.1 Display and Deletion of Characters

(1) Execute open() to open the LineDisplay Control.
(2) Execute claim(timeout) and obtain an exclusive access.
(3) Set the DeviceEnabled property to TRUE to enable the Device.
(4) Set the CursorRow property to “0” and the CursorColumn property to “1” to determine a cursor position.
(5) Execute displayText(“LineDisplay Sample”) to display a character string from the cursor position.
(6) Execute displayTextAt(1, 1,”LineDisplay Sample”) to display a character string from the second character of the second row.
(7) Execute clearText() to delete all characters within the window.
(Any bitmaps within the window are also deleted.)
(8) Set the DeviceEnabled property to FALSE to disable the Device.
(9) Execute release() to release the exclusive access.
(10) Execute close() to close the LineDisplay control.



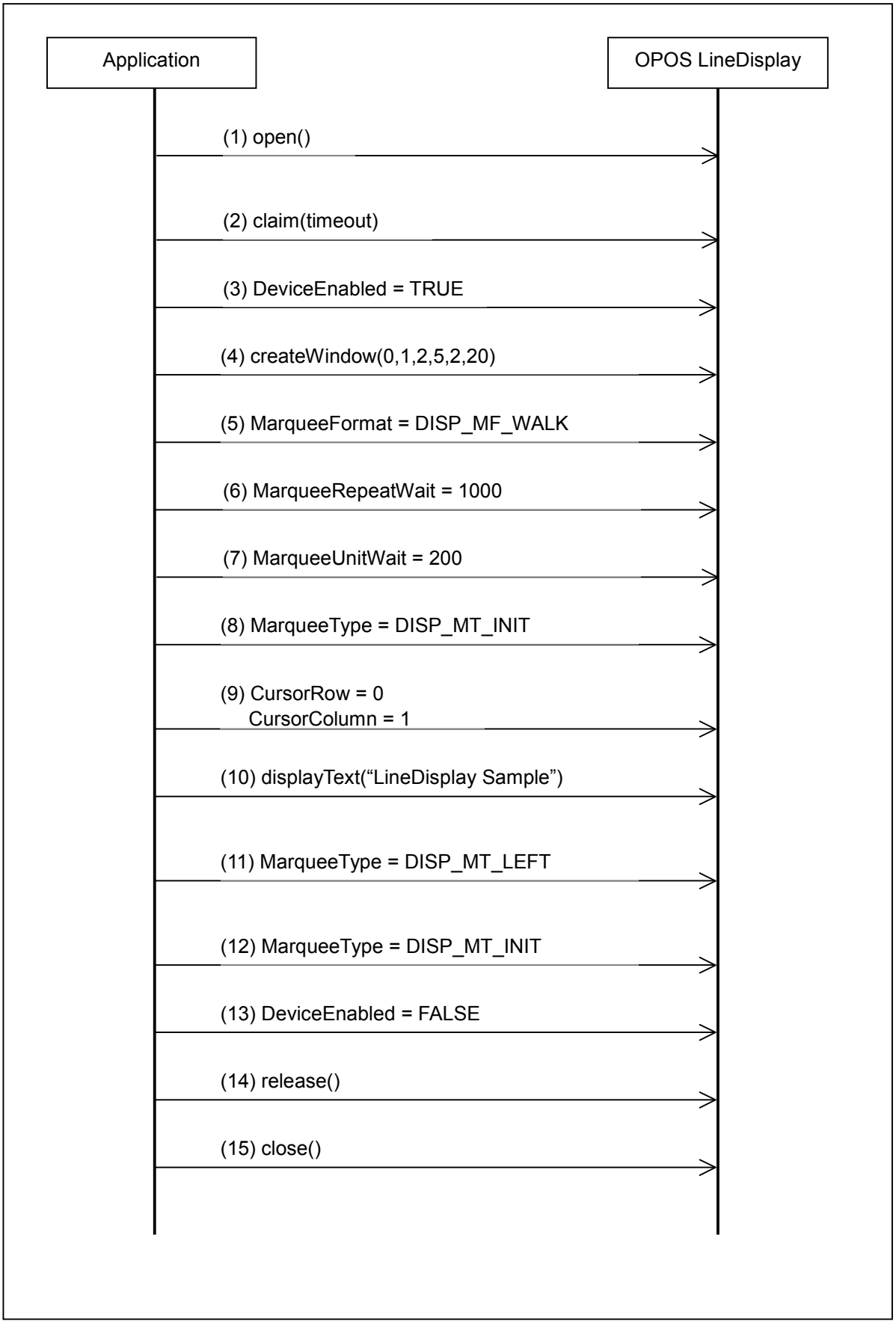
1.2.10.2 Teletype Display

(1) Execute open() to open the LineDisplay Control.
(2) Execute claim(timeout) and obtain an exclusive access.
(3) Set the DeviceEnabled property to TRUE to enable the Device.
(4) Set the InterCharacterWait property to “500” and the MarqueeType property to DISP_MT_NONE to enter Teletype Display mode.
(5) Set the CursorRow property to “0” and the CursorColumn property to “1” to determine a cursor position.
(6) Execute displayText(“LineDisplay Sample”) to display a character string from the cursor position in Teletype mode.
(7) Set the DeviceEnabled property to FALSE to disable the Device.
(8) Execute release() to release the exclusive access.
(9) Execute close() to close the LineDisplay control.



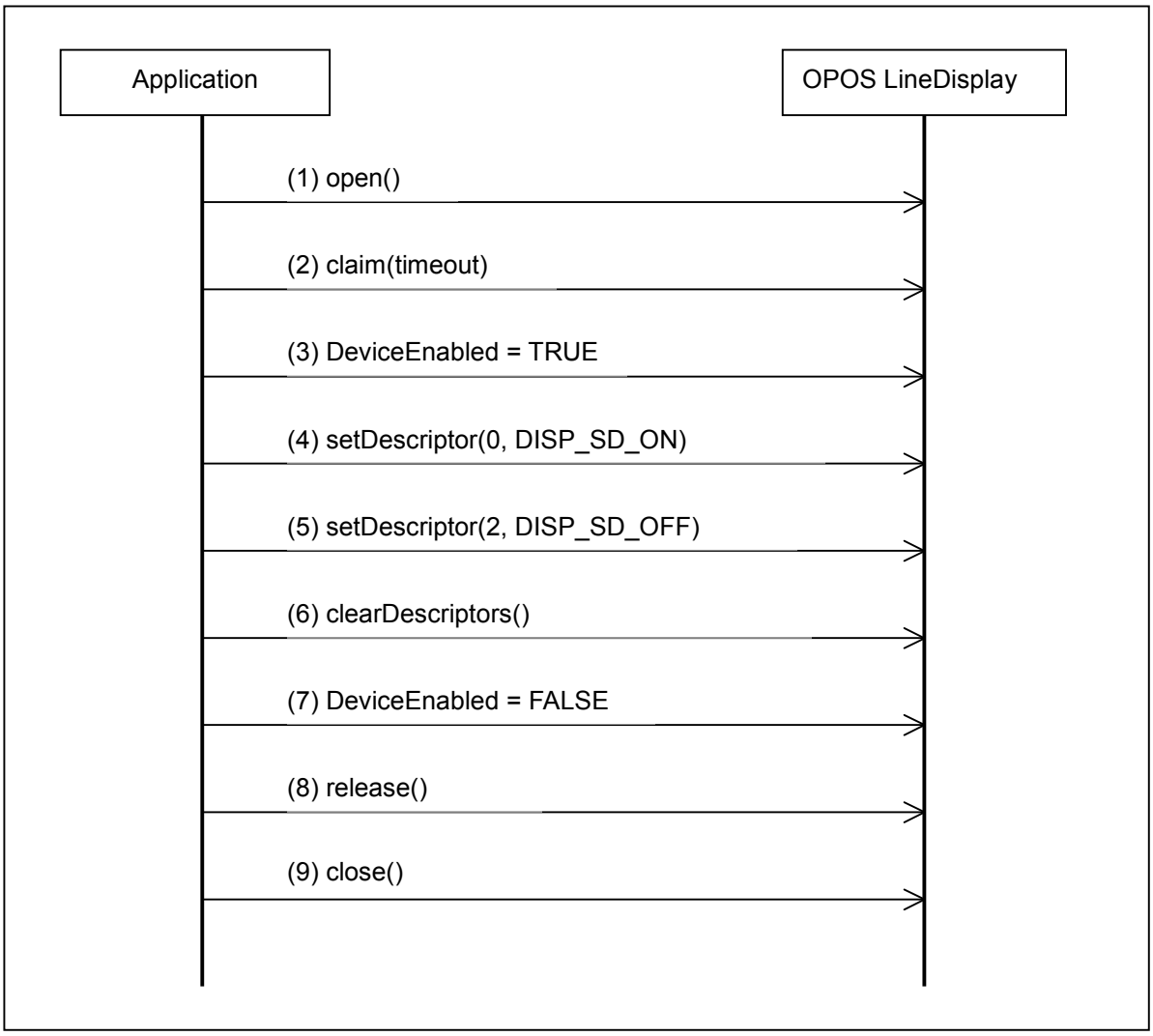
1.2.10.3 Marquee Scrolling

(1) Execute open() to open the LineDisplay Control.
(2) Execute claim(timeout) and obtain an exclusive access.
(3) Set the DeviceEnabled property to TRUE to enable the Device.
(4) Execute createWindow(0, 1, 2, 5, 2, 20) to create a window to be marquee scrolled.
(5) Set the MarqueeFormat property to DISPL_MT_WALK and determine a type of marquee scrolling.
(6) Set the MarqueeRepeatWait property to “1000” to determine a wait time between marquee scrolling.
(7) Set the MarqueeUnitWait property to “200” to determine a wait time between marquee scrolling of each column or row.
(8) Set the MarqueeType property to DISP_MT_INIT to enter marquee preparation mode.
(9) Set the CursorRow property to “0” and the CursorColumn property to “1” to determine a cursor position.
(10) Execute displayText(“LineDisplay Sample”) to display a character string from the cursor position in the window.
(11) Set the MarqueeType property to DISP_MT_LEFT to enter Marquee On mode.
(12) Set the MarqueeType property to DISP_MT_INIT to exit from marquee mode.
(13) Set the DeviceEnabled property to FALSE to disable the Device.
(14) Execute release() to release the exclusive access.
(15) Execute close() to close the LineDisplay control.


Application
OPOS LineDisplay
(1) open()
(2) claim(timeout)
(3) DeviceEnabled = TRUE
(4) createWindow(0,1,2,5,2,20)
(5) MarqueeFormat = DISP_MF_WALK
(6) MarqueeRepeatWait = 1000
(7) MarqueeUnitWait = 200
(8) MarqueeType = DISP_MT_INIT
(9) CursorRow = 0
CursorColumn = 1
(10) displayText(“LineDisplay Sample”)
(11) MarqueeType = DISP_MT_LEFT
(12) MarqueeType = DISP_MT_INIT
(13) DeviceEnabled = FALSE
(14) release()
(15) close()

1.2.10.4 Descriptor

(1) Execute open() to open the LineDisplay Control.
(2) Execute claim(timeout) and obtain an exclusive access.
(3) Set the DeviceEnabled property to TRUE to enable the Device.
(4) Execute setDescriptor(0, DISP_SD_ON) to turn Descriptor No. 0 on.
(5) Execute setDescriptor(2, DISP_SD_OFF) to turn Descriptor No. 2 off.
(6) Execute clearDescriptors() to turn all descriptors off.
(7) Set the DeviceEnabled property to FALSE to disable the Device.
(8) Execute release() to release the exclusive access.
(9) Execute close() to close the LineDisplay control.



1.3 TEC LineDisplay JavaPOS Device [“LIUST-53”]

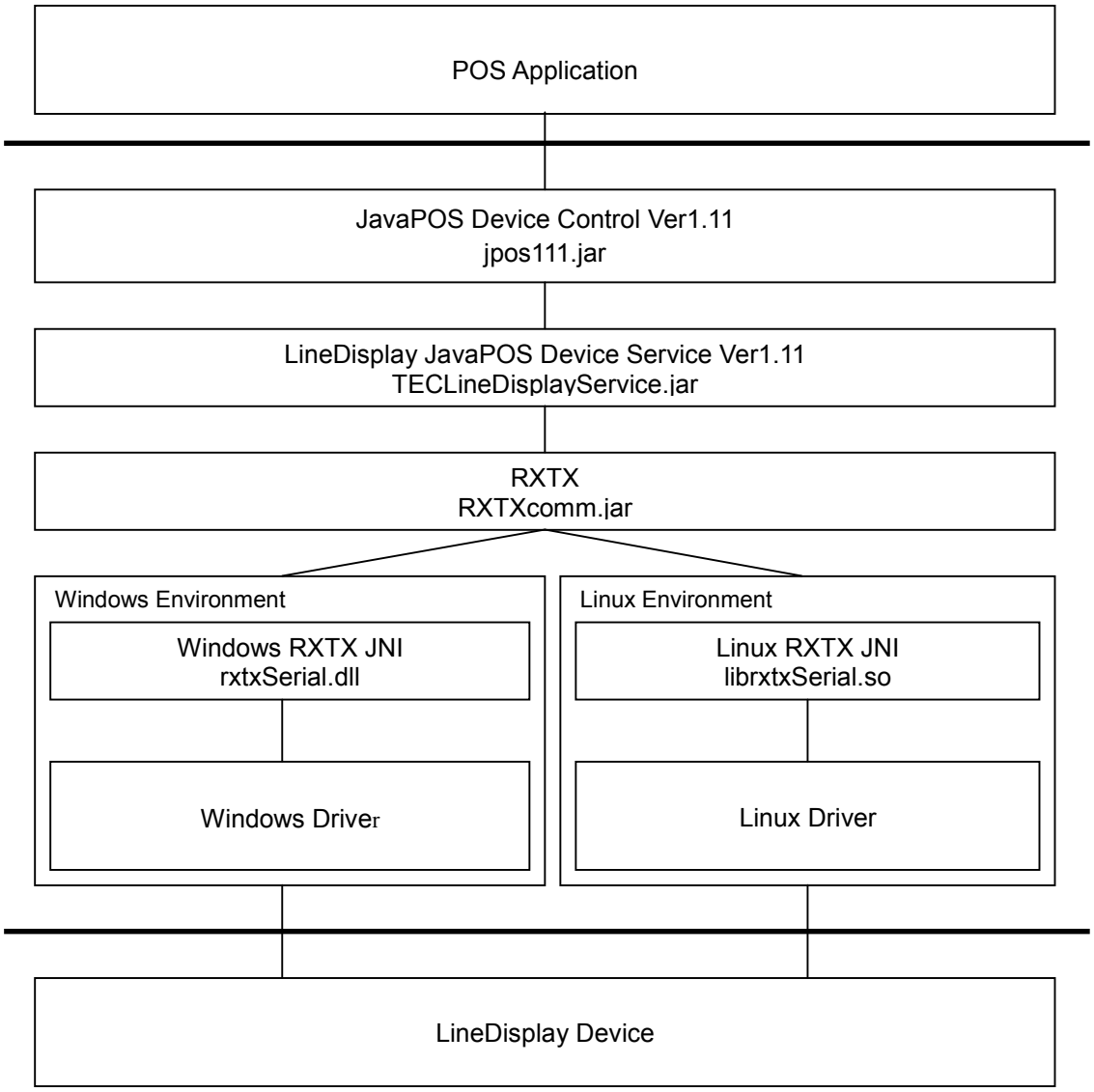
1.3.1 Supported Device

The LIUST-53 Serial LineDisplay of this Device Service supports the following devices provided by Toshiba TEC.

- LineDisplay device attached to the ST-B20
  LIU-ST53

1.3.2 Architecture Structure

The LineDisplay JavaPOS Device uses some software to perform functions.
The software components shown below are required to build an execution environment.



1.3.3 Supported Functions

Supported/not supported functions by the LIUST-53 Serial LineDisplay Device Service are as follows:

1.3.3.1 Common Properties

Function	Property	UPOS Ver.	Supported or Not
Power status notification	CapPowerReporting	1.3	Not supported
Accumulation of statistics	CapStatisticsReporting	1.8	Not supported
Update of statistics	CapUpdateStatistics	1.8	Not supported
Update of firmware	CapUpdateFirmware	1.9	Not supported
Comparison of firmware version	CapCompareFirmwareVersion	1.9	Not supported

Table 14 LineDisplay JavaPOS Device – Supported Functions (Common Properties)

1.3.3.2 Specific Properties

Function	Property	UPOS Ver.	Supported or Not
Blinking of each character/device	CapBlink	1.0	Supported
Display of bitmaps	CapBitmap	1.7	Supported
Selection of blink rate	CapBlinkRate	1.6	Not supported
Device's brightness control	CapBrightness	1.0	Supported
Selection of displayable character set	CapCharacterSet	1.5	Supported
Selection of cursor type	CapCursorType	1.8	Supported
Selection of custom glyphs	CapCustomGlyph	1.6	Supported
Of/off of descriptors	CapDescriptors	1.0	Not supported
Horizontal marquee scrolling	CapHMarquee	1.0	Supported
Intercharacter wait	CapICharWait	1.0	Supported
Mapping of characters	CapMapCharacterSet	1.7	Not supported
Read back of data displayed	CapReadBack	1.6	Not supported
Reverse video of each character/device	CapReverse	1.6	Supported
Change of screen mode	CapScreenMode	1.7	Supported
Vertical marquee scrolling	CapVMarquee	1.0	Supported

Table 15 LineDisplay JavaPOS Device – Supported Functions (Specific Properties)

1.3.3.3 Others

Function	UPOS Ver.	Supported or Not
Blinking of descriptor	1.0	Not supported
Display mode	1.0	Supported
Escape sequence	1.8	Not supported

Table 16 LineDisplay JavaPOS Device – Supported Functions (Others)

1.3.3.4 Extended Functions (DirectIO)

Function	UPOS Ver.	Supported or Not
Country code setting	-	Supported

Table 17 LineDisplay JavaPOS Device – Supported Functions (DirectIO)

1.3.4 Property Specifications

1.3.4.1 Initial Value of LIUST-53 Serial LineDisplay Properties (when opening the Service)

Common Property	Mutability	Value
AutoDisable		Not applicable
CapCompareFirmwareVersion	R	false
CapPowerReporting	R	JPOS_PR_NONE
CapStatisticsReporting	R	false
CapUpdateFirmware	R	false
CapUpdateStatistics	R	false
CheckhealthText		“” (empty string)
Claimed		false
DataCount		Not applicable
DataEventEnabled		Not applicable
DeviceEnabled		false
FreezeEvents		false
OutputID	R	Not applicable
PowerNotify		JPOS_PN_DISABLED
PowerState		JPOS_PS_UNKNOWN
State		JPOS_S_IDLE
DeviceControlDescription		“JavaPOS LineDisplay Device Control”
DeviceControlVersion		“1011000”
DeviceServiceDescription		“TEC JavaPOS LineDisplay Device Service”
DeviceServiceVersion		“1011XXX” **(*1)**
PhysicalDeviceDescription		“LIUST-53 Serial Line Display”
PhysicalDeviceName		“LIUST-53”
Specific Property	**Mutability**	**Value**
CapBlink	R	DISP_CB_BLINKEACH
CapBitmap	R	true
CapBlinkRate	R	false
CapBrightness	R	true
CapCharacterSet	R	DISP_CCS_ASCII
CapCursorType	R	(DISP_CCT_UNDERLINE | DISP_CCT_BLINK)
CapCustomGlyph	R	true
CapDescriptors	R	false
CapHMarquee	R	true
CapICharWait	R	true
CapMapCharacterSet	R	false
CapReadBack	R	DISP_CRB_NONE
CapReverse	R	DISP_CR_REVERSEEACH
CapScreenMode	R	true
CapVMarquee	R	true
BlinkRate		360**(*2)**
CharacterSet		DISP_CS_ASCII
CharacterSetList		“998,932,850,852”
Columns		42
CurrentWindow		0
CursorColumn		0
CursorRow		0
CursorType		DISP_CT_NONE
CursorUpdate		true
CustomGlyphList		“20-FF”
DeviceBrightness		100
DeviceColumns	R	42
DeviceDescriptors	R	0
DeviceRows	R	8
DeviceWindows	R	999
GlyphHeight	R	7
GlyphWidth	R	5
InterCharacterWait		0

Specific Property (continued)	Mutability	Value
MapCharacterSet	R	false
MarqueeFormat		DISP_MF_WALK
MarqueeRepeatWait		0
MarqueeType		DISP_MT_NONE
MarqueeUnitWait		0
MaximumX	R	256
MaximumY	R	64
Rows		8
ScreenMode		0
ScreenModeList	R	“8x42,3x32,2x20,4x32”

(*1) Build version is indicated as “XXX” because this manual may not be revised as soon as the module is updated.
(*2) These property values do not change due to the limitations of the Device.

Table 18 LineDisplay JavaPOS Device – Property Initial Value List (in part)

1.3.4.2 Details of Properties

[Common Properties]

AutoDisable Property

Type

boolean AutoDisable;

Mutability

Read / Write

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCompareFirmwareVersion Property

Type

boolean CapCompareFirmwareVersion;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
Usually set to TRUE, when the Service/Device supports the function to compare firmware version number and a firmware version can be upgraded.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapPowerReporting Property

Type

boolean CapPowerReporting;

Mutability

Read Only

Remarks

Always set to JPOS_PR_NONE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapStatisticsReporting Property

Type

boolean CapStatisticsReporting;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
UPOS sets this property to TRUE when the function to report various statistics such as product life is supported.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapUpdateFirmware Property

Type

boolean CapUpdateFirmware;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
UPOS sets this property to TRUE when the function to update a firmware via the UPOS is supported.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapUpdateStatistics Property

Type

boolean CapUpdateStatistics;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
UPOS sets this property to TRUE when the function to collect statistics is supported and the statistics can be reset.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CheckHealthText Property

Type

String CheckHealthText;

Mutability

Read Only

Remarks

Holds the result of the most recent call to the CheckHealth method.
A CheckHealth property value is initialized to empty string by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Claimed Property

Type

boolean Claimed;

Mutability

Read Only

Remarks

If TRUE, an exclusive access to the Device has been obtained.

If FALSE, the Device is released for sharing with other applications. In many cases, an access to methods and properties and an occurrence of events are allowed after an exclusive access to the Device is obtained.

A **Claimed** property value is initialized to FALSE by the **open** method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DataCount Property

Type

int DataCount;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DataEventEnabled Property

Type

boolean DataEventEnabled;

Mutability

Read / Write

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceEnabled Property

Type

boolean DeviceEnabled;

Mutability

Read / Write

Remarks

If TRUE, the Device is enabled (in an operational state). Whenever changed to TRUE, the Device is enabled.

If FALSE, the Device is disabled. Whenever changed to FALSE, the Device is disabled and cannot be accessed.

Before using the Device, an application must set this property to TRUE.

This property is initialized to FALSE by the **open** method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Refer to: **PowerNotify property**

FreezeEvents Property

Type

boolean FreezeEvents;

Mutability

Read / Write

Remarks

If TRUE, the Control does not deliver events. The Control holds the events until the FreezeEvents state is cleared.

If FALSE, the Control delivers events. If there are some events which have been held in a **FreezeEvents** state, changing this property to FALSE will allow these events to be delivered.

If an interruption by an event is not desirable, the application can choose whether or not the event is to be frozen.

This property is initialized to FALSE by the **open** method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

OutputID Property

Type

int OutputID;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PowerNotify Property

Type

int PowerNotify;

Mutability

Read / Write

Remarks

Always set to JPOS_PN_DISABLED because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PowerState Property

Type

int PowerState;

Mutability

Read Only

Remarks

Always set to JPOS_PS_UNKNOWN because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

State Property

Type

int State;

Mutability

Read Only

Remarks

Indicates a current state of the Control. Always set to JPOS_S_IDLE.
This property is always readable.

Value	Meaning
JPOS_S_CLOSED	The Control is closed.
JPOS_S_IDLE	The Control is in a normal state and is not busy.
JPOS_S_ERROR	In an error state. The value is read within the ErrorEvent event handler.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceControlDescription Property

Type

String DeviceControlDescription;

Mutability

Read Only

Remarks

This property describes a Device Control class.
This property is always readable.
"JavaPOS LineDisplay Device Control" is set to the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceControlVersion Property

Type

int DeviceControlVersion;

Mutability

Read Only

Remarks

This property indicates the version number of the Device Control class.
This property is always readable.
The version number of the Device is 1011000, which indicates the Device is in accordance with the JPOS 1.11.000.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceServiceDescription Property

Type

String DeviceServiceDescription;

Mutability

Read Only

Remarks

This property describes the Device Service class.
It is "TEC JavaPOS LineDisplay Device Service" for the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceServiceVersion Property

Type

int DeviceServiceVersion;

Mutability

Read Only

Remarks

This property indicates the version number of the Device Service class.
The version number of the Device is ”1011XXX”.
The value, “XXX” indicates a build version, which is incremented from 001.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PhysicalDeviceDescription Property

Type

String PhysicalDeviceDescription;

Mutability

Read Only

Remarks

This property describes a Physical Device.
It is set to “LIUST-53 Serial Line Display” for the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PhysicalDeviceName Property

Type

String PhysicalDeviceName;

Mutability

Read Only

Remarks

This property describes a name of the Physical Device.
It is set to ” TEC LIU-ST53” for the DeviceService.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

[Specific Properties]

CapBlink Property

Type

int CapBlink;

Mutability

Read Only

Remarks

Holds the character blink capability of the Device. It has one of the following values:

Value	Meaning
DISP_CB_NOBLINK	Blinking is not supported.
DISP_CB_BLINKALL	Blinking is supported. The entire contents of the display are either blinking or not blinking.
DISP_CB_BLINKEACH	Blinking is supported. Each character may be individually set to blink.

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapBitmap Property

Type

boolean CapBitmap;

Mutability

Read Only

Remarks

If TRUE, bitmaps are displayed. This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapBlinkRate Property

Type

boolean CapBlinkRate;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapBrightness Property

Type

boolean CapBrightness;

Mutability

Read Only

Remarks

If TRUE, brightness can be controlled.

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCharacterSet Property

Type

int CapCharacterSet;

Mutability

Read Only

Remarks

Indicates the Device's default displayable character sets.

Value	Meaning (Displayable character set)
DISP_CCS_NUMERIC	Numerals 0 to 9, space, minus (' – '"), period (' . ')
DISP_CCS_ALPHA	In addition to displayable characters when DISP_CCS_NUMERIC is selected, uppercase alphabets
DISP_CCS_ASCII	ASCII characters from 0x20 to 0x7F
DISP_CCS_KANA	Partial code page 932, including 1-byte Japanese Kana characters from 0xA1 to 0xDF and all ASCII characters from 0x20 to 0x7F, but excluding Japanese Kanji characters
DISP_CCS_KANJI	Code page 932, including 1-byte Japanese Kana characters from 0xA1 to 0xDF, all ASCII characters from 0x20 to 0x7F, Shift-JIS Kanji characters Levels 1 and 2.
DISP_CCS_UNICODE	Unicode characters

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCursorType Property

Type

int CapCursorType;

Mutability

Read Only

Remarks

Holds the cursor types of the current window. It has one of the following values:

Value	Meaning (Displayable character set)
DISP_CCT_NONE	Cursor is not displayable.
DISP_CCT_FIXED	Certain cursor is always displayed.
DISP_CCT_BLOCK	Cursor is displayable as a block.
DISP_CCT_HALFBLOCK	Cursor is displayable as a halfblock.
DISP_CCT_UNDERLINE	Cursor is displayable as an underline.
DISP_CCT_REVERSE	Cursor is displayable in reverse video.
DISP_CCT_BLINK	A blinking cursor is supported.
DISP_CCT_OTHER	Other types of cursor is displayable.

If DISP_CCT_NONE is set, none of the other values will be set. This is because the cursor is not displayable.

If DISP_CCT_FIXED is set, DISP_CCT_BLINK and only one of the other values is set. This other value indicates the cursor type that is always displayed.

This property is initialized by the open method. As one of the features of the Device, if the ScreenMode property is set to the value other than 1, this property changes to DISP_CCT_NONE. If the ScreenMode property is set to 1, this property is initialized.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCustomGlyph Property

Type

boolean CapCustomGlyph;

Mutability

Read Only

Remarks

If TRUE, the Device allows CustomGlyph to be defined.
If FALSE, the Device does not allow CustomGlyph to be defined.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapDescriptors Property

Type

boolean CapDescriptor;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapHMarquee Property

Type

boolean CapHMarquee;

Mutability

Read Only

Remarks

If TRUE, horizontal marquee scrolling is supported.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapICharWait Property

Type

boolean CapICharWait;

Mutability

Read Only

Remarks

If TRUE, intercharacter wait is supported.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapMapCharacterSet Property

Type

boolean CapMapCharacterSet;

Mutability

Read Only

Remarks

Defines the ability of the Service Object to map the characters of the application to the selected character set when displaying data.
If TRUE, the Device is able to map the characters to the character sets defined in CharacterSetList.
If FALSE, the Device cannot do so.
Always set to FALSE because this function is not supported by the Device.

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Refer to:

PowerNotify property

CapReadBack Property

Type

int CapReadBack;

Mutability

Read Only

Remarks

Always set to “DISP_ CRB_NONE“ because this function is not supported by the Device.

Value	Meaning
DISP_CRB_NONE	Read back is not supported.
DISP_CRB_SINGLE	Read back of a single character at a time is supported.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapReverse Property

Type

int CapReverse;

Mutability

Read Only

Remarks

Holds the reverse video capability of the device. It has one of the following values:

Value	Meaning (Displayable character set)
DISP_CR_NONE	Reverse video is not supported.
DISP_CR_REVERSEALL	Reverse video is supported. The entire contents of the display are either in reverse video or normal.
DISP_CR_REVERSEEACH	Reverse video is supported. Each character may be individually set to reverse video.

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapScreenMode Property

Type

boolean CapScreenMode;

Mutability

Read Only

Remarks

If TRUE, the Device can change the screen mode (for example, the number of text rows and columns on the device).
If FALSE, the Device cannot do so.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapVMarquee Property

Type

boolean CapVMarquee;

Mutability

Read Only

Remarks

If TRUE, vertical marquee scrolling is supported.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

BlinkRate Property

Type

int BlinkRate;

Mutability

Read / Write

Remarks

A blink rate time, a period of cycle time when a displayed text is turned on-off-on, is expressed in milliseconds.
The value changes depending on the Device specification.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CharacterSet Property

Type

int CharacterSet;

Mutability

Read / Write

Remarks

Holds the default character set capability. It has one of the following values:

Value	Meaning
Range from 101 to 199	Device-specific character sets that do not match a code page, ASCII, or Windows ANSI character sets
Range from 400 to 990	Code page; one of the standard values
DISP_CS_UNICODE	UNICODE The value of this constant is 997.
DISP_CS_ASCII	ASCII characters from 0x20 to 0x7F The value of this constant is 998.
DISP_CS_ANSI	ANSI characters The value of this constant is 999.

This property is initialized to an appropriate value when the Device is enabled after the open method is called. This value is supported even when characters which can be set by the CapCharacterSet property is insufficient.

If a character set, which is not supported by the current ScreenMode property, is set, an exception is thrown.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CharacterSetList Property

Type

String CharacterSetList;

Mutability

Read Only

Remarks

Sets a list of the supported character sets in character string. This property is initialized by the open method. The character string consists of ASCII numeric set numbers separated by commas.

For example, if the string is “101,850,999”, the Device supports a device-specific character set, code page 850, and the ANSI character set.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Columns Property

Type

int Column;

Mutability

Read Only

Remarks

Indicates the number of columns for this window. For Window 0, this property sets the same value as the one set by the DeviceColumns property. For other windows, the value may be less or greater than the one set by the DeviceColumns property.

This property is initialized to DeviceColumns by the open method, and is updated when CurrentWindow is set or when createWindow or destroyWindow is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CurrentWindow Property

Type

int CurrentWindow;

Mutability

Read / Write

Remarks

A current window number, to which text is to be displayed, is set.

This property is initialized to “0” (device window) by the open method, and updated when createWindow method or destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorColumn Property

Type

int CursorColumn;

Mutability

Read / Write

Remarks

The column in the current window, to which the next displayed character will be output, is set. The effective values range from "0" to (Columns). (Refer to "displayText method→"CursorColumns" →"Remarks".)

This property is initialized to "0" by the open and createWindow methods, and is updated when the CurrentWindow property is set or the clearText method or the destroyWindow method is called. If the CursorUpdate property is TRUE, this property is also updated when the displayText method or the displayTextAt method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorRow Property

Type

int CursorRow;

Mutability

Read / Write

Remarks

The row in the current window, to which the next displayed character will be output, is set. The effective values range from "0" to (Rows – 1).

This property is initialized to "0" by the open and createWindow methods, and is updated when the CurrentWindow property is set or the clearText method or the destroyWindow method is called.

If the CursorUpdate Property is TRUE, this property is also updated when the displayText method or the displayTextAt method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorType Property

Type

int CursorType;

Mutability

Read / Write

Remarks

Holds the cursor type for the current window. It has one of the following values:

Value	Meaning
DISP_CT_NONE	Cursor is not displayed.
DISP_CT_BLOCK	Cursor is displayed as a block.
DISP_CT_HALFBLOCK	Cursor is displayed as a halfblock.
DISP_CT_UNDERLINE	Cursor is displayed as an underline
DISP_CT_REVERSE	Cursor is displayed in reverse video
DISP_CT_BLINK	A blinking cursor is displayed. This value is to be logically ORed with one of the other values defined for this property.
DISP_CT_OTHER	Othe types of cursor is displayed.

This property cannot be written if CapCursorType is set to either DISP_CCT_NONE or DISP_CCT_FIXED. Otherwise it can be set to one of the cursor types specified by CapCursorType, and if supported, DISP_CT_BLINK can be logically ORed with that cursor type to display a blinking cursor.

This property is maintained for each window. The setting of this property is reflected only to the current

window since only the current window has a displayable cursor.
This property is initialized to DISP_CT_NONE (or the appropriate cursor type if CapCursorType has DISP_CCT_FIXED set) by the open and createWindow methods, and is updated when the CurrentWindow method is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorUpdate Property

Type

boolean CursorUpdate;

Mutability

Read / Write

Remarks

If TRUE, the CursorRow and CursorColumn properties are updated to point to the character beyond the last character output when characters are displayed using the displayText or displayTextAt method. If FALSE, the cursor properties are not updated even when characters are displayed. This property is maintained for each window.
This property is initialized to TRUE by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CustomGlyphList Property

Type

String CustomGlyphList;

Mutability

Read Only

Remarks

Contains character codes that are available for definition as glyphs in character string.
Character codes are represented as two-digit (ASCII) or four-digit (Unicode) hexadecimal values. These values are comma separated and each value may actually represent a range of values specified by using the '-' character.
For example, if the string is "2D,4D", the device supports glyph definitions for the characters "-" and "M" respectively. If the string is "002D-004D", the Device supports glyph definitions for the Unicode characters between 002D and 004D inclusive. Also, if the string is "2D-2F,3D-3F", then the Device supports glyph definitions for the ranges of hex characters 2D through 2F and 3D through 3F.

This property is initialized by the open method and changes in accordance with a change in the CharacterSet property.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceBrightness Property

Type

int DeviceBrightness;

Mutability

Read / Write

Remarks

The device brightness value is set in percentage between 0 and 100.
Any device can support 0% (blank) and 100% (full intensity). Blanking can, at a minimum, be supported by sending spaces to the device.

If the CapBrightness property is TRUE, the Device supports one or more brightness levels. If the Device does not support a specified brightness value, the Device Service sets an appropriate value. This property is initialized to 100 when the Device is first enabled after the open method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceColumns Property

Type

int DeviceColumns;

Mutability

Read Only

Remarks

The number of columns on the Device is set.

This property is initialized by the open method and updated when the ScreenMode property is changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceDescriptors Property

Type

int DeviceDescriptors;

Mutability

Read Only

Remarks

The number of descriptors on the Device is set. If the CapDescriptors property is TRUE, this property is set to a value other than “0”.

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceRows Property

Type

int DeviceRows;

Mutability

Read Only

Remarks

The number of rows on the Device is set.

This property is initialized by the open method and updated when the ScreenMode property is changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceWindows Property

Type

int DeviceWindows;

Mutability

Read Only

Remarks

The maximum number of windows, which can be supported by the Device, is set. When this property is set to “0”, it indicates only the Device window is supported and a new window cannot be created. This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

GlyphHeight Property

Type

int GlyphHeight;

Mutability

Read Only

Remarks

Indicates the glyph height based on the number of pixels for a character cell.
This property is initialized by the open method and updated when the ScreenMode property is changed and the number of pixels for a character cell is changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

GlyphWidth Property

Type

int GlyphWidth;

Mutability

Read Only

Remarks

Indicates the glyph width based on the number of pixels for a character cell.
This property is initialized by the open method and updated when the ScreenMode property is changed and the number of pixels for a character cell is changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

InterCharacterWait Property

Type

int InterCharacterWait;

Mutability

Read / Write

Remarks

This property is used only when the window is not in Marquee mode (that is, the MarqueeType property is set to DISP_MT_NONE).
When this property is a value other than “0” and the window is not in Marquee mode, the window is in Teletype mode: requests from the displayText method and the displayTextAt method are enqueued and processed in the order they are received. This property specifies a time to wait between displaying each character. The wait time is expressed in milliseconds. (Note an error may be generated depending on the accuracy of the timer.)
If the CursorUpdate property is TRUE, the CursorRow property and the CursorColumn property are

updated to their appropriate values before the displayText method or the displayTextAt method returns, even when all character strings have not been displayed.
When this property is “0” and the window is not in Marquee mode, Immediate mode is in effect where characters are processed as quickly as possible. If some display requests are enqueued at the time this property is set to “0”, the requests are completed as quickly as possible.
If CapICharWait is FALSE, intercharacter wait is not supported, and the value of this property is not used.
This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MapCharacterSet Property

Type

boolean MapCharacterSet;

Mutability

Read / Write

Remarks

If MapCharacterSet is TRUE, the Service Object maps the characters transferred by the application to the character set selected in the CharacterSet property for displaying data.
If MapCharacterSet is FALSE, no mapping is supported. In such a case, the application has to ensure the mapping of the character set used in the application to the character set selected in the CharacterSet property.
Always set to FALSE because this function is not supported by the Device.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MarqueeFormat Property

Type

int MarqueeFormat;

Mutability

Read / Write

Remarks

The following marquee scrolling formats are set for the current window.

Value	Meaning
DISP_MF_WALK	Starts marquee scrolling by walking data from the opposite side. For example, if the marquee type is “left,” characters are placed at the right side of the viewport and are scrolled to the left.
DISP_MF_PLACE	Starts marquee scrolling in a manner so that characters are placed. For example, if the marquee type is “left,” the characters are placed from the left side of the viewport and scrolling starts when the viewport is filled with the characters.

This property is initialized to DISP_MF_WALK by the open and createWindow methods, and updated when the CurrentWindow property is set or the destroyWindow method is called.
This property is read when the mode is changed to Marquee On mode. It is not used in a mode other than Marquee mode.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MarqueeRepeatWait Property

Type

int MarqueeRepeatWait;

Mutability

Read / Write

Remarks

A wait time between marquee scrolling is set in milliseconds. (Note an error may be generated depending on the accuracy of the timer.)

This property is initialized to "0" by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

This property is not used when the mode is not in Marquee mode.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MarqueeType Property

Type

int MarqueeType;

Mutability

Read / Write

Remarks

The following marquee scrolling types are set for the current window. When the value is not DISP_MT_NONE, the window is in Marquee mode. It has one of the following values:

Value	Meaning
DISP_MT_NONE	Marquee scrolling is disabled.
DISP_MT_INIT	Marquee Initialization mode. Until the value of this property is set to other value, any change to the window is not reflected in the viewport.
DISP_MT_UP	Scrolls the window upward. Illegal if the value of the Rows property is less than the viewportHeight value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.
DISP_MT_DOWN	Scrolls the window downward. Illegal if the value of the Rows property is less than the viewportHeight value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.
DISP_MT_LEFT	Scrolls the window to the left. Illegal if the value of the Columns property is less than the viewportWidth value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.
DISP_MT_RIGHT	Scrolls the window to the right. Illegal if the value of the Columns property is less than the viewportWidth value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.

This property is initialized to DISP_MT_NONE by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MarqueeUnitWait Property

Type

int MarqueeUnitWait;

Mutability

Read / Write

Remarks

A wait time between marquee scrolling of each column or row in the window is set in milliseconds. (Note an error may be generated depending on the accuracy of the timer.)
This property is not used when the MarqueeType property is DISP_MT_NONE.
This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MaximumX Property

Type

int MaximumX;

Mutability

Read Only

Remarks

This property is “0” when bitmaps are not supported.
Otherwise, contains the maximum number of horizontal pixels supported by the device. It must be less than 65536. Dividing MaximumX by DeviceColumns gives the number of pixels required for each character.

This property is initialized by the open method and is updated when the ScreenMode property is changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MaximumY Property

Type

int MaximumY;

Mutability

Read Only

Remarks

This property is “0” when bitmaps are not supported.
Otherwise, contains the maximum number of vertical pixels supported by the device. It must be less than 65536. Dividing MaximumY by DeviceRows gives the number of pixels required for each character

This property is initialized by the open method and is updated when the ScreenMode property is changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Rows Property

Type

int Rows;

Mutability

Read / Write

Remarks

The number of rows for the current window. For Window 0, the value of this property is the same as that of the DeviceRows property. For other windows, it may be less or greater than that of the DeviceRows property.
This property is initialized to the DeviceRows property by the open method, and is updated when the CurrentWindow property is set or the createWindow method or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

ScreenMode Property

Type

int ScreenMode;

Mutability

Read / Write

Remarks

Contains the screen mode value of the device. If CapScreenMode is FALSE, only a value of “0” is allowed. If CapScreenMode is TRUE, the values can be set to index the values contained in ScreenModeList.

For example: 0=Default value
1= First setting in ScreenModeList
2= Second setting in ScreenModeList, etc.

This property can only be updated when the device is opened and claimed, but not enabled.
Changing the ScreenMode property also changes the DeviceColumns and DeviceRows properties to the new screen size. Also, for some devices, the MaximumX and MaximumY properties may be changed due to the columns and/or rows requiring a different number of physical pixels.
Changing the number of pixels for a character cell also changes the GlyphWidth and GlyphHeight properties.

When ScreenMode, which does not support the character code selected in the CharacterSet property, is set, an exception is thrown.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

ScreenModeList Property

Type

int ScreenModeList;

Mutability

Read Only

Remarks

Contains the comma-delimited list of row-column pairs that are supported by the device.
If CapScreenMode is FALSE, only one pair will be listed. For example, if the device only supports 2 rows and 20 columns, this property should be set to “2x20”.
If the device can operate in 2 by 20, 4 by 32, or 5 by 32 modes, this property should be set to “2x20,4x32,5x32”.

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

1.3.5 Method Specifications

1.3.5.1 Method List

Supported/unsupported methods by this Device (LIUST-53 Serial LineDisplay) are as follows:

Common Method	Requirement	Remarks
open	None	Supported
close	open	Supported
claim	open	Supported
release	open & claim	Supported
checkHealth	open & claim & enable	Only Interactive Check Health is supported
compareFirmwareVersion	open & claim & enable	Not supported
directIO	open	Supported
resetStatistics	open & claim & enable	Not supported
retreveStatistics	open & claim & enable	Not supported
updateFirmware	open & claim & enable	Not supported
updateStatistics	open & claim & enable	Not supported
Specific Method	**Requirement**	**Remarks**
clearText	open & claim & enable	Supported
displayText	open & claim & enable	Supported
displayTextAt	open & claim & enable	Supported
scrollText	open & claim & enable	Supported
clearDescriptors	open & claim & enable	Not supported
setDescriptor	open & claim & enable	Not supported
createWindow	open & claim & enable	Supported
destroyWindow	open & claim & enable	Supported
refreshWindow	open & claim & enable	Supported
defineGlyph	open & claim & enable	Supported
readCharacterAtCursor	open & claim & enable	Not supported
displayBitmap	open & claim & enable	Supported
setBitmap	open & claim & enable	Supported

Table 19 LineDisplay JavaPOS Device – Method List

1.3.5.2 Details of Methods

[Common Properties]

open Method

Type

void open (String *logicalDeviceName*) throws JPOSException;

The ***logicalDeviceName*** parameter specifies the Device name to open.

The Device name specifies the “logicalName” specified by JPOS.xml.

Remarks

This method is called to open the Device.

The device name specifies the Device which should be used among the Devices supported by this Control class.

The ***logicalDeviceName*** must be the one specified by JPOS.xml.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

close Method

Type

void close ( ) throws JPOSException;

Remarks

Thie method is called to release the Device and its resources.

If the **DeviceEnabled** property is TRUE, the Device is disabled first.

If the **Claimed** property is TRUE, an excessive access to the Device is released first.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

claim Method

Type

void claim (INT *Timeout*) throws JPOSException;

Remarks

The *Timeout* parameter indicates the maximum wait time in milliseconds to obtain an exclusive access. If “0”, the method immediately returns the result even when the method failed to obatin the exclusive access.

If JPOS_FOREVER (-1), this method waits as long as needed until the exclusive access is obtained.

This method is called when an exclusive access to the Device is requested. The Device cannot be used unless the exclusive access is obtained.

When the exclusive access is successuly obtained, the **Claimed** property is changed to TRUE.

When the **Claim** method is executed, a connection is established with the Device and it is checked to see if processes can be performed. If yes, the **Claim** method is completed successfully.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

release Method

Type

void release () throws JPOSException;

Remarks

This method is called to release an exclusive access to the Device.
If the **DeviceEnabled** property is TRUE and the Device is exclusively used, the Device is disabled.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

checkHealth Method

Type

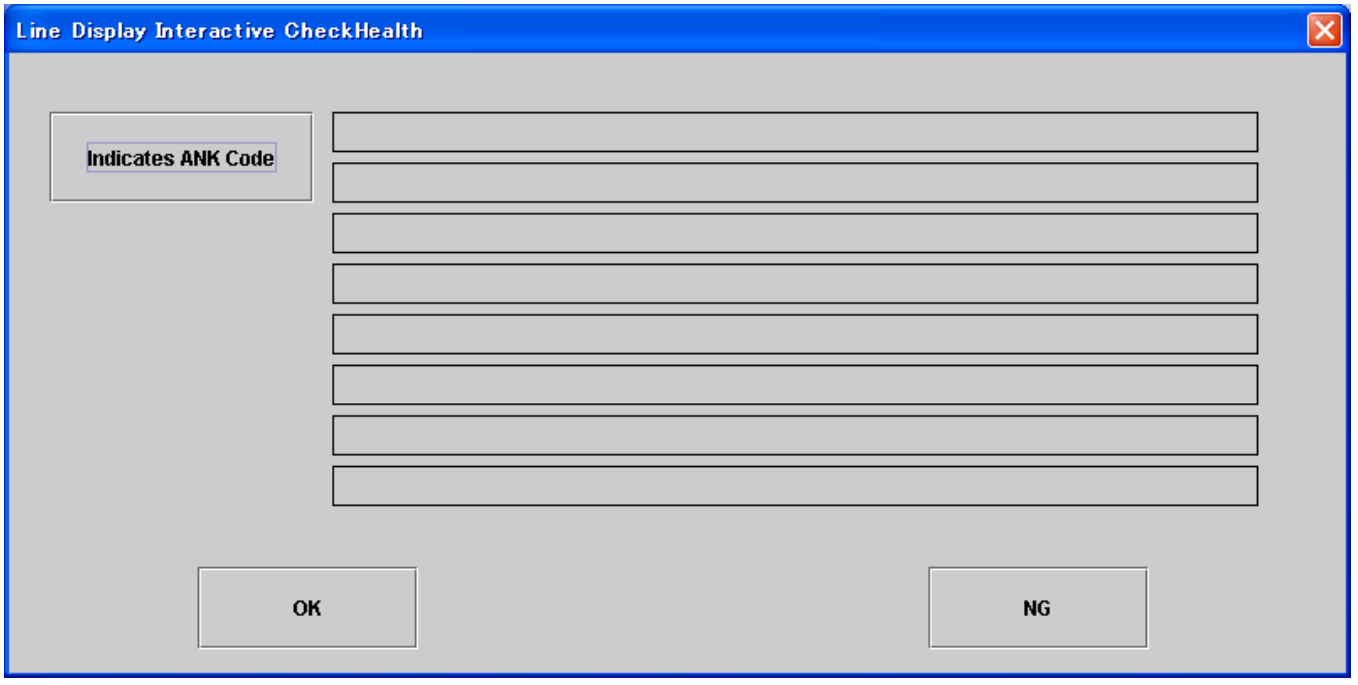
void checkHealth (INT *Level*) throws JPOSException;

Remarks

The *Level* parameter indicates the following types of health check to be performed on the Device. It has one of the following:

Value	Meaning
JPOS_CH_INTERNAL	Internal test This parameter is not supported.
JPOS_CH_EXTERNAL	Thorough test This parameter is not supported.
JPOS_CH_INTERACTIVE	Performs an interactive test with the Device. The supporting Service Object will typically display a modal dialog box to present test options and results.

When the checkHealth method is performed at an interactive level, the following dialog box is displayed.
Click each command button to check if the line display can be successfully performed.
The “Indicates ANK Code” button scrolls 20H to 7EH line by line.
Up to 8 lines are displayed and invalid lines are disabled depending on a ScreenMode status.
Visually check the display and press the button, either “OK” or “NG” to complete the check.
(Limitation) The code for which a Glyph character is defined by the defineGlyph method, the Glyph character is displayed in priority to other charactes. The dialog box displays normal characters.



Exception

In case of an error when this method is invoked, a JPOSException is thrown.

This Device Service only supports the healthCheck method at an interactive level.
Regardless of level, the checkHealth method throws the following exceptions.

Value (Exception's ErrorCode)	CheckHealthText Property	Meaning
JPOS_E_CLOSED	No change	The Device has been closed.
JPOS_E_DISABLED	"HCheck:Disabled"	The Device has been disabled.
JPOS_E_ILLEGAL	"HCheck:Illegal"	Illegal level parameter
JPOS_E_FAILURE	"HCheck:failure"	Captures an exception other than JavaPOS

1) Internal Level (level=JPOS_CH_INTERNAL)
Checks a connection status with the Device from a line status. Not supported by the Device.

Value (ResultCode)	CheckHealthText	Meaning
JPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not supported

2) External Level (level=JPOS_CH_EXTERNAL)
The following character strings are thrown from the right side on the upper and lower rows of the line display. Not supported by the Device.

Value (ResultCode)	CheckHealthText	Meaning
JPOS_E_ILLEGAL	"External HCheck:Illegal"	Not supported

3) Interactive Level (level=JPOS_CH_INTERACTIVE)

Value (ResultCode)	CheckHealthText	Meaning
JPOS_SUCCESS	"Interactive HCheck: Successful"	Completed with the "OK " button
JPOS_E_FAILURE	"Interactive HCheck: Error"	Completed with the "NG " button
JPOS_E_NOTCAIMED	"HCheck: Exclusive"	Exclusive error
JPOS_E_DISABLED	"HCheck: Disabled"	The Device has been disabled.

clearInput Method

Type

void clearInput ( )throws JPOSException;

Remarks

An exception is always thrown because this method is not supported by the Control.
Usually, this method clears **DataEvent** events and **ErrorEvent** events that have been buffered.
Mostly, a "bufferred" status is a status where the events are waiting for DataEventEnabled to be TRUE and FreezeEvents to be FALSE.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

clearInput Properties Method

Type

void clearInputProperties ( ) throws JPOSException;

Remarks

An exception is always thrown because this method is not supported by the Control.
Usually, this method sets all data propertis that are updated by a data event or error event, back to their default values. This does not reset the DataCount or Status properties.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

clearOutput Method

Type

void clearOutput() throws JPOSException;

Remarks

An exception is always thrown because this method is not supported by the Control.
Usually, this method is called to clear all buffered output data in the Devoce.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

directIO Method

Type

void directIO (INT *Command*, INT *pData*, Object *pString*) throws JPOSException;

Remarks

This Control supports the following extension functions using the DirectIOMethod.
For details of each method of the extension functions, refer to the section “1.3.5.3 directIO Method Specifications”.

Command	Function
DISP_DIO_COUNTRYCODE	Country code setting

This file may be revised in accordance with an update of the module. It is reccommended to use the file which specifies a correct version of the module.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.
This directIO method throws the following exceptions regardless of command parameter values.
For details of the exceptions for each method of the extension functions, refer to the section “1.3.5.3 directIO Method Specifications”.

Value (Exception’s ErrorCode)	Exception’s ErrorCodeExtended	Meaning
JPOS_E_CLOSED	0	The Device has been closed.
JPOS_E_ILLEGAL	0	The Device is not supported.

compareFirmwareVersion Method

Type

void compareFirmwareVersion(String firmwareFileName, INT result) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

resetStatistics Method

Type

void resetStatistics(String statisticsBuffer) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

retrieveStatistics Method

Type

void retrieveStatistics(String StatisticsBuffer) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

updateFirmware Method

Type

void updateFirmware(String firmwareFileName) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

updateStatistics Method

Type

void updateStatistics(String statisticsBuffer) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

[Specific Methods]

clearText Method

Type

void clearText () throws JPOSException;

Remarks

This method clears the current window to blanks, and sets the CursorRow property and the CursorColumn property to "0". The viewport moves to the beginning of the window. All bitmaps on the window are also cleared. In Immediate mode or Teletype mode, the viewport is also cleared immediately.

In Marquee Init mode, the viewport is not changed.
In Marquee On mode, use of this method is prohibited.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

Refer to

displayText method

displayText Method

Type

void displayText (String data, int atribute) throws JPOSException;

Parameter	Description
data	Character strings to be displayed
attribute	Display attribute: either of DISP_DT_NORMAL, DISP_DT_BLINK, DISP_DT_REVERSE, or DISP_DT_BLINK_REVERSE

Remarks

Character strings specified by the Data parameter is displayed from the position specified by CursorRow and CursorColumn. Displaying the characters contines to the next row when the end of a window row is reached. If there are still characters to be displayed when the end of the window is reached, the window is scrolled upward by one row. If the CursorUpdate property is TRUE, the CursorRow property and the CursorColumn property are updated to point to the character position following the last character of data.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

displayTextAt Method

Type

void displayTextAt (int row, int column,String data, int attribute) throws JPOSException;

Parameter	Description
row	Start row for text
column	Start column for text
data	Character string to display
attribute	Display attribute: either of DISP_DT_NORMAL, DISP_DT_BLINK, DISP_DT_REVERSE, or DISP_DT_BLINK_REVERSE

Remarks

Character strings specified by the Data parameter is displayed from the position specified by the Row and Column parameters. The result is the same when the Row parameter is set to the CursorRow property and the Column parameter is set to the CursorColumn property and the displayText method is called.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

scrollText Method

Type

void scrollText (int direction, int units) throws JPOSException;

The Direction parameter indicates the following scrolling directions. It has one of the following values:

Value	Meaning
DISP_ST_UP	Scrolls the window upward.
DISP_ST_DOWN	Scrolls the window downward.
DISP_ST_LEFT	Scrolls the window to the left.
DISP_ST_RIGHT	Scrolls the window to the right.

The Units parameter indicates the number of columns or rows to scroll.

Remarks

This method scrolls the current window. This scrolling does not influence the CursorRow and CursorColumn properties.

The scrollText method is only used in Immediate mode.

If the window size in the scroll direction is the same as its viewport size, the window data is scrolled, the last units rows or last units columns are set to spaces, and the viewport is updated. If the window contains bitmap data, it is also scrolled.

If the window size in the scroll direction is larger than its viewport, the window data is not changed. Instead, the mapping of the window into the viewport is moved in the specified direction. The window data is not changed, but the viewport is updated. If scrolling by units would go beyond the beginning of the window data, the window is scrolled in a manner so that the first viewport row or column contains the first window row or column. If scrolling by units would go beyond the end of the window data, the window is scrolled in a manner so that the last viewport row or column contains the last window row or column.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

clearDescriptors Method

Type

void clearDescriptors () throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

setDescriptor Method

Type

void setDescriptor (int descriptor, int attribute) throws JPOSException;

The Descriptor parameter indicates a descriptor of which state is to be changed. The effective range is from "0" to (DeviceDescriptors-1). The Attribute parameter sets one of the following descriptor values.

Value	Meaning
DISP_SD_ON	Turns the descriptor on.
DISP_SD_BLINK	Sets the descriptor to blink.
DISP_SD_OFF	Turns the descriptor off.

Remarks

Sets a state of one of the descriptors which are small indicators with a fixed label.

This function is disabled if the CapDescriptors property is FALSE.

The physical position of the descriptor specified by the Descriptor parameter is set between the Device and its Device Service.

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

createWindow Method

Type

void createWindow (int viewportRow, int viewportColumn,int viewportHeight, int viewportWidth,int windowHeight, int windowWidth) throws JPOSException;

Parameter	Description
viewportRow	Viewport's start device row
viewportColumn	Viewport's start device column
viewportHeight	Number of device rows in the viewport
viewportWidth	Number of device columns in the viewport
windowHeight	Logical number of rows in the window
windowWidth	Logical number of columns in the window

Remarks

Creates a viewport over the physical position of the display given by the ViewportRow, viewportColumn, viewportHeight, or viewportWidth parameter . The window size is specified by the WindowHeight and WindowWidth parameters. The effective window row range is from "0" to (windowWidth-1) and the effective window column range is from "0" to (windowWidth-1).

The window size must be at least as large as the physical viewport size allocated on the display. The window size can be larger than the viewport size in one direction. Using the window marquee properties, that is, MarqueeType, MarqueeFormat, MarqueeUnitWait, and MarqueeRepeatWait, such a window can be continuously scrolled in a marquee fashion.

When the window is created, the createWindow method sets a window number assigned to this window to the CurrentWindow property. The following properties are maintained for each window, and are initialized as given:

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

destroyWindow Method

Type

void destroyWindow () throws JPOSException;

Remarks

Deletes the current window. The characters being displayed are not changed.
The CurrentWindow property is set to Window 0. Properties associated with the device window are updated.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

refreshWindow Method

Type

void refreshWindow (int window) throws JPOSException;
The Window parameter specifies the window number to be refreshed.

Remarks

This method changes the current window to the window specified by the Window parameter, and redisplays its previous data. Neither the mapping of the window to its viewport nor the window's cursor position is changed.
This method is used to restore a window after other window has overwritten some of its viewport.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

defineGlyph Method

Type

void defineGlyph(int glyphCode, int(byte[]) glyph) throws JPOSException;

Parameter	Description
glyphCode	Character code to be defined
glyph	Data to define glyph

Remarks

Defines a glyph character. The glyph is defined as bits representing each pixel packed into bytes using whole bytes to represent each row.
The minimum number of bytes are sent for each row, based on GlyphWidth and using 8 bits per byte. Bytes are sent left-to-right across each row If more than one byte is required per row, the leftmost byte is sent first. The lowest-order bit within a byte represents the rightmost pixel. Bits that do not represent pixels are the highest order bits and their value is ignored. Rows are sent from the top down.

A 10 pixel wide glyph would have the two leftmost pixels represented in bits 1 and 0 of the first byte, respectively. The remaining 8 pixels would be represented in the second byte.

Enough rows must be sent to define the entire character. Whether changing the definition of a glyph causes currently displayed characters to change, or the change appears only when next drawn, is hardware-defined.

This function is illegal if the CapCustomGlyph property is FALSE.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

readCharacterAtCursor Method

Type

void readCharacterAtCursor(int[] cursorData) throws JPOSException;

Parameter	Description
cursorData	Characters read from the display

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

displayBitmap Method

Type

void displayBitmap(String Filename, int width, int alignmentX, int alignmentY) throws JPOSException;

Remarks

Parameter	Description
Filename	File name of bitmap file. Windows bitmap of white and black binary value is supported.
width	Width of the bitmap to be displayed. See values below.
alignmentX	Horizontal placement of the bitmap. See values below.
alignmentY	Vertical placement of the bitmap. See values below.

width parameter values

Parameter	Description
DISP_BM_ASIS	Displays the bitmap with one bitmap pixel per dot.
Other values	Bitmap width expressed in number of pixels. Not supported by the Device.

alignmentX parameter values

Parameter	Description
DISP_BM_LEFT	Align the bitmap's left edge with the leftmost pixel of the current character position, as specified by CursorColumn.
DISP_BM_CENTER	Align the bitmap in the horizontal center of the current character position, as specified by CursorColumn.
DISP_BM_RIGHT	Align the bitmap's right edge with the rightmost pixel of the current character position, as specified by CursorColumn.
Others	Distance from the window's leftmost pixel column to the left edge of the bitmap.

alignmentY parameter values

Parameter	Description
DISP_BM_TOP	Align the bitmap's top edge with the topmost pixel of the current character position, as specified by CursorRow.
DISP_BM_CENTER	Align the bitmap in the vertical center of the current character position, as specified by CursorRow.
DISP_BM_BOTTOM	Align the bitmap's bottom edge with the bottommost pixel of the current character position, as specified by CursorRow.
Others	Distance from the window's topmost pixel row to the start of the bitmap.

Called to display a bitmap on the line display. The bitmap is displayed within the current window's viewport.

If DISP_BM_.XXX. constants are specified for the alignmentX and alignmentY parameters, it is displayed in relation to the character position specified by CursorRow and CursorColumn. If, in addition, CursorUpdate is TRUE, CursorRow and CursorColumn are updated to point to the first

character position following the bitmap.

Bitmap display has the following restrictions:

- Bitmap display is only legal in Immediate mode.
- The window size must match the window's viewport size.
- The bitmap must be displayable within the window, after consideration of the function parameters. For example, if alignmentX specifies a pixel near the bottom of the window, and the bitmap height (after bitmap transformation, if required) exceeds the distance from alignmentX to the window bottom, the bitmap is not displayed.

The width parameter controls transformation of the bitmap. If width is DISP_BM_ASIS, no transformation is performed. The bitmap is displayed with one bitmap pixel per line display pixel. The advantages of this option are that it:

- provides the highest performance bitmap display.
- works well for bitmaps tuned for a specific LineDisplay's aspect ratio between horizontal and vertical dots.

If width is non-zero, the bitmap will be transformed by stretching or compressing the bitmap such that its width is the specified width and the aspect ratio is unchanged. The advantages of this option are that it:

- sizes a bitmap to fit a variety of LineDisplays.
- maintains the bitmap's aspect ratio.

The disadvantages of this option are:

- lower performance than untransformed data.
- some lines and images that are smooth in the original bitmap may show some ratcheting.

The Device does not support enlargement and reduction of bitmap.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

setBitmap Method

Type

void setBitmap(int bitmapNumber, string fileName, int Width, int alignmentX, int alignmentY) throws JPOSException;

Remarks

Parameter	Description
bitmapNumber	The number to be assigned to this bitmap. Valid bitmap numbers are 1 through 100.
fileName	File name of bitmap file. Windows bitmap of white and black binary value is supported.
width	Width of the bitmap to be displayed. See values below.
alignmentX	Horizontal placement of the bitmap. See values below.
alignmentY	Vertical placement of the bitmap. See values below.

width parameter values

Parameter	Description
DISP_BM_ASIS	Displays the bitmap with one bitmap pixel per dot.
Other values	Bitmap width expressed in number of pixels. Not supported by the Device.

alignmentX parameter values

Parameter	Description
DISP_BM_LEFT	Align the bitmap's left edge with the leftmost pixel of the current character position, as specified by CursorColumn.
DISP_BM_CENTER	Align the bitmap in the horizontal center of the current character position, as specified by CursorColumn.
DISP_BM_RIGHT	Align the bitmap's right edge with the rightmost pixel of the current character position, as specified by CursorColumn.
Others	Distance from the window’s leftmost pixel column to the left edge

of the bitmap.

alignmentY parameter values

Parameter	Description
DISP_BM_TOP	Align the bitmap's top edge with the topmost pixel of the current character position, as specified by CursorRow.
DISP_BM_CENTER	Align the bitmap in the vertical center of the current character position, as specified by CursorRow.
DISP_BM_BOTTOM	Align the bitmap's bottom edge with the bottommost pixel of the current character position, as specified by CursorRow.
Others	Distance from the window's topmost pixel row to the start of the bitmap.

Called to save information about a bitmap for later display.
The bitmap may then be displayed by calling the displayText or displayTextAt method with the display bitmap escape sequence in the display data. The display bitmap escape sequence will typically be included in a string for displaying advertisements, store logos, or icons. See the Remarks section of displayBitmap for restrictions on displaying the saved bitmap.
If one or more restrictions are not fulfilled, the bitmap is not displayed, and the method continues on with the next character of display data.
A Service Object may choose to cache the bitmap for later use to provide better performance. Regardless, the bitmap file and parameters are validated for correctness by this method.
The most frequently used bitmaps should be assigned a small bitmapNumber (close to 1), while occasionally used bitmaps should be assigned the larger bitmapNumbers. The Service Object will use this information to determine how best to store the bitmaps. It may download them to the device when possible, or cache them in Service Object memory, or simply remember the fileName and associated properties for use when it is displayed.
An application must ensure that the LineDisplay window metrics, such as viewport width and height, are set before calling this method. The Service Object may perform transformations on the bitmap in preparation for later displaying based on the current values of these metrics.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

1.3.5.3 directIO Method Specifications

Syntax: directIO(int command, int[] data, Object object) throws JposException;
This Control supports the following extension functions using the DirectIO method.

Command	Function
DISP_DIO_COUNTRYCODE	Country code setting

(1) Country Code Setting

Function Sets a country code to the Device.

Type

Parameter	Description
Command	DISP_DIO_COUNTRYCODE
pData	Country code
pString	Not used (Specify empty string (“”).)

Remarks Requirement: open, Claim, DeviceEnabled=TRUE
Sets a country code to the Device.

Country Code List

Country Code	Country	Country Code	Country
0	US	10	Denmark 2
1	France	11	Spain 2
2	Germany	12	Latin America
3	UK	13	East Europe
4	Denmark 1	14	Iceland
5	Sweden	99	Japan 2
6	Italy	100	Japan Shift JIS
7	Spain 1		
8	Japan		
9	Norway		

Note After the country code is changed, characters being displayed are also changed for the new country code.

Exception One of the following is stored to the ErrorCode property.

Value	Meaning
JPOS_E_CLOSED	The Device has been closed.
JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.
JPOS_E_DISABLED	The Device has been disabled.
JPOS_E_OFFLINE	The Device power is not turned on or the Device is not connected.
JPOS_E_ILLEGAL	Invalid country code
JPOS_E_NOHARDWARE	The power was shut down.
JPOS_E_TIMEOUT	A specified timeout period expired.
JPOS_E_FAILURE	Communication error

1.3.6 Event Specifications

This Device Service throws no event.

1.3.7 Exception Specifications

1.3.7.1 Exceptions Thrown by Methods

This Device Service throws the following exceptions when methods are invoked

1) Results When Methods Other Than open and DirectIO Are Executed

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
open	JPOS_E_NOEXIST -	XML description for the ProductName to be opened does not exist.	Check the ProductName is as specified in the specification.
	JPOS_E_ILLEGAL -	The Device has been open.	—
		Some other error occurred.	Investigate the error
claim	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_CLAIMED -	Recognition of the exclusive access failed.	Try again after other application releases the exclusive access.
	JPOS_E_ILLEGAL -	The checkHealth method of JPOS_CH_INTERACTIVE level is being executed.	Try again after the checkHealth method is completed.
		Startup of the thread failed.	Investigate the error.
		When opening the Device, an invalid parameter was specified.	Specify an appropriate parameter.
		Some other error occurred.	Investigate the error
	JPOS_E_TIMEOUT -	While waiting for other application to release the exclusive access to the Device, a specified timeout (milliseconds) period expired.	Try again after other application releases the exclusive access.
	JPOS_E_NOHARDWARE -	When opening the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
	JPOS_E_FAILURE -	When opening the Device, an error occurred.	Investigate the error. (Not supported by the LIUST-53.)
release	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_ILLEGAL -	The application does not have the exclusive access to the target Device.	—
		The checkHealth method of JPOS_CH_INTERACTIVE level is being executed.	Try again after the checkHealth method is completed.
		Some other error occurred.	Investigate the error
close	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_ILLEGAL -	The checkHealth method of JPOS_CH_INTERACTIVE level is being executed.	Try again after the checkHealth method is completed.
		Some other error occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
checkHealth	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The specified health check level is illegal.	Specify a valid health check level.
		Some other error occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (Not supported by the LIUST-53.)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (Not supported by the LIUST-53.)
compareFirmware Version	JPOS_E_CLOSED -	The Device has been closed.	–
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	–
	JPOS_E_ILLEGAL -	The Device does not support the method.	–
updateFirmware	JPOS_E_CLOSED -	The Device has been closed.	–
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	–
	JPOS_E_ILLEGAL -	The Device does not support the method.	–
resetStatistics	JPOS_E_CLOSED -	The Device has been closed.	–
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	–
	JPOS_E_ILLEGAL -	The Device does not support the method.	–
retrieveStatistics	JPOS_E_CLOSED -	The Device has been closed.	–
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	–
	JPOS_E_ILLEGAL -	The Device does not support the method.	–
updateStatistics	JPOS_E_CLOSED -	The Device has been closed.	–
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	–
	JPOS_E_ILLEGAL -	The Device does not support the method.	–

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
displayText	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The specified attribute is illegal.	Specify a valid attribute.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Some other error occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (Not supported by the LIUST-53.)
	JPOS_E_FAILUER -	While communicating with the Device, an error occurred.	Investigate the error. (Not supported by the LIUST-53.)
displayTextAt	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The specified attribute is illegal.	Specify a valid attribute.
		The specified row or column is illegal.	Specify a valid row or column.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Some other error occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (Not supported by the LIUST-53.)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (Not supported by the LIUST-53.)

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
clearText	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Some other error occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (Not supported by the LIUST-53.)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (Not supported by the LIUST-53.)
scrollText	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid direction was specified.	Specify a valid direction.
		An invalid units was specified.	Specify a valid units of “0” or more.
		The current window is in Teletype mode.	Try again after setting the InterCharacterWait property to “0”.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Some other error occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (Not supported by the LIUST-53.)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (Not supported by the LIUST-53.)

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
setDescriptor	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_ILLEGAL	The Device does not support the method.	–
clearDescriptors	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_ILLEGAL -	The Device does not support the method.	–
createWindow	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid parameter was specified.	Specify a valid parameter.
		Some other error occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
destroyWindow	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	Window number is set to “0”. This window cannot be deleted.	Try again after setting the CurrentWindow property to a value other than “0”.
		Obtaining information of the current window failed.	Investigate the error.
		Some other error occurred.	Investigate the error
refreshWindow	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid window was specified.	Specify a valid window.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Some other error occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (Not supported by the LIUST-53.)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (Not supported by the LIUST-53.)
readCharacterAtCursor	JPOS_E_CLOSED -	The Device has been closed.	–
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	–
	JPOS_E_ILLEGAL -	The Device does not support the method.	–
		Some other error occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
defineGlyph	JPOS_E_CLOSED -	The Device has been closed.	–
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	–
	JPOS_E_ILLEGAL -	CapCustomGlyph is FALSE or invalid code was given.	–
		Some other error occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
displayBitmap	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	–
	JPOS_E_ILLEGAL -	The Device does not support the method.	–
		The width parameter is invalid or too big.	Specify a valid value.
		The alignmentX / alignmentY parameter is invalid or too big.	Specify a valid value.
		The window is not in Immediate Mode.	
		The window size does not match its viewport size.	
		The bitmap is too large to display at the requested location.	
		Some other error occurred.	Investigate the error
	JPOS_E_NOEXIST	The fileName was not found.	Specify a valid filename.
	JPOS_E_EXTENDED	ErrorCodeExtended = JPOS_EDISP_TOOBIG: The bitmap is either too wide to display without transformation, or it is too big to transform.	–
		ErrorCodeExtended = JPOS_EDISP_BADFORMAT : The specified file is either not a bitmap file or it is an unsupported format.	–

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
setBitmap	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	–
	JPOS_E_ILLEGAL -	The Device does not support the method. (CapBitmap = FALSE)	–
		The bitmapNumber parameter is invalid.	Specify a valid number.
		The width parameter is invalid or too big.	Specify a valid number.
		The alignmentX or alignmentY parameter is invalid or too big.	Specify a valid number.
		Some other error occurred.	Investigate the error
	JPOS_E_NOEXIST -	The fileName was not found.	Specify a valid filename.
	JPOS_E_EXTENDED -	ErrorCodeExtended = JPOS_EDISP_TOOBIG: The bitmap is either too wide to display without transformation, or it is too big to transform.	
		ErrorCodeExtended = JPOS_EDISP_BADFORMAT: The specified file is either not a bitmap file or it is an unsupported format.	

2) Results When The DirectIO Method Is Executed

Command	ErrorCode	Meaning	Error Handling
All	JPOS_E_CLOSED	The Device has been closed.	Try again after executing the open method.
	JPOS_E_ILLEGAL	The command is illegal.	Specify a valid command.
DISP_DIO_COUNTRYCODE	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Try again after executing the claim method.
	JPOS_E_DISABLED	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL	The country code is invalid.	Specify a valid country code.
	JPOS_E_NOHARDWARE	The Device power is not turned on or the Device is not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
	JPOS_E_TIMEOUT	A communication timeout with the Device expired.	Investigate the error. (Not supported by the LIUST-53.)
	JPOS_E_FAILURE	A communication error with the Device occurred.	Investigate the error. (Not supported by the LIUST-53.)

1.3.7.2 Exceptions Thrown by Property Setting

This Device Service throws the following exceptions when property settings are performed.
Common Results for All Properties and Results Specific to Each Property

Property	ErrorCode	Meaning	Error Handling
All properties	JPOS_E_CLOSED	The Device has been closed.	Perform a setting again after executing the open method.
DeviceEnabled	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Perform a setting again after executing the claim method.
	JPOS_E_NOHARDWARE	The Device power is not turned on or the Device is not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
PowerNotify	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	–
	JPOS_E_ILLEGAL	Since CapPowerReporting is invalid, this cannot be set.	–
BlinkRate	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	–
	JPOS_E_ILLEGAL	Since CapBlinkRate is FALSE, this cannot be set.	–
DeviceBrightness	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Perform a setting again after executing the claim method.
	JPOS_E_DISABLED	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL	The invalid value, which is not within a range from 0 to 100, was specified.	Specify a valid value (0 to 100).
		Since CapDeviceBrightness is invalid, this cannot be set.	–
	JPOS_E_NOHARDWARE	The Device power is not turned on or the Device is not connected.	Check the Device power or Device connection. (Not supported by the LIUST-53.)
	JPOS_E_TIMEOUT	A communication timeout with the Device expired.	Investigate the error. (Not supported by the LIUST-53.)
	JPOS_E_FAILURE	A communication error with the Device occurred.	Investigate the error. (Not supported by the LIUST-53.)
CharacterSet	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Perform a setting again after executing the claim method.
	JPOS_E_DISABLED	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL	An invalid parameter value was specified.	Specify a valid parameter value.
		Since CapCharacterSet is invalid, this cannot be set.	–
MapCharacterSet	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	–
	JPOS_E_ILLEGAL	Since CapMapCharacterSet is invalid, this cannot be set.	
CurrentWindow	JPOS_E_ILLEGAL	An invalid window value was specified.	Specify a valid value.
CursorRow	JPOS_E_ILLEGAL	An invalid cursor row value was specified.	Specify a valid value.
CursorColumn	JPOS_E_ILLEGAL	An invalid cursor column value was specified	Specify a valid value.
CursorType	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	–
	JPOS_E_ILLEGAL	Since CapCharacterSet is invalid, this cannot be set.	–

Property	ErrorCode	Meaning	Error Handling
MarqueeType	JPOS_E_ILLEGAL	An invalid value was specified.	Specify a valid value.
		The property setting was performed for Window number 0.	MarqueeType property cannot be set for Window number 0. Perform a setting again after setting the CurrentWindow property to a value other than “0”.
		The window size is illegal.	Perform a setting after checking the window size.
		Since CapHMarquee is FALSE, this cannot be set.	–
		Since CapVMarquee is FALSE, this cannot be set.	–
MarqueeFormat	JPOS_E_ILLEGAL	An invalid value was specified.	Specify a valid value.
ScreenMode	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	–
	JPOS_E_ILLEGAL	Since CapScreenMode is FALSE, this cannot be set.	–

1.3.8 Setting Information

Setting information of this Device Service is set in the XML file called "jpos.xml".
The <prop> tag in the XML file is a setting item specific to this Device. For details of other tags, <creation>, <vendor>, <jpos>, and <product>, refer to the UPOS Specification.
In order for the service to recognize the Device Service, the "name" property of the <product> tag is used. Please specify this property as follows.

```
<JposEntries>
    <JposEntry logicalName="LineDisplayLogicalName">
        <creation factoryClass="jpos.toshibatec.loader.linedisplay.JavaPOSServiceFactory"
            serviceClass="jpos.toshibatec.linedisplay.services.LineDisplayService"/>
        <vendor name="TOSHIBA TEC Corporation" url="http://www.toshibatec.co.jp"/>
        <jpos category="LineDisplay" version="1.11"/>
        <product description=" TEC LineDisplay "
            name="TECLineDisplay" url="http://www.toshibatec.co.jp"/>

        <prop name="portName" type="String" value="{port name}"/>
        <prop name="baudRate" type=" int " value="{baud rate}"/>
        <prop name="countryCode" type="String" value="{country code}"/>
        <prop name="deviceBus" type="String" value="{device type}"/>
        <prop name="modelName" type="String" value="{model name}"/>
    </JposEntry>
```

Item Name	Value
JposEntry logicalName	The logic device name of the service to be used (any) This corresponds with logicalDeviceName of an open () method.
product name	A property used by the service to recognize the Device Service. (Note) If this value is changed, the Device will not operate. Fixed to: “TECLineDisplay”
portName	Connection port name. [Default value: COM4] (Windows) Select a value from COM1 to COM10. (Linux) Select a value from /dev/ttyS0 to /dev/ttyS9.
baudRate	Baud rate [Default value: 9600] Only 9600 is supported by this Device Service.
countryCode	Country code [Default value: 2] Depending on a country code setting, a part of the ASCII characters are changed to the characters specific to each country or for business uses. Optimal characters are selected for each country. 0 US 10 Denmark 2 1 France 11 Spain 2 2 Germany 12 Latin America 3 UK 13 East Europe 4 Denmark 1 14 Iceland 5 Sweden 99 Japan 2 6 Italy 100 Japan Shift JIS 7 Spain 1 8 Japan 9 Norway
deviceBus	Device type [Default value: RS232C] RS232C,(USB,PARALLEL) Only RS232C is supported by this Device Service.
modelName	Model name [Default value: LIUST-53] Only LIUST-53 is supported by this Device Service.

Table 20 LineDisplay JavaPOS Device –Setting Information List

1.3.9 Limitations and Precautions

This section describes the limitations and precautions for using this Device Service, including the differences from the UPOS Specifications.

1) Brightness in Percentage and Brightness of Physical Device

DeviceBritness Property Value n	Brightness of LIUST-53 (Physical Device)
0	0%
1 to 20	20%
21 to 40	40%
41 to 60	60%
61 to 80	80%
81 to 100	100%

Table 21 LIUST-53 Line Display - Brightness

2) Character Set for Each Country Code

The LIUST-53 provides characters for each country.
Graphic characters are assigned to the twelve ASCII characters (23H, 24H, 40H, 5BH to 5EH, 60H, 7BH to 7EH) for each country and for business uses.
* The Japan 2 code can display the Kana characters.

Country Code	Country	Country Code	Country
0	US	10	Denmark 2
1	France	11	Spain 2
2	Germany	12	Latin America
3	UK	13	East Europe
4	Denmark 1	14	Iceland
5	Sweden	99	Japan 2
6	Italy	100	Japan Shift JIS
7	Spain 1		
8	Japan		
9	Norway		

Table 22 LIUST-53 Line Display - Country Code

3) Glyph Characters at Interactive CheckHealth Level

On the dialog box which is displayed when the checkHealth method is performed at an interactive level, the same character string as that is being displayed on the line display is displayed. However, the code, for which a Glyph character is defined by the defineGlyph method, is displayed on the line display in priority to other characters.
A display may differ between the line display and dialog box because the dialog box displays normal characters.

4) Display of Cursor

The Device supports the cursor's on, blinking, and off. Only when the ScreenMode property is 0 (default value) or 1, the cursor can be displayed on the 8 line x 42 digit and ANK 5x7 display. If the ScreenMode property is changed to a value other than the above, the cursor does not appear and CapCursorType changes to DISP_CCT_NONE.

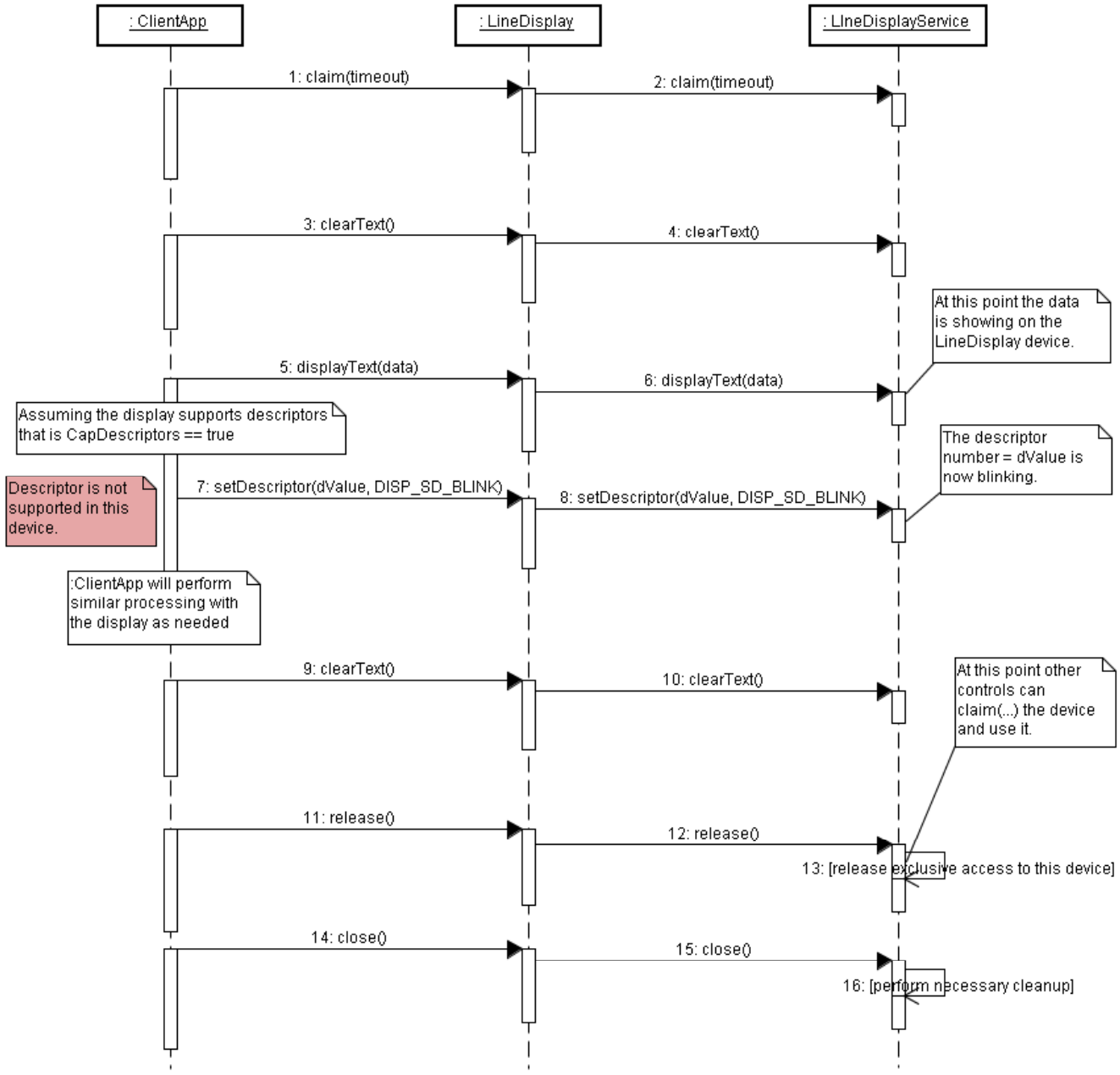
5) Simultaneous Setting of Blink and Reverse Video Attributes to Character

An escape sequence cannot simultaneously specify blink and reverse video attributes to a character string to be displayed by the displayText or displayTextAt method. If it tries, only the attribute last specified takes effect.

1.3.10 Usage Example

This section describes a common usage example of this Device Service.

* The sequence shown below assumes that ClientApp has already succeeded open() of LineDisplay. This indicates DeviceEnagle is TRUE.



1.4 TEC LineDisplay JavaPOS Device [“WD-111”]

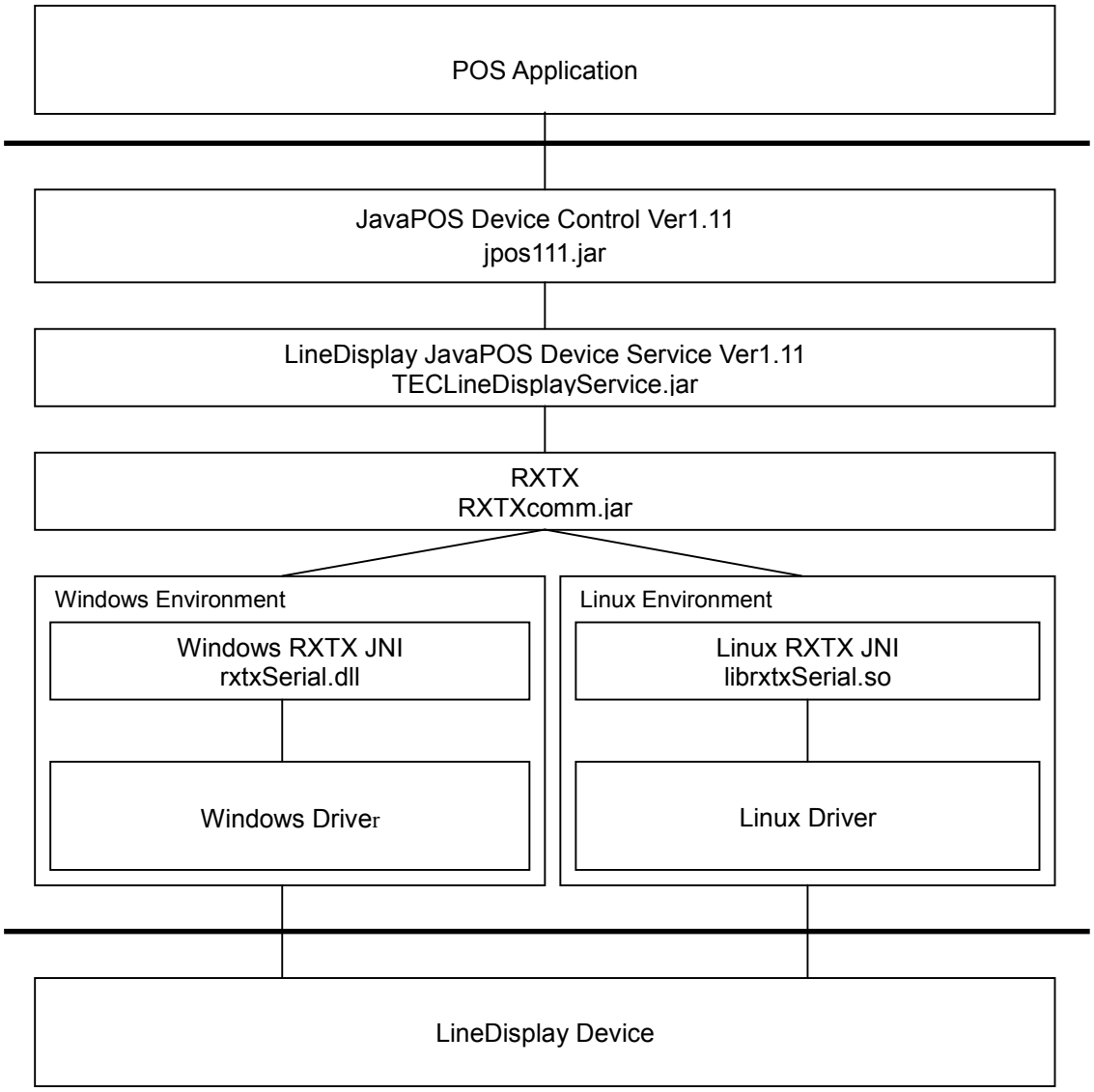
1.4.1 Supported Device

The WD-111 Serial LineDisplay of this Device Service supports the following devices provided by Toshiba TEC.

- Line Display device attached to the ST-Ax, ST-Bx series
  WD-111

1.4.2 Architecture Structure

The LineDisplay JavaPOS Device uses some software to perform functions.
The software components shown below are required to build an execution environment.



1.4.3 Supported Functions

Supported/not supported functions by the LIUST-A10 Serial LineDisplay Device Service are as follows:

Common Properties

Function	Property	UPOS Ver.	Supported or Not
Power status notification	CapPowerReporting	1.3	Not supported
Accumulation of statistics	CapStatisticsReporting	1.8	Not supported
Update of statistics	CapUpdateStatistics	1.8	Not supported
Update of firmware	CapUpdateFirmware	1.9	Not supported
Comparison of firmware version	CapCompareFirmwareVersion	1.9	Not supported

Table 23 LineDisplay JavaPOS Device – Supported Functions (Common Properties)

Specific Properties

Function	Property	UPOS Ver.	Supported or Not
Blinking of each character/device	CapBlink	1.0	Not supported
Display of bitmaps	CapBitmap	1.7	Not supported
Selection of blink rate	CapBlinkRate	1.6	Not supported
Device's brightness control	CapBrightness	1.0	Not supported
Selection of displayable character set	CapCharacterSet	1.5	Supported
Selection of cursor type	CapCursorType	1.8	Not supported
Selection of custom glyphs	CapCustomGlyph	1.6	Not supported
Of/off of descriptors	CapDescriptors	1.0	Not supported
Horizontal marquee scrolling	CapHMarquee	1.0	Not supported
Intercharacter wait	CapICharWait	1.0	Not supported
Mapping of characters	CapMapCharacterSet	1.7	Not supported
Read back of data displayed	CapReadBack	1.6	Not supported
Reverse video of each character/device	CapReverse	1.6	Not supported
Change of screen mode	CapScreenMode	1.7	Not supported
Vertical marquee scrolling	CapVMarquee	1.0	Not supported

Table 24 LineDisplay JavaPOS Device – Supported Functions (Specific Properties)

Others

Function	UPOS Ver.	Supported or Not
Blinking of descriptor	1.0	Not supported
Display mode	1.0	Not supported
Escape sequence	1.8	Not supported

Table 25 LineDisplay JavaPOS Device – Supported Functions (Others)

Extended Functions (DirectIO)

Function	UPOS Ver.	Supported or Not
Country code setting	-	Not supported

Table 26 LineDisplay JavaPOS Device – Supported Functions (DirectIO)

1.4.4 Property Specifications

1.4.4.1 Initial Value of WD111 Serial LineDisplay Properties (when opening the Service)

Common Property	Mutability	Value
AutoDisable		Not applicable
CapCompareFirmwareVersion	R	false
CapPowerReporting	R	JPOS_PR_NONE
CapStatisticsReporting	R	false
CapUpdateFirmware	R	false
CapUpdateStatistics	R	false
CheckHealthText	R	“” (empty string)
Claimed	R	false
DataCount	R	Not applicable
DataEventEnable		Not applicable
DeviceEnabled		false
FreezeEvents		false
OutputID	R	Not applicable
PowerNotify		JPOS_PN_DISABLED
PowerState	R	JPOS_PS_UNKNOWN
State	R	JPOS_S_IDLE
DeviceControlDescription		“JavaPOS LineDisplay Device Control”
DeviceControlVersion		“1011000”
DeviceServiceDescription		“TEC JavaPOS LineDisplay Device Service”
DeviceServiceVersion		“1011XXX” **(*1)**
PhysicalDeviceDescription		“WD-111 Serial Line Display”
PhysicalDeviceName		“WD-111” **(*2)**
Specific Property	**Mutability**	**Value**
CapBlink	R	DISP_CB_NOBLINK
CapBitmap	R	FALSE
CapBlinkRate	R	FALSE
CapBrightness	R	FALSE
CapCharacterSet	R	DISP_CCS_NUMERIC
CapCursorType	R	DISP_CCT_NONE
CapCustomGlyph	R	FALSE
CapDescriptors	R	FALSE
CapHMarquee	R	FALSE
CapICharWait	R	FALSE
CapMapCharacterSet	R	FALSE
CapReadBack	R	DISP_CRB_NONE
CapReverse	R	DISP_CR_NONE
CapScreenMode	R	FALSE
CapVMarquee	R	FALSE
BlinkRate		0
CharacterSet		101
CharacterSetList	R	“101”
Columns	R	11
CurrentWindow		0
CursorColumn		0
CursorRow		0
CursorType		DISP_CT_NONE
CursorUpdate	R	TRUE
CustomGlyphList		“” (empty string)
DeviceBrightness		100
DeviceColumns	R	11
DeviceDescriptors	R	0
DeviceRows	R	1
DeviceWindows	R	999
GlyphHeight	R	0
GlyphWidth	R	0
InterCharacterWait		0
MapCharacterSet	R	false
MarqueeFormat		DISP_MF_WALK

Specific Property (continued)	Mutability	Value
MarqueeRepeatWait		0
MarqueeType		DISP_MT_NONE
MarqueeUnitWait		0
MaximumX	R	0
MaximumY	R	0
Rows	R	1
ScreenMode	R	0
ScreenModeList	R	“” (empty string)

(*1) Build version is indicated as “XXX” because this manual may not be revised as soon as the module is updated.
(*2) Depending on the descriptions of the XML file, the Device’s module name is obtained and displayed.

Table 27 LineDisplay JavaPOS Device – Property Initial Value List (in part)

1.4.4.2 Details of Properties

[Common Properties]

AutoDisable Property

Type

boolean AutoDisable;

Mutability

Read / Write

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCompareFirmwareVersion Property

Type

boolean CapCompareFirmwareVersion;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
Usually set to TRUE, when the Service/Device supports the function to compare firmware version number and a firmware version can be upgraded.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapPowerReporting Property

Type

boolean CapPowerReporting;

Mutability

Read Only

Remarks

Always set to JPOS_PR_NONE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapStatisticsReporting Property

Type

boolean CapStatisticsReporting;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
UPOS sets this property to TRUE when the function to report various statistics such as product life is supported.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapUpdateFirmware Property

Type

boolean CapUpdateFirmware;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
UPOS sets this property to TRUE when the function to update a firmware via the UPOS is supported.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapUpdateStatistics Property

Type

boolean CapUpdateStatistics;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
UPOS sets this property to TRUE when the function to collect statistics is supported and the statistics can be reset.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CheckHealthText Property

Type

String CheckHealthText;

Mutability

Read Only

Remarks

Holds the result of the most recent call to the CheckHealth method.
A CheckHealth property value is initialized to empty string by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Claimed Property

Type

boolean Claimed;

Mutability

Read Only

Remarks

If TRUE, an exclusive access to the Device has been obtained.
If FALSE, the Device is released for sharing with other applications. In many cases, an access to methods and properties and an occurrence of events are allowed after an exclusive access to the Device is obtained.
A **Claimed** property value is initialized to FALSE by the **open** method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DataCount Property

Type

int DataCount;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DataEventEnabled Property

Type

boolean DataEventEnabled;

Mutability

Read / Write

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceEnabled Property

Type

boolean DeviceEnabled;

Mutability

Read / Write

Remarks

If TRUE, the Device is enabled (in an operational state). Whenever changed to TRUE, the Device is enabled.
If FALSE, the Device is disabled. Whenever changed to FALSE, the Device is disabled and cannot be accessed.
Before using the Device, an application must set this property to TRUE.
This property is initialized to FALSE by the **open** method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.
Refer to: **PowerNotify property**

FreezeEvents Property

Type

boolean FreezeEvents;

Mutability

Read / Write

Remarks

If TRUE, the Control does not deliver events. The Control holds the events until the FreezeEvents state is cleared.

If FALSE, the Control delivers events. If there are some events which have been held in a **FreezeEvents** state, changing this property to FALSE will allow these events to be delivered.

If an interruption by an event is not desirable, the application can choose whether or not the event is to be frozen.

This property is initialized to FALSE by the **open** method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

OutputID Property

Type

int OutputID;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PowerNotify Property

Type

int PowerNotify;

Mutability

Read / Write

Remarks

Always set to JPOS_PN_DISABLED because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PowerState Property

Type

int PowerState;

Mutability

Read Only

Remarks

Always set to JPOS_PS_UNKNOWN because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

State Property

Type

int State;

Mutability

Read Only

Remarks

Indicates a current state of the Control. Always set to JPOS_S_IDLE.
This property is always readable.

Value	Meaning
JPOS_S_CLOSED	The Control is closed.
JPOS_S_IDLE	The Control is in a normal state and is not busy.
JPOS_S_ERROR	In an error state. The value is read within the ErrorEvent event handler.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceControlDescription Property

Type

String DeviceControlDescription;

Mutability

Read Only

Remarks

This property describes a Device Control class.
This property is always readable.
”JavaPOS LineDisplay Device Control” is set to the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceControlVersion Property

Type

int DeviceControlVersion;

Mutability

Read Only

Remarks

This property indicates the version number of the Device Control class.
This property is always readable.
The version number of the Device is 1011000, which indicates the Device is in accordance with the JPOS 1.11.000.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceServiceDescription Property

Type

String DeviceServiceDescription;

Mutability

Read Only

Remarks

This property describes the Device Service class.
It is ”TEC JavaPOS LineDisplay Device Service” for the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceServiceVersion Property

Type

int DeviceServiceVersion;

Mutability

Read Only

Remarks

This property indicates the version number of the Device Service class.
The version number of the Device is ”1011XXX”.
The value, “XXX” indicates a build version, which is incremented from 001.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PhysicalDeviceDescription Property

Type

String PhysicalDeviceDescription;

Mutability

Read Only

Remarks

This property describes a Physical Device.
It is set to “WD-111 Serial Line Display” for the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

PhysicalDeviceName Property

Type

String PhysicalDeviceName;

Mutability

Read Only

Remarks

This property describes a name of the Physical Device.
It is set to ” WD-111” for the DeviceService.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

[Specific Properties]

CapBlink Property

Type

int CapBlink;

Mutability

Read Only

Remarks

Always set to “DISP_CB_NOBLINK” because this function is not supported by the Device.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapBitmap Property

Type

boolean CapBitmap;

Mutability

Read Only

Remarks

If TRUE, bitmaps are displayed. This property is initialized by the open method.
Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapBlinkRate Property

Type

boolean CapBlinkRate;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapBrightness Property

Type

boolean CapBrightness;

Mutability

Read Only

Remarks

If TRUE, brightness can be controlled.
Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCharacterSet Property

Type

int CapCharacterSet;

Mutability

Read Only

Remarks

Indicates the Device's default displayable character sets .

Always set to " DISP_CCS_NUMERIC" because this function is not supported by the Device.

Value	Meaning (Displayable character set)
DISP_CCS_NUMERIC	Numerals 0 to 9, space, minus (' – '"), period (' . ')
DISP_CCS_ALPHA	In addition to displayable characters when DISP_CCS_NUMERIC is selected, uppercase alphabets
DISP_CCS_ASCII	ASCII characters from 0x20 to 0x7F
DISP_CCS_KANA	Partial code page 932, including 1-byte Japanese Kana characters from 0xA1 to 0xDF and all ASCII characters from 0x20 to 0x7F, but excluding Japanese Kanji characters
DISP_CCS_KANJI	Code page 932, including 1-byte Japanese Kana characters from 0xA1 to 0xDF, all ASCII characters from 0x20 to 0x7F, Shift-JIS Kanji characters Levels 1 and 2.
DISP_CCS_UNICODE	Unicode characters

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCursorType Property

Type

int CapCursorType;

Mutability

Read Only

Remarks

Always set to " DISP_CCT_NONE" because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapCustomGlyph Property

Type

boolean CapCustomGlyph;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapDescriptors Property

Type

boolean CapDescriptor;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapHMarquee Property

Type

boolean CapHMarquee;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapICharWait Property

Type

boolean CapICharWait;

Mutability

Read Only

Remarks

If TRUE, intercharacter wait is supported.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapMapCharacterSet Property

Type

boolean CapMapCharacterSet;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Refer to:

PowerNotify property

CapReadBack Property

Type

int CapReadBack;

Mutability

Read Only

Remarks

Always set to “DISP_ CRB_NONE“ because this function is not supported by the Device.

Value	Meaning
DISP_CRB_NONE	Read back is not supported.
DISP_CRB_SINGLE	Read back of a single character at a time is supported.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapReverse Property

Type

int CapReverse;

Mutability

Read Only

Remarks

Always set to “DISP_CR_NONE“ because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapScreenMode Property

Type

boolean CapScreenMode;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CapVMarquee Property

Type

boolean CapVMarquee;

Mutability

Read Only

Remarks

If TRUE, vertical marquee scrolling is supported.
Always set to FALSE because this function is not supported by the Device.
This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

BlinkRate Property

Type

int BlinkRate;

Mutability

Read / Write

Remarks

A blink rate time, a period of cycle time when a displayed text is turned on-off-on, is expressed in milliseconds.
Always set to "0" because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CharacterSet Property

Type

int CharacterSet;

Mutability

Read / Write

Remarks

Character set to be used for the characters being displayed is selected from the following values.

Always set to "101".

Value	Meaning
Range from 101 to 199	Device-specific character sets that do not match a code page, ASCII, or Windows ANSI character sets
Range from 400 to 990	Code page; one of the standard values
DISP_CS_UNICODE	UNICODE The value of this constant is 997.
DISP_CS_ASCII	ASCII characters from 0x20 to 0x7F The value of this constant is 998.
DISP_CS_ANSI	ANSI characters The value of this constant is 999.

This property is initialized to an appropriate value when the Device is enabled after the open method is called. This value is supported even when characters which can be set by the CapCharacterSet property is insufficient.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CharacterSetList Property

Type

String CharacterSetList;

Mutability

Read Only

Remarks

A list of the character sets supported.
Always set to "101".

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Columns Property

Type

int Column;

Mutability

Read Only

Remarks

Indicates the number of columns for this window. For Window 0, this property sets the same value as the one set by the DeviceColumns property. For other windows, the value may be less or greater than the one set by the DeviceColumns property.
This property is initialized to DeviceColumns by the open method, and is updated when CurrentWindow is set or when createWindow or destroyWindow is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CurrentWindow Property

Type

int CurrentWindow;

Mutability

Read / Write

Remarks

A current window number, to which text is to be displayed, is set.
This property is initialized to "0" (device window) by the open method, and updated when createWindow method or destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorColumn Property

Type

int CursorColumn;

Mutability

Read / Write

Remarks

The column in the current window, to which the next displayed character will be output, is set. The effective values range from "0" to (Columns). (Refer to "displayText method→"CursorColumns" →"Remarks".)
This property is initialized to "0" by the open and createWindow methods, and is updated when the CurrentWindow property is set or the clearText method or the destroyWindow method is called. If the CursorUpdate property is TRUE, this property is also updated when the displayText method or the displayTextAt method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorRow Property

Type

int CursorRow;

Mutability

Read / Write

Remarks

The row in the current window, to which the next displayed character will be output, is set. The effective values range from “0” to (Rows – 1).

This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the clearText method or the destroyWindow method is called.

If the CursorUpdate Property is TRUE, this property is also updated when the displayText method or the displayTextAt method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorType Property

Type

int CursorType;

Mutability

Read / Write

Remarks

Always set to “DISP_CT_NONE “ because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CursorUpdate Property

Type

boolean CursorUpdate;

Mutability

Read / Write

Remarks

If TRUE, the CursorRow and CursorColumn properties are updated to point to the character beyond the last character output when characters are displayed using the displayText or displayTextAt method. If FALSE, the cursor properties are not updated even when characters are displayed. This property is maintained for each window.

This property is initialized to TRUE by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

CustomGlyphList Property

Type

String CustomGlyphList;

Mutability

Read Only

Remarks

Always set to “ “ because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceBrightness Property

Type

int DeviceBrightness;

Mutability

Read / Write

Remarks

The device brightness value is set in percentage between 0 and 100.

Any device can support 0% (blank) and 100% (full intensity). Blanking can, at a minimum, be supported by sending spaces to the device.

If the CapBrightness property is TRUE, the Device supports one or more brightness levels. If the Device does not support a specified brightness value, the Device Service sets an appropriate value.

This property is initialized to 100 when the Device is first enabled after the open method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceColumns Property

Type

int DeviceColumns;

Mutability

Read Only

Remarks

The number of columns on the Device is set.

This property is initialized by the open method and updated when the ScreenMode property is changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceDescriptors Property

Type

int DeviceDescriptors;

Mutability

Read Only

Remarks

The number of descriptors on the Device is set. If the CapDescriptors property is TRUE, this property is set to a value other than “0”.

This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceRows Property

Type

int DeviceRows;

Mutability

Read Only

Remarks

The number of rows on the Device is set.

This property is initialized by the open method and updated when the ScreenMode property is

changed.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

DeviceWindows Property

Type

int DeviceWindows;

Mutability

Read Only

Remarks

The maximum number of windows, which can be supported by the Device, is set. When this property is set to “0”, it indicates only the Device window is supported and a new window cannot be created. This property is initialized by the open method.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

GlyphHeight Property

Type

int GlyphHeight;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

GlyphWidth Property

Type

int GlyphWidth;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

InterCharacterWait Property

Type

int InterCharacterWait;

Mutability

Read / Write

Remarks

This property is used only when the window is not in Marquee mode (that is, the MarqueeType property is set to DISP_MT_NONE).

When this property is a value other than “0” and the window is not in Marquee mode, the window is in Teletype mode: requests from the displayText method and the displayTextAt method are enqueued and processed in the order they are received. This property specifies a time to wait between displaying each character. The wait time is expressed in milliseconds. (Note an error may be generated depending on the accuracy of the timer.) If the CursorUpdate property is TRUE, the

CursorRow property and the CursorColumn property are updated to their appropriate values before the displayText method or the displayTextAt method returns, even when all character strings have not been displayed.
When this property is “0” and the window is not in Marquee mode, Immediate mode is in effect where characters are processed as quickly as possible. If some display requests are enqueued at the time this property is set to “0”, the requests are completed as quickly as possible. If CapICharWait is FALSE, intercharacter wait is not supported, and the value of this property is not used.
This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception
In case of an error when this property is accessed, a Java exception is thrown.

MapCharacterSet Property

Type
boolean MapCharacterSet;

Mutability
Read / Write

Remarks
Always set to FALSE because this function is not supported by the Device.

Exception
In case of an error when this property is accessed, a Java exception is thrown.

MarqueeFormat Property

Type
int MarqueeFormat;

Mutability
Read / Write

Remarks
The following marquee scrolling formats are set for the current window.

Value	Meaning
DISP_MF_WALK	Starts marquee scrolling by walking data from the opposite side. For example, if the marquee type is “left,” characters are placed at the right side of the viewport and are scrolled to the left.
DISP_MF_PLACE	Starts marquee scrolling in a manner so that characters are placed. For example, if the marquee type is “left,” the characters are placed from the left side of the viewport and scrolling starts when the viewport is filled with the characters.

This property is initialized to DISP_MF_WALK by the open and createWindow methods, and updated when the CurrentWindow property is set or the destroyWindow is method is called.
This property is read when the mode is changed to Marquee On mode. It is not used in a mode other than Marquee mode.

Exception
In case of an error when this property is accessed, a Java exception is thrown.

MarqueeRepeatWait Property

Type
int MarqueeRepeatWait;

Mutability
Read / Write

Remarks
A wait time between marquee scrolling is set in milliseconds. (Note an error may be generated depending on the accuracy of the timer.)

This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.
This property is not used when the mode is not in Marquee mode.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MarqueeType Property

Type

int MarqueeType;

Mutability

Read / Write

Remarks

The following marquee scrolling types are set for the current window. When the value is not DISP_MT_NONE, the window is in Marquee mode.

Value	Meaning
DISP_MT_NONE	Marquee scrolling is disabled.
DISP_MT_INIT	Marquee Initialization mode. Until the value of this property is set to other value, any change to the window is not reflected in the viewport.
DISP_MT_UP	Scrolls the window upward. Illegal if the value of the Rows property is less than the viewportHeight value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.
DISP_MT_DOWN	Scrolls the window downward. Illegal if the value of the Rows property is less than the viewportHeight value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.
DISP_MT_LEFT	Scrolls the window to the left. Illegal if the value of the Columns property is less than the viewportWidth value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.
DISP_MT_RIGHT	Scrolls the window to the right. Illegal if the value of the Columns property is less than the viewportWidth value of the createWindow method when a window is created, or the CapVMarquee property is not TRUE.

This property is initialized to DISP_MT_NONE by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MarqueeUnitWait Property

Type

int MarqueeUnitWait;

Mutability

Read / Write

Remarks

A wait time between marquee scrolling of each column or row in the window is set in milliseconds. (Note an error may be generated depending on the accuracy of the timer.)
This property is not used when the MarqueeType property is DISP_MT_NONE.
This property is initialized to “0” by the open and createWindow methods, and is updated when the CurrentWindow property is set or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MaximumX Property

Type

int MaximumX;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

MaximumY Property

Type

int MaximumY;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

Rows Property

Type

int Rows;

Mutability

Read / Write

Remarks

The number of rows for the current window. For Window 0, the value of this property is the same as that of the DeviceRows property. For other windows, it may be less or greater than that of the DeviceRows property.

This property is initialized to the DeviceRows property by the open method, and is updated when the CurrentWindow property is set or the createWindow method or the destroyWindow method is called.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

ScreenMode Property

Type

int ScreenMode;

Mutability

Read / Write

Remarks

Always set to “0” because this function is not supported by the Device.

For example: 0=Default value
1= First setting in ScreenModeList
2= Second setting in ScreenModeList, etc.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

ScreenModeList Property

Type

int ScreenModeList;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.

Exception

In case of an error when this property is accessed, a Java exception is thrown.

1.4.5 Method Specifications

1.4.5.1 Method List

Supported/unsupported methods by this Device (WD-111 Serial LineDisplay) are as follows:

Common Method	Requirement	Remarks
open	None	Mandatory supported
close	open	Mandatory supported
claim	open	Mandatory supported
release	open & claim	Mandatory supported
checkHealth	open & claim & enable	Only Interactive Check Health is supported
compareFirmwareVersion	open & claim & enable	Not supported
directIO	open	Supported
resetStatistics	open & claim & enable	Not supported
retreveStatistics	open & claim & enable	Not supported
updateFirmware	open & claim & enable	Not supported
updateStatistics	open & claim & enable	Not supported
Specific Method	**Requirement**	**Remarks**
clearText	open & claim & enable	Supported
displayText	open & claim & enable	Supported
displayTextAt	open & claim & enable	Supported
scrollText	open & claim & enable	Supported
clearDescriptors	open & claim & enable	Not supported
setDescriptor	open & claim & enable	Not supported
createWindow	open & claim & enable	Supported
destroyWindow	open & claim & enable	Supported
refreshWindow	open & claim & enable	Supported
defineGlyph	open & claim & enable	Not supported
readCharacterAtCursor	open & claim & enable	Not supported
displayBitmap	open & claim & enable	Not supported
setBitmap	open & claim & enable	Not supported

Table 28 LineDisplay JavaPOS Device – Method List

1.4.5.2 Details of Methods

[Common Properties]

open Method

Type

void open (String *logicalDeviceName*) throws JPOSException;

The ***logicalDeviceName*** parameter specifies the Device name to open.

The Device name specifies the “logicalName” specified by JPOS.xml.

Remarks

This method is called to open the Device.

The device name specifies the Device which should be used among the Devices supported by this Control class.

The ***logicalDeviceName*** must be the one specified by JPOS.xml.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

close Method

Type

void close ( ) throws JPOSException;

Remarks

Thie method is called to release the Device and its resources.

If the **DeviceEnabled** property is TRUE, the Device is disabled first.

If the **Claimed** property is TRUE, an excessive access to the Device is released first.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

claim Method

Type

void claim (INT *Timeout*) throws JPOSException;

Remarks

The *Timeout* parameter indicates the maximum wait time in milliseconds to obtain an exclusive access. If “0”, the method immediately returns the result even when the method failed to obatin the exclusive access.

If JPOS_FOREVER (-1), this method waits as long as needed until the exclusive access is obtained.

This method is called when an exclusive access to the Device is requested. The Device cannot be used unless the exclusive access is obtained.

When the exclusive access is successuly obtained, the **Claimed** property is changed to TRUE.

When the **Claim** method is executed, a connection is established with the Device and it is checked to see if processes can be performed. If yes, the **Claim** method is completed successfully.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

release Method

Type

void release () throws JPOSException;

Remarks

This method is called to release an exclusive access to the Device.

If the **DeviceEnabled** property is TRUE and the Device is exclusively used, the Device is disabled.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

checkHealth Method

Type

void checkHealth (INT *Level*) throws JPOSException;

Remarks

The *Level* parameter indicates the following types of health check to be performed on the Device.

Value	Meaning
JPOS_CH_INTERNAL	Internal test This parameter is not supported.
JPOS_CH_EXTERNAL	Thorough test This parameter is not supported.
JPOS_CH_INTERACTIVE	Performs an interactive test with the Device. The supporting Service Object will typically display a modal dialog box to present test options and results.

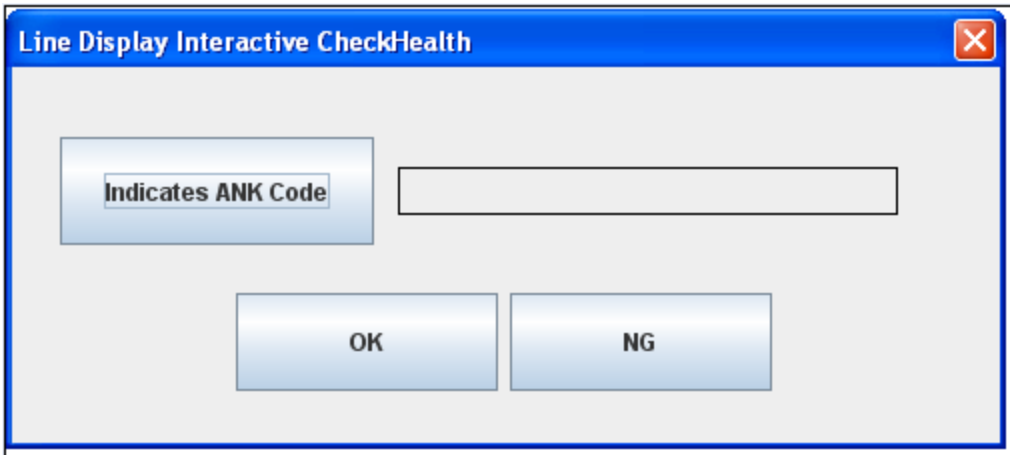
When the checkHealth method is performed at an interactive level, the following dialog box is displayed.

Click each command button to check if the line display can be successfully performed.

The “Indicates ANK Code” button scrolls 20H to 7EH line by line.

The “Indicates Discriptors” button displays descriptors.

Visually check the display and press the button, either “OK” or “NG” to complete the check.



Exception

In case of an error when this method is invoked, a JPOSException is thrown.

This Device Service only supports the healthCheck method at an interactive level.
Regardless of level, the checkHealth method throws the following exceptions.

Value (exception's ErrorCode)	CheckHealthText Property	Meaning
JPOS_E_CLOSED	No change	The Device has been closed.
JPOS_E_DISABLED	"HCheck:Disabled"	The Device has been disabled.
JPOS_E_ILLEGAL	"HCheck:Illegal"	Illegal level parameter
JPOS_E_FAILURE	"HCheck:failure"	Captures an exception other than JavaPOS

1) Internal Level (level=JPOS_CH_INTERNAL)
Checks a connection status with the Device from a line status.

Value (ResultCode)	CheckHealthText	Meaning
JPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not supported

2) External Level (level=JPOS_CH_EXTERNAL)
The following character strings are thrown from the right side on the upper and lower rows of the line display.
"TEC Line Display LIUST-5X OPOS CheckHealth:External"

Value (ResultCode)	CheckHealthText	Meaning
JPOS_E_ILLEGAL	"External HCheck:Illegal"	Not supported

3) Interactive Level (level=JPOS_CH_INTERACTIVE)

Value (ResultCode)	CheckHealthText	Meaning
JPOS_SUCCESS	"Interactive HCheck: Successful"	Completed with the "OK " button
JPOS_E_FAILURE	"Interactive HCheck: Error"	Completed with the "NG " button
JPOS_E_NOTCAIMED	"HCheck: Exclusive"	Exclusive error
JPOS_E_DISABLED	"HCheck: Disabled"	The Device has been disabled.

clearInput Method

Type

void clearInput ( )throws JPOSException;

Remarks

An exception is always thrown because this method is not supported by the Control.
Usually, this method clears **DataEvent** events and **ErrorEvent** events that have been buffered.
Mostly, a "bufferred" status is a status where the events are waiting for DataEventEnabled to be TRUE and FreezeEvents to be FALSE.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

clearInput Properties Method

Type

void clearInputProperties ( ) throws JPOSException;

Remarks

An exception is always thrown because this method is not supported by the Control.
Usually, this method sets all data propertis that are updated by a data event or error event, back to their default values. This does not reset the DataCount or Status properties.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

clearOutput Method

Type

void clearOutput() throws JPOSException;

Remarks

An exception is always thrown because this method is not supported by the Control.
Usually, this method is called to clear all buffered output data in the Devoce.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

directIO Method

Type

void directIO (INT *Command*, INT *pData*, Object *pString*) throws JPOSException;

Remarks

The Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.
This directIO method throws the following exceptions regardless of command parameter values.
For details of the exceptions for each method of the extension functions, refer to the section "1.1.8.2 directIO Method Specifications".

Value (exception's ErrorCode)	Exception's ErrorCodeExtended	Meaning
JPOS_E_CLOSED	0	The Device has been closed.
JPOS_E_ILLEGAL	0	The Device is not supported.

compareFirmwareVersion Method

Type

void compareFirmwareVersion(String firmwareFileName, INT result) throws JPOSException;

Remarks

The Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

resetStatistics Method

Type

void resetStatistics(String statisticsBuffer) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

retreveStatistics Method

Type

void retreveStatistics(String StatisticsBuffer) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

updateFirmware Method

Type

void updateFirmware(String firmwareFileName) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

updateStatistics Method

Type

void updateStatistics(String statisticsBuffer) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

[Specific Methods]

clearText Method

Type

void clearText () throws JPOSException;

Remarks

This method clears the current window to blanks, and sets the CursorRow property and the CursorColumn property to "0". The viewport moves to the beginning of the window. All bitmaps on the window are also cleared. In Immediate mode or Teletype mode, the viewport is also cleared immediately.

In Marquee Init mode, the viewport is not changed.
In Marquee On mode, use of this method is prohibited.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

Refer to

displayText method

displayText Method

Type

void displayText (String data, int atribute) throws JPOSException;

Parameter	Description
data	Character strings to be displayed
attribute	Display attribute: either of DISP_DT_NORMAL, DISP_DT_BLINK, DISP_DT_REVERSE, or DISP_DT_BLINK_REVERSE

Remarks

Character strings specified by the data parameter is displayed from the position specified by CursorRow and CursorColumn. Displaying the characters contines to the next row when the end of a window row is reached. If there are still characters to be displayed when the end of the window is reached, the window is scrolled upward by one row.
If the CursorUpdate property is TRUE, the CursorRow property and the CursorColumn property are updated to point to the character position following the last character of data.
In case the character strings consist of alphabet or illegal character (beside of numeric), then driver rearranges space for illegal character & non-support alphabets.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

displayTextAt Method

Type

void displayTextAt (int row, int column,String data, int attribute) throws JPOSException;

Parameter	Description
row	Start row for text
column	Start column for text
data	Character string to display
attribute	Display attribute: either of DISP_DT_NORMAL, DISP_DT_BLINK, DISP_DT_REVERSE, or DISP_DT_BLINK_REVERSE

Remarks

Character strings specified by the Data parameter is displayed from the position specified by the Row and Column parameters. The result is the same when the Row parameter is set to the CursorRow property and the Column parameter is set to the CursorColumn property and the displayText method is called.

In case the character strings consist of alphabet or illegal character (beside of numeric), then driver rearranges space for illegal character & non-support alphabets.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

scrollText Method

Type

void scrollText (int direction, int units) throws JPOSException;

The Direction parameter indicates the following scrolling directions.

Value	Meaning
DISP_ST_UP	Scrolls the window upward.
DISP_ST_DOWN	Scrolls the window downward.
DISP_ST_LEFT	Scrolls the window to the left.
DISP_ST_RIGHT	Scrolls the window to the right.

The Units parameter indicates the number of columns or rows to scroll.

Remarks

This method scrolls the current window. This scrolling does not influence the CursorRow and CursorColumn properties.

The scrollText method is only used in Immediate mode.

If the window size in the scroll direction is the same as its viewport size, the window data is scrolled, the last units rows or last units columns are set to spaces, and the viewport is updated. If the window contains bitmap data, it is also scrolled.

If the window size in the scroll direction is larger than its viewport, the window data is not changed. Instead, the mapping of the window into the viewport is moved in the specified direction. The window data is not changed, but the viewport is updated. If scrolling by units would go beyond the beginning of the window data, the window is scrolled in a manner so that the first viewport row or column contains the first window row or column. If scrolling by units would go beyond the end of the window data, the window is scrolled in a manner so that the last viewport row or column contains the last window row or column.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

clearDescriptors Method

Type

void clearDescriptors () throws JPOSException;

Remarks

This method turns off all descriptors.
If the CapDescriptors property is FALSE, this method is disabled.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

setDescriptor Method

Type

void setDescriptor (int descriptor, int attribute) throws JPOSException;

The Descriptor parameter indicates a descriptor of which state is to be changed. The effective range is from "0" to (DeviceDescriptors-1). The Attribute parameter sets the following descriptor values.

Value	Meaning
DISP_SD_ON	Turns the descriptor on.
DISP_SD_BLINK	Sets the descriptor to blink.
DISP_SD_OFF	Turns the descriptor off.

Remarks

Sets a state of one of the descriptors which are small indicators with a fixed label.
This function is disabled if CapDescriptors is FALSE.
The physical position of the descriptor specified by the Descriptor parameter is set between the Device and its Device Service.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

createWindow Method

Type

void createWindow (int viewportRow, int viewportColumn,int viewportHeight, int viewportWidth,int windowHeight, int windowWidth) throws JPOSException;

Parameter	Description
viewportRow	Viewport's start device row
viewportColumn	Viewport's start device column
viewportHeight	Number of device rows in the viewport
viewportWidth	Number of device columns in the viewport
windowHeight	Logical number of rows in the window
windowWidth	Logical number of columns in the window

Remarks

Creates a viewport over the physical position of the display given by the ViewportRow, viewportColumn, viewportHeight, or viewportWidth parameter . The window size is specified by the WindowHeight and WindowWidth parameters. The effective window row range is from "0" to (windowWidth-1) and the effective window column range is from "0" to (windowWidth-1).
The window size must be at least as large as the physical viewport size allocated on the display. The window size can be larger than the viewport size in one direction. Using the window marquee properties, that is, MarqueeType, MarqueeFormat, MarqueeUnitWait, and MarqueeRepeatWait, such a window can be continuously scrolled in a marquee fashion.
When the window is created, the createWindow method sets a window number assigned to this window to the CurrentWindow property. The following properties are maintained for each window, and are initialized as given:

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

destroyWindow Method

Type

void destroyWindow () throws JPOSException;

Remarks

Deletes the current window. The characters being displayed are not changed.
The CurrentWindow property is set to Window 0. Properties associated with the device window are updated.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

refreshWindow Method

Type

void refreshWindow (int window) throws JPOSException;
The Window parameter specifies the window number to be refreshed.

Remarks

This method changes the current window to the window specified by the Window parameter, and redisplays its previous data. Neither the mapping of the window to its viewport nor the window's cursor position is changed.
This method is used to restore a window after other window has overwritten some of its viewport.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

defineGlyph Method

Type

void defineGlyph(int glyphCode, int(byte[]) glyph) throws JPOSException;

Parameter	Description
glyphCode	Character code to be defined
glyph	Data to define glyph

Remarks

The Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

readCharacterAtCursor Method

Type

void readCharacterAtCursor(int[] cursorData) throws JPOSException;

Parameter	Description
cursorData	Characters read from the display

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

displayBitmap Method

Type

void displayBitmap(String Filename, int width, int alignmentX, int alignmentY)
throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

setBitmap Method

Type

void setBitmap(int bitmapNumber, string fileName, int Width, int alignmentX, int alignmentY) throws JPOSException;

Remarks

An exception is always thrown when this method is called because the Device does not support this function.

Exception

In case of an error when this method is invoked, a JPOSException is thrown.

1.4.6 Event Specifications

This Device Service throws no event.

1.4.7 Exception Specifications

1.4.7.1 Exceptions Thrown by Methods

This Device Service throws the following exceptions when methods are invoked

1) Results When Methods Other Than open and DirectIO Are Executed

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
open	JPOS_E_NOEXIST -	XML description for the name of the file to be opened does not exist.	Check the name of the file to be opened.
	JPOS_E_ILLEGAL -	The Device has been open.	—
		Other errors occurred.	Investigate the error
claim	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_CLAIMED -	Recognition of the exclusive access failed.	Try again after other application releases the exclusive access.
	JPOS_E_ILLEGAL -	The CheckHealth method of POS_CH_INTERACTIVE level is being executed.	Try again after the CheckHealth method is completed.
		Startup of the thread failed.	Investigate the error.
		When opening the Device, an invalid parameter was specified.	Investigate the error.
		Other errors occurred.	Investigate the error
	JPOS_E_TIMEOUT -	While waiting for other application to release the exclusive access to the Device, a specified timeout (milliseconds) period expired.	Try again after other application releases the exclusive access.
	JPOS_E_NOHARDWARE -	When opening the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_FAILURE -	When opening the Device, an error occurred.	Investigate the error. (WD-111 is not supported)
release	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_ILLEGAL -	The application does not have the exclusive access to the target Device.	—
		The CheckHealth method of POS_CH_INTERACTIVE level is being executed.	Try again after the CheckHealth method is completed.
		Other errors occurred.	Investigate the error
close	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_ILLEGAL -	The CheckHealth method of POS_CH_INTERACTIVE level is being executed.	Try again after the CheckHealth method is completed.
		Other errors occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
checkHealth	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The specified health check level is illegal.	Specify a valid health check level.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (WD-111 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (WD-111 is not supported)
compareFirmware Version	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_
updateFirmware	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_
resetStatistics	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_
retrieveStatistics	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_
updateStatistics	JPOS_E_CLOSED -	The Device has been closed.	_
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	_

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
displayText	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The specified attribute is illegal.	Specify a valid attribute.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (WD-111 is not supported)
	JPOS_E_FAILUER -	While communicating with the Device, an error occurred.	Investigate the error. (WD-111 is not supported)
displayTextAt	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The specified attribute is illegal.	Specify a valid attribute.
		The specified row or column is illegal.	Specify a valid row or column.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (WD-111 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (WD-111 is not supported)

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
clearText	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (WD-111 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (WD-111 is not supported)
scrollText	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid direction was specified.	Specify a valid direction.
		An invalid units was specified.	Specify a valid units.
		The current window is in Teletype mode.	Try again after setting the InterCharacterWait property to “0”.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (WD-111 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (WD-111 is not supported)

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
setDescriptor	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid descriptor was specified.	Specify a valid descriptor.
		An invalid attribute was specified.	Specify a valid attribute.
		The Device does not support the method.	—
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (WD-111 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (WD-111 is not supported)
clearDescriptors	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (WD-111 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (WD-111 is not supported)
createWindow	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid parameter was specified.	Specify a valid parameter.
		Other errors occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
destroyWindow	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	Window number is set to “0”. This window cannot be deleted.	Try again after setting the CurrentWindow property to a value other than “0”.
		Obtaining information of the current window failed.	Investigate the error.
		Other errors occurred.	Investigate the error
refreshWindow	JPOS_E_CLOSED -	The Device has been closed.	Try again after executing the open method.
	JPOS_E_NOTCLAIMED -	An exclusive access has not been obtained.	Try again after executing the Claim method.
	JPOS_E_DISABLED -	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL -	An invalid window was specified.	Specify a valid window.
		The current window is in Marquee mode.	Try again after specifying DISP_MT_NONE for the MarqueeType property.
		Other errors occurred.	Investigate the error
	JPOS_E_NOHARDWARE -	While communicating with the Device, it was detected the Device power was not turned on or the Device was not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_TIMEOUT -	While communicating with the Device, timeout was detected.	Investigate the error. (WD-111 is not supported)
	JPOS_E_FAILURE -	While communicating with the Device, an error occurred.	Investigate the error. (WD-111 is not supported)
readCharacterAtCursor	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error
defineGlyph	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error
displayBitmap	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error

Method	Upper row: ErrortCode Lower row: ErrorCodeExtended	Meaning	Error Handling
setBitmap	JPOS_E_CLOSED -	The Device has been closed.	—
	JPOS_E_NOSERVICE -	The Service Control (SC) is so old that the method is not supported.	—
	JPOS_E_ILLEGAL -	The Device does not support the method.	—
		Other errors occurred.	Investigate the error

1.4.7.2 Exceptions Thrown by Property Setting

This Device Service throws the following exceptions when property settings are performed.
Common Results for All Properties and Results Specific to Each Property

Property	ErrorCode	Meaning	Error Handling
All properties	JPOS_E_CLOSED	The Device has been closed.	Perform a setting again after executing the open method.
DeviceEnabled	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Perform a setting again after executing the Claim method.
	JPOS_E_NOHARDWARE	The Device power is not turned on or the Device is not connected.	Check the Device power or Device connection. (WD-111 is not supported)
PowerNotify	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
	JPOS_E_ILLEGAL	Since CapPowerReporting is invalid, this cannot be set.	―
BlinkRate	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
	JPOS_E_ILLEGAL	Since CapBlinkRate is false, this cannot be set.	―
DeviceBrightness	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Perform a setting again after executing the Claim method.
	JPOS_E_DISABLED	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL	The invalid value, which is not within a range from 0 to 100, was specified.	Specify a valid value (0 to 100).
		Since CapDeviceBrightness is invalid, this cannot be set.	―
	JPOS_E_NOHARDWARE	The Device power is not turned on or the Device is not connected.	Check the Device power or Device connection. (WD-111 is not supported)
	JPOS_E_TIMEOUT	A communication timeout with the Device expired.	Investigate the error. (WD-111 is not supported)
	JPOS_E_FAILURE	A communication error with the Device occurred.	Investigate the error. (WD-111 is not supported)
CharacterSet	JPOS_E_NOTCLAIMED	An exclusive access has not been obtained.	Perform a setting again after executing the Claim method.
	JPOS_E_DISABLED	The Device is disabled.	Try again after setting the DeviceEnable property to TRUE.
	JPOS_E_ILLEGAL	An invalid parameter value was specified.	Specify a valid parameter value.
		Since CapCharacterSet is invalid, this cannot be set.	―
MapCharacterSet	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
CurrentWindow	JPOS_E_ILLEGAL	An invalid window value was specified.	Specify a valid value.
CursorRow	JPOS_E_ILLEGAL	An invalid cursor row value was specified.	Specify a valid value.
CursorColumn	JPOS_E_ILLEGAL	An invalid cursor column value was specified	Specify a valid value.
CursorType	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
	JPOS_E_ILLEGAL	Since CapCharacterSet is invalid, this cannot be set.	―

Property	ErrorCode	Meaning	Error Handling
MarqueeType	JPOS_E_ILLEGAL	An invalid value was specified.	Specify a valid value.
		The property setting was performed for Window number 0.	MarqueeType property cannot be set for Window number 0. Perform a setting again after setting the CurrentWindow property to a value other than “0”.
		The window size is illegal.	Perform a setting after checking the window size.
		Since CapHMarquee is false, this cannot be set.	―
		Since CapVMarquee is false, this cannot be set.	―
MarqueeFormat	JPOS_E_ILLEGAL	An invalid value was specified.	Specify a valid value.
		The property setting was performed for Window number 0.	MarqueeType property cannot be set for Window number 0. Perform a setting again after setting the CurrentWindow property to a value other than “0”.
ScreenMode	JPOS_E_NOSERVICE	The Service Object (SO) is so old that the property is not supported.	―
	JPOS_E_ILLEGAL	Since CapScreenMode is false, this cannot be set.	―

1.4.8 Setting Information

Setting information of this Device Service is set in the XML file called "jpos.xml".
The <prop> tag in the XML file is a setting item specific to this Device. For details of other tags, <creation>, <vendor>, <jpos>, and <product>, refer to the UPOS Specification.
In order that the service to open may recognize that it is this device service, the "name" property of a product tag is used. Therefore, please specify this property as the following setting.

```
<JposEntries>
    <JposEntry logicalName="LineDisplayLogicalName">
        <creation factoryClass="jpos.toshibatec.loader.linedisplay.JavaPOSServiceFactory"
            serviceClass="jpos.toshibatec.linedisplay.services.LineDisplayService"/>
        <vendor name="TOSHIBA TEC Corporation" url="http://www.toshibatec.co.jp"/>
        <jpos category="LineDisplay" version="1.11"/>
        <product description=" TEC WD-111 Serial LineDisplay"
            name="TECLineDisplay" url="http://www.toshibatec.co.jp"/>

        <prop name="portName" type="String" value="{port name}"/>
        <prop name="baudRate" type=" String " value="{baud rate}"/>
        <prop name="deviceBus" type="String" value="{device type}"/>
        <prop name="modelName" type="String" value="{model name}"/>
    </JposEntry>
```

Item Name	Value
JposEntry logicalName	The logic device name of the service to be used. (Arbitrary names) It corresponds with logicalDeviceName of an Open method.
product name	A property for the service to open to recognize that it is this device service. (Note) If it changes, it will not operate. Setting a fixed value : “TECLineDisplay”
portName	Connection port name. [Default value: COM4] (Windows) Select a value from COM1 to COM10. (Linux) Select a value from /dev/ttyS0 to /dev/ttyS9.
baudRate	Baud rate [Default value: 9600] Only 9600 is supported with this device service.
deviceBus	device type [Default value: RS232C] RS232C,(USB,PARALLEL) Only RS232C is supported with this device service.
modelName	model name [Default value: WD-111] LIUST-51(LIUST-52,・・・・) Only WD-111 is supported with this device service.

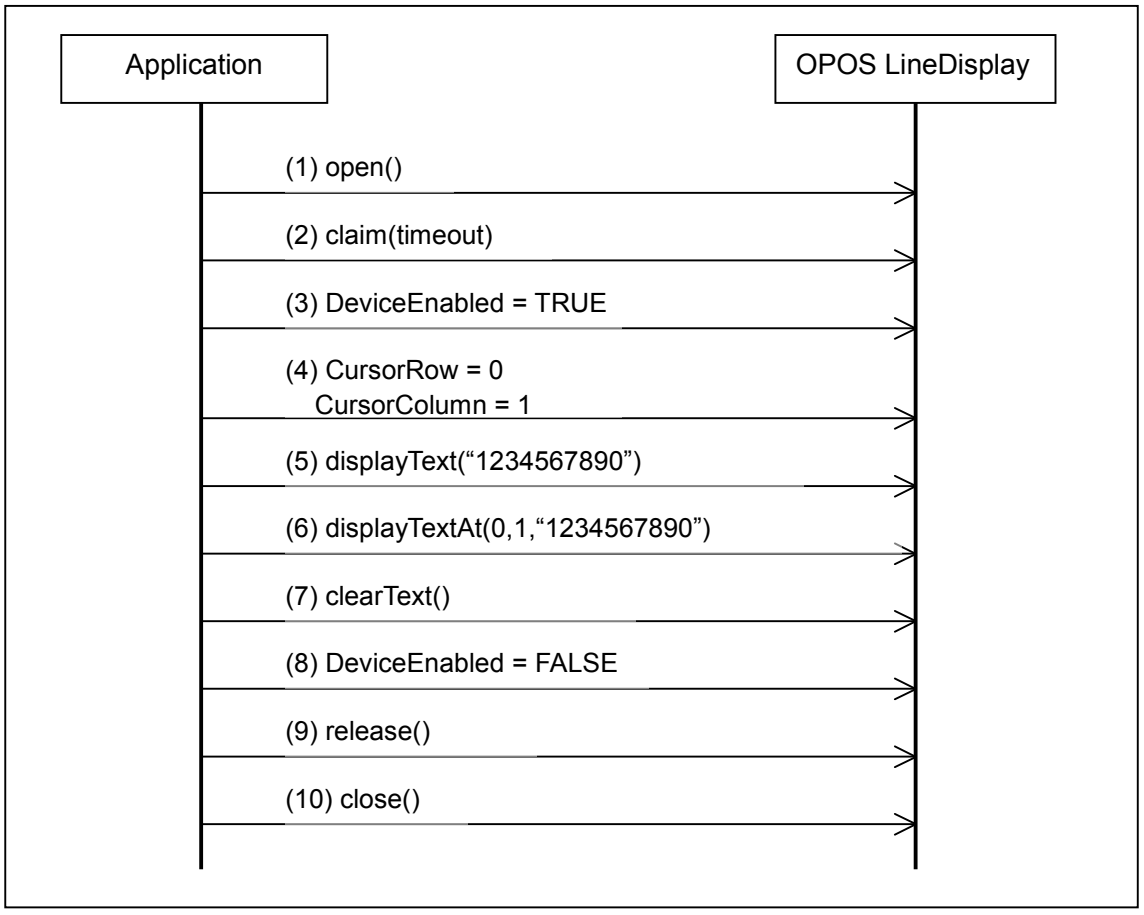
Table 29 LineDisplay JavaPOS Device –Setting Information List

1.4.9 Limitations and Precautions

This section describes the limitations and precautions for using this Device Service, including the differences from the UPOS Specifications.

1.4.10 Usage Example

This section describes a usage example of each function of this Device Service.

1.4.10.1 Display and Deletion of Characters

(1) Execute open() to open the LineDisplay Control.
(2) Execute claim(timeout) and obtain an exclusive access.
(3) Set the DeviceEnabled property to TRUE to enable the Device.
(4) Set the CursorRow property to “0” and the CursorColumn property to “1” to determine a cursor position.
(5) Execute displayText(“1234567890”) to display a character string from the cursor position.
(6) Execute displayTextAt(0, 1,” 1234567890”) to display a character string from second column.
(7) Execute clearText() to delete all characters within the window.
(Any bitmaps within the window are also deleted.)
(8) Set the DeviceEnabled property to FALSE to disable the Device.
(9) Execute release() to release the exclusive access.
(10) Execute close() to close the LineDisplay control.