TOSHIBA

TOSHIBA POS Terminal

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

MSR Application Programmer's Manual
Toshiba TEC JavaPOS

Fourth Edition: June 16, 2010

TOSHIBA TEC CORPORATION

Revision Record

No. EAA-02634

MSR Application User Manual

Rev. No.	Date	Pages	Description
---	July 02, 2008	---	Original issue
1	Dec. 5, 2008	36-105	Descriptions about the TFTST-76 and PKB-ST5x-MSR have been added.
		All	Review result has been reflected.
2	Oct, 14, 2009	1	Descriptions about the PKB-ST52 have been added.
3	Jun, 16, 2010	1	Descriptions about the PKB-ST52 have been edited.

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Introduction

The MSR Application User Manual (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.
- For any differences and/or discrepancies between this manual and the UPOS Specification, please thoroughly review them.

1. MSR

1.1. MSR JavaPOS Service ["TECMSR"]

A package name of this Device Service is as follows:
"jpos.toshibatec.msr"

1.1.1. Supported Operating Systems

This Device Service supports the following operating systems.
- Windows 2000
- Windows XP Professional
- Windows Embedded for Point of Service1.1(WEPOS1.1)
- Windows Embedded POSReady 2009
- Windows Vista
- SUSE Linux Enterprise Desktop 10 SP1
- SUSE Linux Enterprise Desktop 11

	Device	Windows 2000	Windows XP SP2	WEPOS	Windows Vista	POSReady 2009	SUSE10	SUSE11
MCRST-A10	MCRST-A10-5x-QM-R	A	A	A	A	N.A.	A	A
TFTST-76	TFTST-76 MSR	A	N.A.	A	A	N.A.	A	N.A.
MCRST-5x	PKBST-50 MSR (PS/2)	A	N.A.	A	A	N.A.	A	A
	LKBST-65 MSR (PS/2)	A	N.A.	A	A	N.A.	A	N.A.
	PKBST-52 MSR (USB)	A.	A.	A	A.	A	A.	A

1.1.2. Supported JavaVM

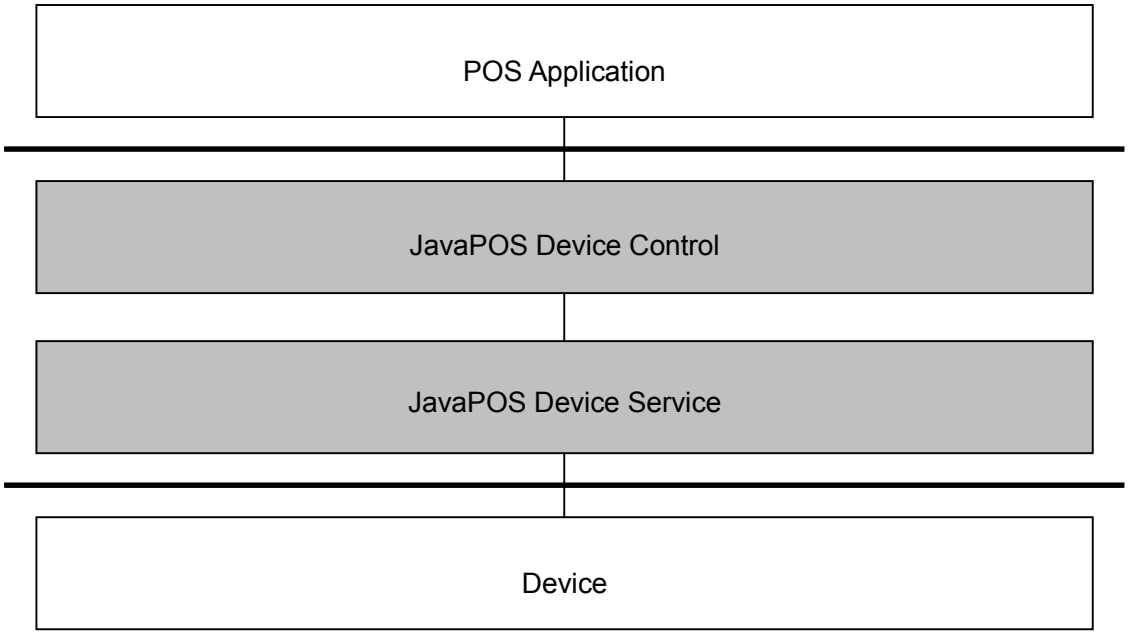
This Device Service runs on the following JavaVM.
- Java Runtime Environment 1.4.2

1.1.3. Supported Device

This Device Service supports the following devices.
- MCRST-A10-5x-QM-R:ISO Model
- MSR device attached to the TFTST-76
- MSR device attached to the PKBST-50
- MSR device attached to the PKBST-52
- MSR device attached to the LKBST-65

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

This Device Service provides the following properties which are in accordance with the UPOS Specification.

Common Property	Enable Condition	Description
AutoDisable	open	Data-event-driven function to automatically disable the Device
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
DataCount	open	Number of obtained data after opening the Device
DataEventEnabled	open	Enable/disable of delivery of DataEvent
DeviceEnabled	open & claim	Enable/disable of Device
FreezeEvents	open	Support/not support of the function to temporarily stop event generation
OutputID	Not supported	Holding of the most recent output ID of output device
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

Table 1 JavaPOS Device – Property List

Specific Property	Enable Condition	Description
CapISO	open	Support/not support of ISO cards
CapJISOne	open	Support/not support of JIS-I cards
CapJISTwo	open	Support/not support of JIS-II cards
CapTransmitSentinels	open	Whether or not Sentinel characters are to be transmitted in data
CapWritableTracks	open	Whether or not writing data to track is to be supported
AccountNumber	open	Account number of card
DecodeData	open	Whether or not data is to be decoded and output
EncodingMaxLength	open, claim, & enable	Maximum length of data that can be written
ErrorReportingType	open	Type of errors to report (card level or track level)
ExpirationData	open	Expiration date of card
FirstName	open	First name information of card
MiddleInitial	open	Middle initial information of card
ParseDecodeData	open	Whether or not decoded data is to be parsed into fields
ServiceCode	open	Service code information of card
Suffix	open	Suffix information of card
Surname	open	Surname information of card
Title	open	Title information of card
Track1Data	open	Track 1 data
Track1DiscretionaryData	open	Track 1 discretionary data
Track2Data	open	Track 2 data
Track2DiscretionaryData	open	Track 2 discretionary data
Track3Data	open	Track 3 data
Track4Data	open	Track 4 data
TracksToRead	open	Combination of tracks to be read from the MSR
TracksToWrite	open,claim, & enable	Combination of tracks to write to the MSR
TransmitSentinels	open	Whether or not Sentinel characters are to be transmitted in data

Table 2 MSR JavaPOS Device – Property List

1.1.6. Method Specifications

This Device Service provides the following methods.

Common Method	Requirement	Remarks
open	-	
close	open	
claim	open	
release	open & claim	
checkHealth	open & claim & enable	
clearInput	open & claim	
clearInputProperties	open & claim	
clearOutput	-	
directIO	open	
compareFirmwareVersion	open & claim & enable	
resetStatistics	open & claim & enable	
retrieveStatistics	open & claim & enable	
updateFirmware	open & claim & enable	
updateStatistics	open & claim & enable	
Specific Method	**Requirement**	**Remarks**
writeTracks	open & claim & enable	

Table 3 MSR JavaPOS Device – Method List

1.1.7. Exception Specifications

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

Exception	Remarks
JposException	Exceptions are thrown when method execution or a property setting failed, or a process error occurred.

Table 4 MSR 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);

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.

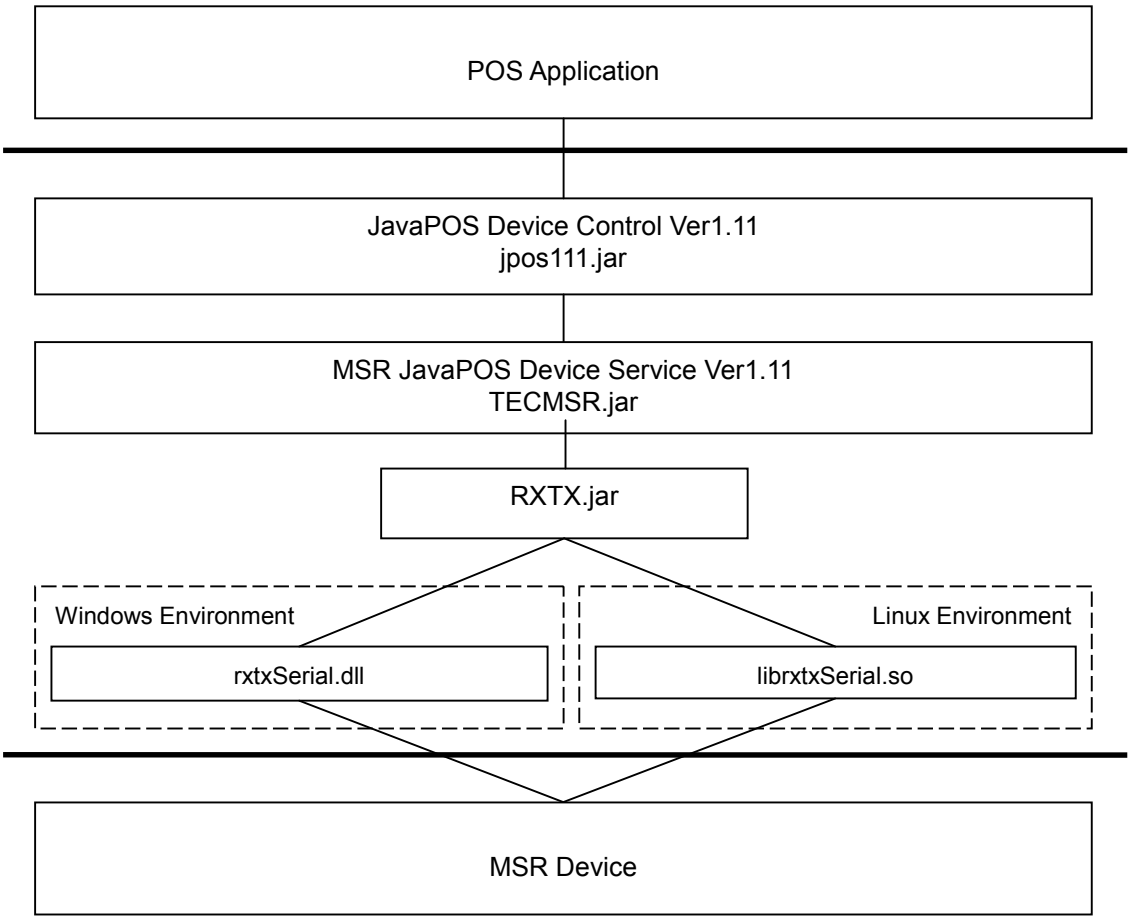
1.1.8.3. Log at ERROR Level

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 MSR JavaPOS Device [“MCRST-A10”]

1.2.1. Architecture Structure

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



1.2.2. Supported Functions

The MCRST−A10 functions, supported/not supported by this Device Service, are as follows:

Function	UPOS Ver.	Common / Device	Supported or Not
Power status notification	1.3	Common	Not supported
Accumulation of statistics	1.8	Common	Not supported
Update of statistics	1.8	Common	Not supported
Update of firmware	1.9	Common	Not supported
Comparison of firmware version	1.9	Common	Not supported
Reading of ISO or JIS-I tracks 1,2,3 and JIS-II	1.0	Device	Supported*1
Additional track sentinel function	1.5	Device	Supported
Writing data to track	1.10	Device	Not supported

Table 5 MSR JavaPOS Device - Functions

The UPOS Specification Version 1.11 clearly states **Track4Data** is used for handling JIS-II data. However, the older versions of the UPOS Specification use **TracknData** to store the JIS-II data and a track to be used is reported to the DataEvent status and ErrorEvent ErrorCodeExtended. For this reason, care must be taken if the application were built in accordance with the older versions of the UPOS Specification.
In accordance with the UPOS Specification Version 1.11, this Device uses Track4Data to store the JIS-II data.

*1: A special portion of the JIS-I type is not supported because the JIS-I track is also used as ISO track to read data.

1.2.3. Property Specifications

1.2.3.1. Initial Value of MCRST-A10 Properties (when opening the Service)

Common Property	**Value**
AutoDisable	false
CapCompareFirmwareVersion	false
CapPowerReporting	JPOS_PR_NONE
CapStatisticsReporting	false
CapUpdateFirmware	false
CapUpdateStatistics	false
CheckHealthText	“” (empty string)
Claimed	false
DataCount	0
DataEventEnabled	false
DeviceEnabled	false
FreezeEvents	false
OutputID	0
PowerNotify	JPOS_PN_DISABLED
PowerState	JPOS_PS_UNKNOWN
State	JPOS_S_IDLE
DeviceControlDescription	“JavaPOS MSR Device Control”
DeviceControlVersion	“1011000”
DeviceServiceDescription	“TEC JavaPOS MSR Device Service”
DeviceServiceVersion	“1011XXX” **(*1)**
PhysicalDeviceDescription	“TEC MSR "
PhysicalDeviceName	“TECMSR” **(*2)**
Specific Property	**Value**
CapISO	true
CapJISOne	false
CapJISTwo	false(Global Model) / true (Japan Model)
CapTransmitSentinels	true
CapWritableTracks	false
AccountNumber	“” (empty string)
DecodeData	true
EncodingMaxLength	0
ErrorReportingType	MSR_ERT_CARD
ExpirationData	“” (empty string)
FirstName	“” (empty string)
MiddleInitial	“” (empty string)
ParseDecodeData	true
ServiceCode	“” (empty string)
Suffix	“” (empty string)
Surname	“” (empty string)
Title	“” (empty string)
Track1Data	byte[0]
Track1DiscretionaryData	byte[0]
Track2Data	byte[0]
Track2DiscretionaryData	byte[0]
Track3Data	byte[0]
Track4Data	byte[0]
TracksToRead	MSR_TR_1_2_3
TracksToWrite	MSR_TR_NONE
TransmitSentinels	false

(*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 description of the XML file, the Device’s module name is obtained and displayed.

(*3) Basically, a value, at the time when an access to a property becomes available, is displayed.

Table 6 MSR JavaPOS Device – Property Initial Value List

1.2.3.2. Details of Properties

This section details the properties of the MCRST-A10.

1.2.3.2.1. Common Properties

AutoDisable

Type

boolean AutoDisable;

Mutability

Read / Write

Remarks

If TRUE, **DeviceEnabled** property is set to FALSE when **DataEvent** is notified.
If FALSE, **DeviceEnabled** property is not automatically changed even when **DataEvent** is notified. This property is initialized to FALSE by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapCompareFirmwareVersion

Type

boolean CapCompareFirmwareVersion;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
Usually, this property is TRUE when the Service/Device provides the function to compare the version of the firmware and the firmware can be updated.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapPowerReporting

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapStatisticsReporting

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapUpdateFirmware

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapUpdateStatistics

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 provided and the statistics can be reset to zero.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CheckHealthText

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 an empty string by the open method.
Even once CheckHealth is executed, CheckHealthText, which is explained in detail in the section “CheckHealth Method”, is stored.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Claimed

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 are permitted and events can be thrown 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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DataCount

Type

int DataCount;

Mutability

Read Only

Remarks

Number of enqueued **DataEvents** at the control. By referring to **DataCount**, the application can check if there are enqueued inputs from the Device. And if there are, it can be assumed an event has not been thrown because the application is busy with other process or events are being frozen.
This property is initialized to “0” by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DataEventEnabled

Type

boolean DataEventEnabled;

Mutability

Read / Write

Remarks

If TRUE, a **DataEvent** is delivered as soon as input data is enqueued. If changed to TRUE and some input data is already queued, a **DataEvent** is delivered immediately. (Note that other conditions may delay “immediate” delivery: If **FreezeEvents** is TRUE or other event is already being processed by the application, **DataEvent** will remain enqueued at the JPOS Service until the status changes.)
If FALSE, input data is queued for later delivery to the application. Also, if an input error occurs, **ErrorEvent** is not delivered while **DataEventEnabled** is FALSE.

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DeviceEnabled

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 during which an access to the Device is not possible.

Before using the Device, the application must set this property to TRUE.
This property is initialized to FALSE by the **open** method.

* The Device cannot check a connection status due to its limitation. DeviceEnable successfully completes if the Device Service can use a communication port.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after executing the Claim method.
JPOS_E_FAILURE,0	Enabling the Device failed.	Enabling the Device failed. Try again after checking a status of the Device. If the error persists, investigate the error.

FreezeEvents

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

OutputID

Type

int OutputID;

Mutability

Read Only

Remarks

Always set to “0” because this function is not supported by the Device.
UPOS holds the identifier of the most recently started asynchronous output.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

PowerNotify

Type

int PowerNotify;

Mutability

Read / Write

Remarks

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	An invalid parameter value was specified.	Check the specified value and specify a valid one.
	The Device is enabled.	Try again after setting setDeviceEnabled to FALSE.
	Unsupported function was specified.	This function is not supported.

PowerState

Type

int PowerState;

Mutability

Read Only

Remarks

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

State

Type

int State;

Mutability

Read / Write

Remarks

Indicates a current state of the Control.
This property is always readable as long as the Service is loaded.

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. This value is set only by the ErrorEvent event handler.

Exception

If the module has been successfully loaded, no exceptions will be thrown when this property is accessed.

DeviceControlDescription

Type

String DeviceControlDescription;

Mutability

Read Only

Remarks

This property describes a Device Control class.
This property is always readable as long as the Service is loaded.
”JavaPOS MSR Device Control” is set to the Device.

Exception

If the module has been successfully loaded, no exceptions will be thrown when this property is accessed.

DeviceControlVersion

Type

int DeviceControlVersion;

Mutability

Read Only

Remarks

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

Exception

If the module has been successfully loaded, no exceptions will be thrown when this property is accessed.

DeviceServiceDescription

Type

String DeviceServiceDescription;

Mutability

Read Only

Remarks

This property describes the Device Service class.
”TEC JavaPOS MSR Device Service” is set for the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DeviceServiceVersion

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

PhysicalDeviceDescription

Type

String PhysicalDeviceDescription;

Mutability

Read Only

Remarks

This property describes a Physical Device.
“TEC MSR” is set for the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

PhysicalDeviceName

Type

String PhysicalDeviceName;

Mutability

Read Only

Remarks

This property describes a name of the Physical Device.
The name of the Physical Device is “TECMSR”.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

1.2.3.2.2. Specific Properties

CapISO

Type

boolean CapISO;

Mutability

Read Only

Remarks

Indicates whether or not ISO cards are supported.
This property is initialized to TRUE by the **open** method because the Device supports the ISO cards.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapJISOne

Type

boolean CapJISOne;

Mutability

Read Only

Remarks

Indicates whether or not JIS Type-I cards are supported.
It is FALSE for the MCRST-A10-5x-QM-R because the MCRST-A10-5x-QM-R does not support the JIS Type-I cards.
It is also FALSE for the MCRST-A10-4x-R because the MCRST-A10-4x-R cannot fully support the JIS Type-I cards.
When reading of ISO Track-2 is enabled for the MCRST-A10-4x-R, JIS-I track can be used as ISO Track-2.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapJISTwo

Type

boolean CapJISTwo;

Mutability

Read Only

Remarks

Indicates whether or not JIS Type-II cards are supported.
It is FALSE for the MCRST-A10-5x-QM-R because the MCRST-A10-5x-QM-R does not support the JIS Type-II cards.
It is TRUE for the MCRST-A10-4x-R because the MCRST-A10-4x-R supports the JIS Type-II cards.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapTransmitSentinels

Type

boolean CapTransmitSentinels;

Mutability

Read Only

Remarks

Indicates whether or not there is a function that can set whether or not Sentinel characters in card data is to be recorded in the track data.

This property is initialized to TRUE because the Device supports this function.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapWritableTracks

Type

int CapWritableTracks;

Mutability

Read Only

Remarks

Indicates whether or not the Device has a function to write data to tracks and a function to specify a track to which data is to be written.

This property is always set to MSR_TR_NONE when opening the Device because this device is read-only.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

AccountNumber

Type

String AccountNumber;

Mutability

Read Only

Remarks

Indicates the account number read by the Device. If there is no such data for the card read, an empty string is set to the account number.

Initial value is empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DecodeData

Type

boolean DecodeData;

Mutability

Read / Write

Remarks

This property sets whether or not the original bit sequences obtained by the Device, which are known as “raw data” , are to be recorded as they exist.

Basically, this property must be set to TRUE because it is a requirement to set the **ParseDecodeData** property to TRUE.
Setting this property to FALSE automatically sets **ParseDecodeData** to FALSE.
This property is initialized to TRUE by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

EncodingMaxLength

Type

int EncodingMaxLength;

Mutability

Read Only

Remarks

Holds the maximum length of data that can be written to the track(s) defined by the TracksToWrite property.
If there are multiple tracks to which data can be written, the shortest length among the maximum values is selected.
This property is initialized to “0” by the **open** method because this Device does not support writing of data to tracks.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after obtaining an exclusive access using the Claim method.
JPOS_E_DISABLED,0	The Device has been disabled.	Try again after setting the DeviceEnabled property to TRUE.
JPOS_E_ILLEGAL	Unsupported function was specified.	No error handling is performed because the function to write data to tracks is not supported by the Device.

ErrorReportingType

Type

int ErrorReportiongType;

Mutability

Read / Write

Remarks

In accordance with the UPOS Specification, when a card is swiped or data and errors are contained in one or more tracks specified by the **TracksToRead** property, an error is reported by **ErrorEvent**.
This property is used to select a type of error, reported to the application by **ErrorEvent,** from the following two types.

- Card level: A general error status is given with no data returned. The card level is used to simply see if the card data has been read correctly.
- Track level: When *ErrorLocus* is OPOS_EL_INPUT and *ResultCode* is OPOS_E_EXTENDED, the *ResultCodeExtended* value contains a status of each tracks and the track’s properties are updated together with **DataEvent**. For the tracks that contain invalid data, the track’s properties are set to empty. This level should be used when other track(s) contain(s) an error or when the application can utilize a successfully read track or tracks.
  For example, suppose **TracksToRead** is MSR_TR_1_2_3, and a swiped card contains good track 1

and 2 data, but track 3 contains “random noise” that is flagged as an error by the Device. In a track level error report, **ErrorEvent** sets the track 1 and 2 properties with the valid data, sets the track 3 property to empty, and sets an error code indicating the status of each track.

The value to be set for each level is as follows:

Value	Meaning
MSR_ERT_CARD	Reports errors at a card level.
MSR_ERT_TRACK	Reports errors at a track level.

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ExpirationDate

Type

String ExpirationDate;

Mutability

Read Only

Remarks

Sets the expiration date read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

FirstName

Type

String FirstName;

Mutability

Read Only

Remarks

Sets the first name read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

MiddleInitial

Type

String MiddleInitial;

Mutability

Read Only

Remarks

Sets the middle initial read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ParseDecodeData

Type

boolean ParseDecodeData;

Mutability

Read / Write

Remarks

This property parses the card data format and determines whether each filed of data is to be stored in individual format or the data is to be stored as a sequence of data.

If TRUE, the decoded data contained within the **Track1Data** and **Track2Data** properties is further separated into fields and set to a corresponding property. **Track3Data** is not parsed because its data content is in a format defined by the card issuer.

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

Setting this property to TRUE automatically set **DecodeData** to TRUE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ServiceCode

Type

String ServiceCode;

Mutability

Read Only

Remarks

Sets the service code read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Suffix

Type

String Suffix;

Mutability

Read Only

Remarks

Sets the suffix read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Surname

Type

String Surname;

Mutability

Read Only

Remarks

Sets the surname read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Title

Type

String Title;

Mutability

Read Only

Remarks

Sets the title read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track1Data

Type

byte[] Track1Data;

Mutability

Read Only

Remarks

Sets Track 1 data read from the most recently swiped card.

If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.

If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.

byte[0] indicates there are no track data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track1DiscretionaryData

Type

byte[] Track1DiscretionaryData;

Mutability

Read Only

Remarks

Sets Track1 discretionary data read from the most recently swiped card.
If an array is an empty byte string, the following can be assumed:
• The field data was not contained.
• The track data format was not any of those listed in the ParseDecodeData property description.
• ParseDecodeData is FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track2Data

Type

byte[] Track2Data;

Mutability

Read Only

Remarks

Sets Track2 data read from the most recently swiped card.
If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.
If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.
byte[0] indicates there are no track data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track2DiscretionaryData

Type

byte[] Track2DiscretionaryData;

Mutability

Read Only

Remarks

Sets Track2 discretionary data read from the most recently swiped card.
If an array is an empty byte string, the following can be assumed:
• The field data was not contained.
• The track data format was not any of those listed in the ParseDecodeData property description.
• ParseDecodeData is FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track3Data

Type

byte[] Track3Data;

Mutability

Read Only

Remarks

Sets Track3 data read from the most recently swiped card.
If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.
If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.
byte[0] indicates there are no track data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track4Data

Type

byte[] Track4Data;

Mutability

Read Only

Remarks

Sets Track4 (JIS-II) data read from the most recently swiped card.
If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.
If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.
byte[0] indicates there are no track data.
To maintain compatibility with previous versions, the Control may also continue to store the JIS-II data in other TracknData property. However, for the future, Track4Data should be used to store JIS-II data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

TracksToRead

Type

int TracksToRead;

Mutability

Read / Write

Remarks

Specifies from which track, Track1Data, Track2Data, and Track3Data the application should obtain, decode, and return data following a card swipe.

Value	Meaning
MSR_TR_1	Track 1 data
MSR_TR_2	Track 2 data
MSR_TR_3	Track 3 data
MSR_TR_1_2	Track 1 and 2 data
MSR_TR_1_3	Track 1 and 3 data
MSR_TR_2_3	Track 2 and 3 data
MSR_TR_1_2_3	Track 1, 2 and 3 data

MSR_TR_4	Track 4 data
MSR_TR_1_4	Track 1 and 4 data
MSR_TR_2_4	Track 2 and 4 data
MSR_TR_3_4	Track 3 and 4 data
MSR_TR_1_2_4	Track 1, 2 and 4 data
MSR_TR_1_3_4	Track 1, 3 and 4 data
MSR_TR_2_3_4	Track 2, 3 and 4 data
MSR_TR_1_2_3_4	Track 1, 2, 3 and 4 data

This property is initialized to MSR_TR_1_2_3 by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

TracksToWrite

Type

int TracksToWrite;

Mutability

Read / Write

Remarks

When this property is accessed to write to a track, an exception is always thrown because the Device does not support writing to the track.

This property is initialized to MSR_TR_NONE when opening the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after obtaining an exclusive access using the Claim method.
JPOS_E_DISABLED,0	The Device has been disabled.	Try again after setting the DeviceEnabled property to TRUE.
JPOS_E_ILLEGAL	Unsupported function was specified.	No error handling is performed because the function to write data to tracks is not supported by the Device.

TransmitSentinels

Type

boolean TransmitSentinels;

Mutability

Read / Write

Remarks

If TRUE, track data properties contain sentinel values.

If FALSE, track data properties do not contain sentinel values.

Initial value is FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

1.2.4. Method Specifications

1.2.4.1. Supported/Unsupported Method List

Supported/unsupported methods by this Device (MCRST-A10) are as follows:

Common Method	Supported or Not
open	Mandatory supported
close	Mandatory supported
claim	Mandatory supported
release	Mandatory supported
checkHealth	Only Interactive Check Health is supported
clearInput	Supported
clearInputProperties	Supported
clearOutput	Not supported
directIO	Not provided
compareFirmwareVersion	Not supported
resetStatistics	Not supported
retrieveStatistics	Not supported
updateFirmware	Not supported
updateStatistics	Not supported
Specific Method	**Requirement**
writeTracks	Not supported

Table 7 MSR JavaPOS Device(MCRST-A10) – Method List

1.2.4.2. Details of Methods

Open

Type

open (String *logicalDeviceName*) throws JPOSException;

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

The ***logicalDeviceNam*e** must be the one 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 ***logicalDeviceNam*e** must be the one specified by JPOS.xml.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_ILLEGAL,0	The Device is open.	The Device has been open.
JPOS_E_NOEXIST,0	The Device was not detected.	DeviceService was not found. Check the logicalDeviceName parameter value and jpos.xml setting.
JPOS_E_NOSERVICE,0	DeviceService is invalid.	DeviceService does not support the method which it should. Or, the version number is invalid. Check the correct module is used.

Close

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	–

Claim

Type

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 the processes can be performed, the **claim** method is completed successfully.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_CLAIMED,0	The Device is claimed by other instance.	Try again after other instance releases the Device.
JPOS_E_FAILURE,0	The claim process failed.	Try again. If the error still persists, there may be a communication problem with the Device. For example, the connector is disconnected.

Release

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

JPOS_E_ ILLEGAL,0	The Release process failed.	The state is automatically settled so that the Claim method can be executed again. When using the Device, always execute the Claim method.

CheckHealth

Type

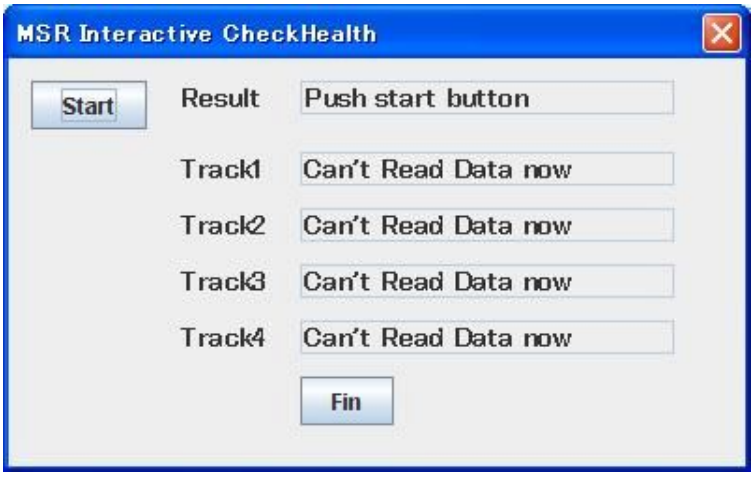
CheckHealth (int *Level*) throws JPOSException;

Remarks

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

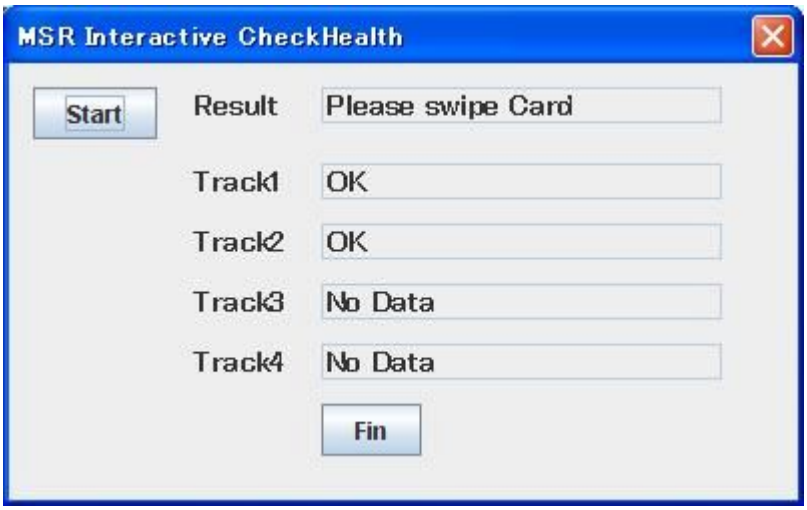
Value	Meaning
JPOS_CH_INTERNAL	Internal tests. This parameter is not supported.
JPOS_CH_EXTERNAL	Thorough test. This parameter is not supported.
JPOS_CH_INTERACTIVE	Performs an interactive test with the Device. The supporting Service Object will typically display a modal dialog box to present test options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

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



Clicking the Start button displays the dialog as shown below and the Device waits for a card to be swiped.

When a card is swiped under this condition, the display will be as follows:
"OK" is displayed for the tracks where data was correctly read.
"No Data" for the tracks where there was no data.
"NG" for the tracks where an error occurred.



Swipe cards several times to make sure no operational problem occur.

Exception

This Device Service only supports a helth check at an Interactive level.
Regardless of level, the checkHealth method throws the following exceptions.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after claiming the Device.
JPOS_E_DISABLED,0	The Device has been disabled.	Try again after setting the DeviceEnabled property to TRUE.
JPOS_E_ILLEGAL,0	An invalid level parameter value was specified.	Try again after setting the level parameter to JPOS_CH_INTERACTIVE.
JPOS_E_FAILURE,0	An error occurred during CheckHealth.	Not a JavaPOS exception. Read a message and take necessary action. Try again after checking the Device status. If the error persists, investigate the error.

The checkHealthText property values vary as shown below.

Exception's ErrorCode	CheckHealthText Property
JPOS_E_CLOSED	No change
JPOS_E_NOTCLAIMED	"HCheck:Exclusive"
JPOS_E_DISABLED	"HCheck:Disabled"
JPOS_E_ILLEGAL	"HCheck:Illegal"
JPOS_E_FAILURE	"HCheck:failure"

1) Internal Level (level=JPOS_CH_INTERNAL)
This Device Service does not support the checkHealth method at an Internal level.
The following exception is thrown when the checkHealth method at an Internal level is invoked.

Exception's ErrorCode	CheckHealthText Property	Meaning
JPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not supported

2) External Level (level=JPOS_CH_EXTERNAL)
This Device Service does not support the checkHealth method at an External level.
The following exception is thrown when the checkHealth method at an External level is invoked.

Exception's ErrorCode	CheckHealthText Property	Meaning
JPOS_E_ILLEGAL	"External HCheck:Illegal"	Not supported

3) Interactive Level (level=JPOS_CH_INTERACTIVE)
The following exceptions are thrown when the checkHealth method at an Interactive level is invoked.

Exception's ErrorCode	CheckHealthText Property	Meaning
– (No exceptions are thrown.)	"Interactive HCheck: Successful"	Did not show "NG" (reading error) until completed with the "Fin" button.

ClearInput

Type

ClearInput ( )throws JPOSException;

Remarks

Clears **DataEvent** and **ErrorEvent** being bufferred. An expression, “being bufferred” indicates a state where usually the method is waiting for DataEventEnabled to be set to TRUE and FreezeEvents to be set to FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ClearInputProperties

Type

ClearInputProperties ( ) throws JPOSException;

Remarks

Initializes all properties which are updated by DataEvent or ErrorEvent. Therefore, this method does not clear the DataCount property or the State property.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ClearOutput

Type

ClearOutput() throws JPOSException;

Remarks

An exception is always thrown because the Device is an input device. Usually this method is used to clear all bufferred output data in the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	The function is not supported.

DirectIO

Type

DirectIO (int *Command*, int *pData*, Object *pString*) throws JPOSException;

Remarks

The Device does not support this function.

Exception

This Device Service provides no functions that can be performed using the directIO method.
This directIO method throws the following exceptions regardless of command parameter values.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	The function is not supported.

CompareFirmwareVersion

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported..

ResetStatistics

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

RetrieveStatistics

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

UpdateFirmware

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

UpdateStatistics

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

WriteTracks

Type

WriteTracks (byte[][] *data*, int *timeout*) 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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

1.2.5. Event Specifications

This Device Service throws the following events.
For details of event specifications, refer to the UPOS Specification.

1.2.5.1. Event List

Common Event	Remarks
DataEvent	Notifies a data input from the Device.
DirectIOEvent	Not Supported
ErrorEvent	The Device Service detects an error and notifies of it.
OutputCompleteEvent	Not Supported
StatusUpdateEvent	Not Supported

Table 8 MSR JavaPOS Device – Event List

1.2.5.2. Details of Events

DataEvent

Type

DataEvent (int *Status*);

Parameter	Description
Status	The 32-bit data length information of the four tracks is divided into four and held as shown below:

High Word		Low Word	
High Byte	Low Byte	High Byte	Low Byte
Track 4	Track 3	Track 2	Track 1

If set to “0”, no data was read from the specified track. This is because the hardware device simply does not have a read head for the track, or the application intentionally precluded incoming data from the track via the **TracksToRead** property.
If set to 1 or larger, it indicates the data length of the corresponding **Track*x*Data** property.

Remarks

An event notification to indicate there is an incoming data from the Device
Data input from the swiped card is set to **Track1Data, Track2Data, Track3Data or Track4Data** before this event is delivered.

ErrorEvent

This Device Service throws the following ErrorEvent.

Type

void ErrorEvent (int *ErrorCode*, int *ErrorCodeExtended*,
int *ErrorLocus*, Object *pErrorResponse*);

Remarks

Parameter	Description
ErrorCode	A code which indicates a cause of the error event. For values, refer to the below.
ErrorCodeExtended	An extended code which indicates a cause of the error event. For values, refer to the below.
ErrorLocus	Location of the error. For values, refer to the below.
pErrorResponse	A pointer to the area which specifies a process to be performed for the error event. For values, refer to the below.

If the **ErrorReportingType** property is MSR_ERT_CARD, the following value is set for *ErrorCode*.

Value	Meaning
JPOS_E_FAILURE	An error occurred while decoding the data read from the Device.

If the **ErrorReportingType** property is MSR_ERT_TRACK, one of the following values is set for *ErrorCode*.

Value	Meaning
JPOS_E_FAILURE	An error occurred while decoding the data read from the Device.
JPOS_E_EXTENDED	A class-specific error occurred. The error state can be checked with the **ErrorCodeExtended** property.

Among the conditions above, if *ErrorLocus* is JPOS_EL_INPUT and *ErrorCode* is JPOS_E_EXTENDED, a track level is set to *ErrorCodeExtended.*

The 32-bit data length information of the four tracks is divided into four and held as shown below:

High Word		Low Word	
High Byte	Low Byte	High Byte	Low Byte
Track 4	Track 3	Track 2	Track 1

Error code for each track is either of the following:

Value	Meaning
JPOS_SUCCESS	No errors.
JPOS_E_FAILURE	An error occurred while parsing the track data

The *ErrorLocus* parameter is one of the following:

Value	Meaning
JPOS_EL_INPUT	An error occurred while processing event-driven input. No previously buffered input data is available.
JPOS_EL_INPUT_DATA	An error occurred while processing event-driven input. Previously queued data is available.

The contents at the location pointed by the *pErrorResponse* parameter are preset to a default value based on *ErrorLocus*. The application may change them to one of the following:

Value	Meaning
JPOS_ER_CLEAR	Clears all buffered input data, and the error state is exited. Default when *ErrorLocus*. is JPOS_EL_INPUT.
JPOS_ER_CONTINUEINPUT	Used only when *ErrorLocus*. is JPOS_EL_INPUT_DATA. Acknowledges the error and directs the Control to continue processing. Although the Control remains in the error state, an additional **DataEvent** is delivered as directed by the **DataEventEnabled** property. When all input has been delivered and the **DataEventEnabled** property is again set to TRUE, another **ErrorEvent** is delivered with JPOS_EL_INPUT. Default when *ErrorLocus* is JPOS_EL_INPUT_DATA.

An event is thrown when an error is found while the Device is reading card data. To perform correct

application sequence, an input error event is not delivered until the **DataEventEnabled** property is set to TRUE.
If the **ErrorReportingType** property is MSR_ERT_CARD, the track having an error is not determined. The track data property is not changed.
If the **ErrorReportingType** property is MSR_ERT_TRACK, a track level status is indicated using the *ResultCode* and *ResultCodeExtended* properties. Also, the track data properties are updated as with a **DataEvent**, with the properties for the tracks in error set to empty strings.
Unlike **DataEvent**, data length of each track is not reported, but the application can determine the data length by obtaining length of each of the **TrackXData** properties. As this is an **ErrorEvent**, the **DataCount** property value is not incremented. Regardless of the **AutoDisable** property value, the Control remains enabled.

Refer to:

ErrorReportingType property

StatusUpdateEvent

When the MSR's power state changes, this event is thrown.
However, this event is not thrown from this Device Service which does not detect a power state.

DirectIOEvent

An event to the DirectIO method.
However, this event is not thrown from this Device Service which does not provide an access with the DirectIO method.

OtputCompleteEvent

An event to report the completion of an asynchronous output request
This event is not thrown from this Device Service which does not perform an asynchronous output process (writing data to track).

1.2.6. 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.

```
<JposEntries>
        <JposEntry logicalName="defaultMSR">
                <creation factoryClass="jpos.toshibatec.msr.loader.JavaPOSServiceFactory"
                        serviceClass="jpos.toshibatec.services.MSRService"/>
                <vendor name="TOSHIBA TEC Corporation" url="http://www.toshibatec.co.jp"/>
                <jpos category="MSR" version="1.11"/>
                <product description=" TEC MSR "
                        name=" TECMSR " url="http://www.toshibatec.co.jp"/>
                <!--Other non JavaPOS required property (mostly vendor properties and bus specific
                        properties  i.e. RS232 )-->
                <prop name="modelName" type="String" value="MCRST-A10-5x"/>
                <prop name="deviceBus" type="String" value="RS232"/>
                <prop name="portName" type="String" value="COM5"/>
                <prop name="baudrate" type="String" value="9600"/>
                <prop name="dataBits" type="String" value="8"/>
                <prop name="flowControl" type="String" value="None"/>
                <prop name="stopBits" type="String" value="1"/>
                <prop name="parityBit" type="String" value="EVEN"/>
</JposEntry>
```

Item Name (jposEntry)	Value
logicalName	Logical name which the application uses. Specify a logical name which the application uses.

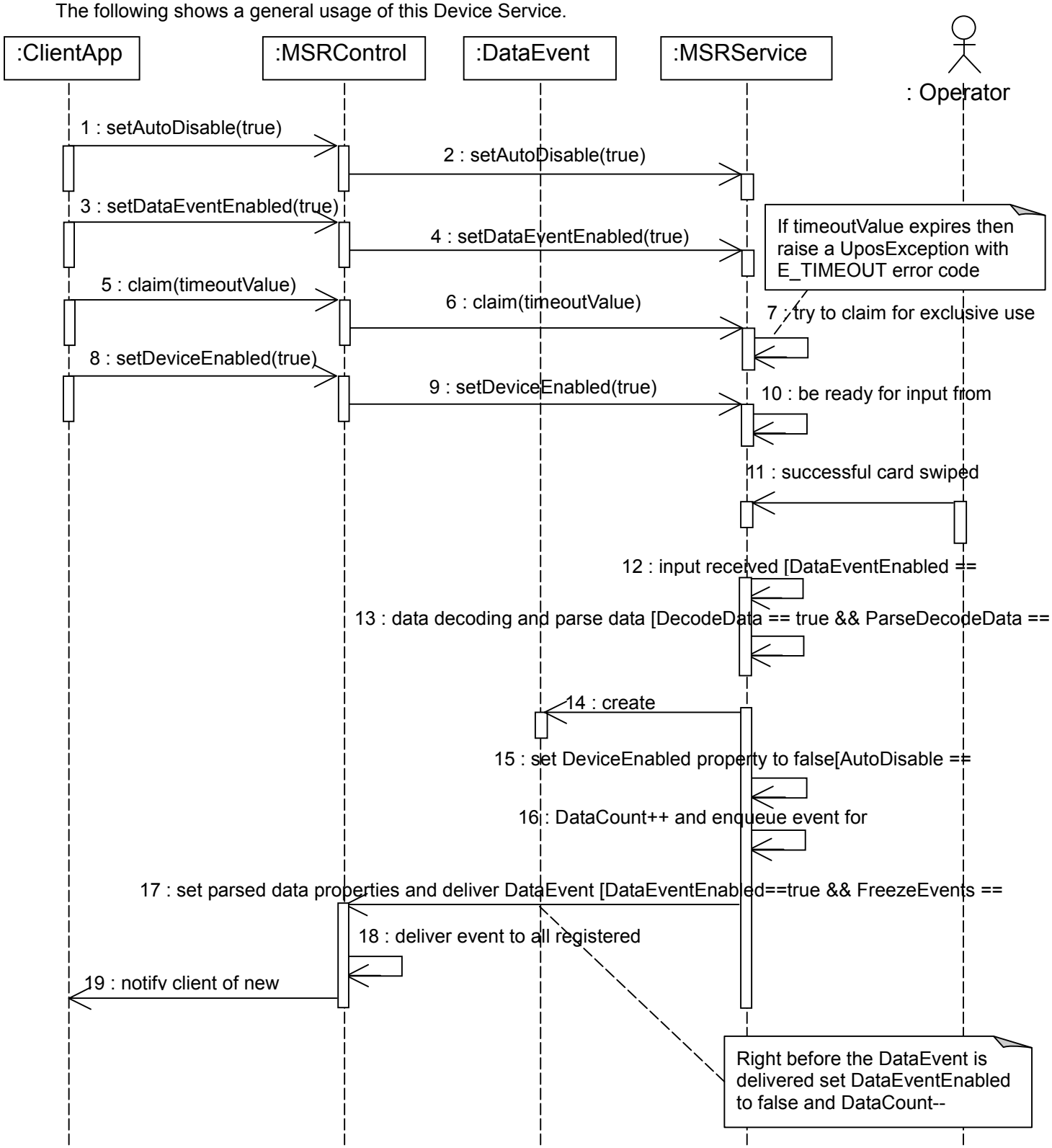
Item Name (Product)	Value
name	TECMSR (Fixed)

Item Name (prop name)	Value
logicalName	Logical name which the application uses Specify a logical name which the application uses.
Product name	TECMSR (Fixed)
modelName	Specify a device model number. Specify “MCRST-A10-5x” when the MCRST-A10-5x-QM-R (ISO model) is used for ST-A10 and ST-A20, and specify “MCRST-A10-4x” when the MCRST-A10-4x-R is used for ST-A10 and ST-A20.
deviceBus	Specify the method of connection with the Device. Specify "RS-232".
portName	Specify a name of the port for connecting the Device. Format: COMn (n: numeral) for MS Windows /dev/xxxx for UNIX For MCRST-A10: ”COM5” for MS Windows (”/dev/xxxx” for UNIX)
baudrate	Specify a baud rate of the serial port. Specify “9600”.
dataBits	Specify the number of data bits of the serial port. Specify “8”.
flowControl	Specify the flow control method of the serial port. Specify “None”.
stopBits	Specify the number of stop bits of the serial port. Specify “1”.
parityBit	Specify the number of parity bits of the serial port. Specify “EVEN”.

Table 9 MSR JavaPOS Device –Setting Information List

1.2.7. 1.2.8 Usage Example

The following shows a general usage of this Device Service.



1.3. TEC MSR JavaPOS Device [“MCRST-76”]

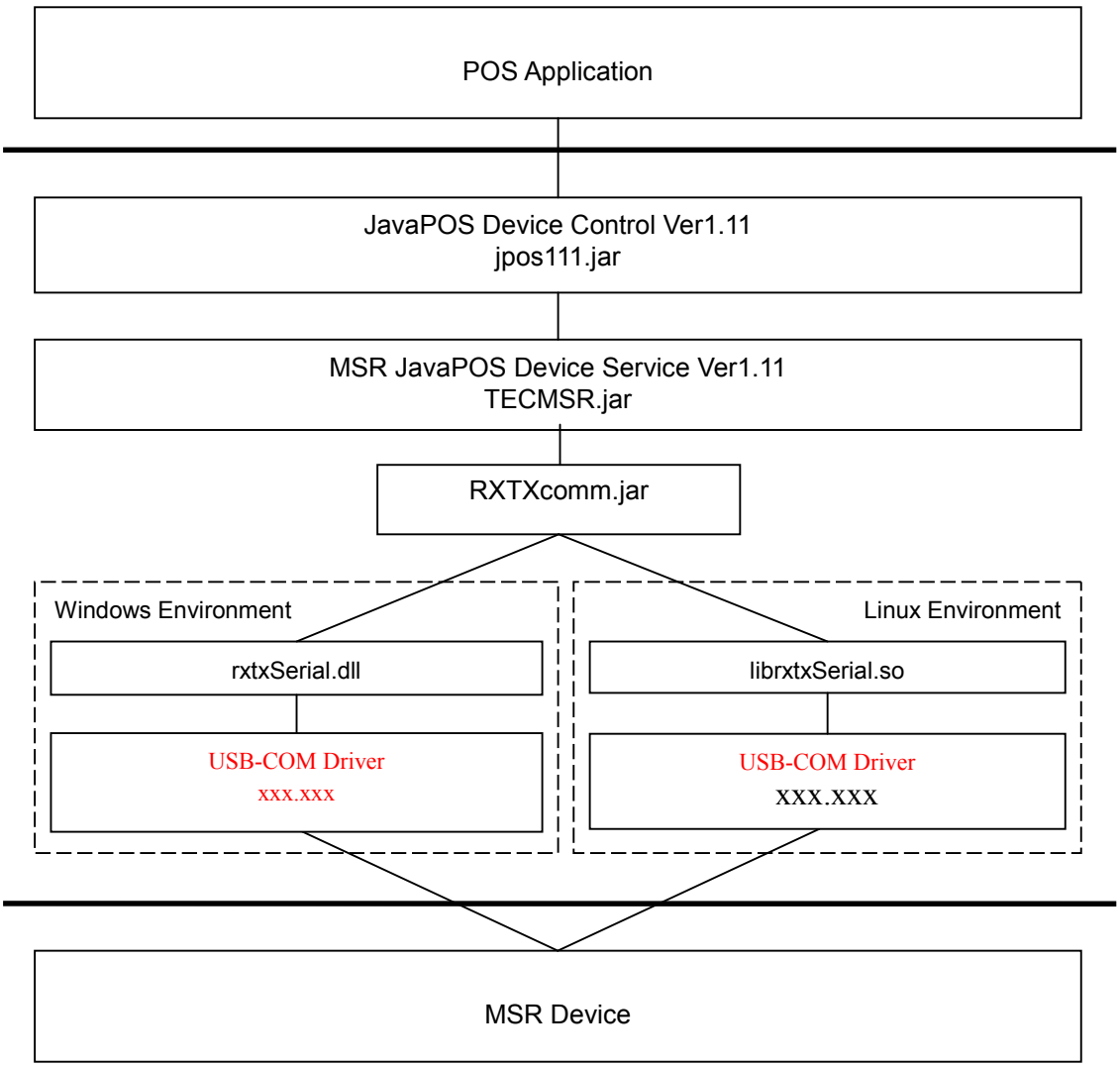
1.3.1. Supported Operating Systems

This Device Service supports the following operating systems.

- Windows 2000
- Windows XP
- Windows Vista
- SUSE Linux Enterprise Desktop 10

1.3.2. Architecture Structure

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



[11]

1.3.3. Supported Functions

The MCRST76 functions, supported/not supported by this Device Service, are as follows:

Function	UPOS Ver.	Common / Device	Supported or Not
Power status notification	1.3	Common	Not supported
Accumulation of statistics	1.8	Common	Not supported
Update of statistics	1.8	Common	Not supported
Update of firmware	1.9	Common	Not supported
Comparison of firmware version	1.9	Common	Not supported
Reading of ISO or JIS-I tracks 1.3,3 and JIS-II	1.0	Device	Supported*1
Additional track sentinel function	1.5	Device	Supported
Writing data to track	1.10	Device	Not supported

Table 10 MSR JavaPOS Device - Functions

*1: The Device only supports the ISO (track1, 2, 3).

1.3.4. Property Specifications

1.3.4.1. Initial Value of MCRST-76 Properties (when opening the Service)

Common Property	Value
AutoDisable	false
CapCompareFirmwareVersion	false
CapPowerReporting	JPOS_PR_NONE
CapStatisticsReporting	false
CapUpdateFirmware	false
CapUpdateStatistics	false
CheckHealthText	“” (empty string)
Claimed	false
DataCount	0
DataEventEnabled	false
DeviceEnabled	false
FreezeEvents	false
OutputID	0
PowerNotify	JPOS_PN_DISABLED
PowerState	JPOS_PS_UNKNOWN
State	JPOS_S_IDLE
DeviceControlDescription	“JavaPOS MSR Device Control”
DeviceControlVersion	“1011000”
DeviceServiceDescription	“TEC JavaPOS MSR Device Service”
DeviceServiceVersion	“1011XXX” **(*1)**
PhysicalDeviceDescription	“TEC MSR "
PhysicalDeviceName	“TECMSR” **(*2)**
Specific Property	**Value**
CapISO	true
CapJISOne	false
CapJISTwo	false
CapTransmitSentinels	true
CapWritableTracks	false
AccountNumber	“” (empty string)
DecodeData	true
EncodingMaxLength	0
ErrorReportingType	MSR_ERT_CARD
ExpirationData	“” (empty string)
FirstName	“” (empty string)
MiddleInitial	“” (empty string)
ParseDecodeData	true
ServiceCode	“” (empty string)
Suffix	“” (empty string)
Surname	“” (empty string)
Title	“” (empty string)
Track1Data	byte[0]
Track1DiscretionaryData	byte[0]
Track2Data	byte[0]
Track2DiscretionaryData	byte[0]
Track3Data	byte[0]
Track4Data	byte[0]
TracksToRead	MSR_TR_1_2_3
TracksToWrite	MSR_TR_NONE
TransmitSentinels	false

(*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 description of the XML file, the Device’s module name is obtained and displayed.

(*3) Basically, a value, at the time when an access to a property becomes available, is displayed.

Table 11 MSR JavaPOS Device – Property Initial Value List

1.3.4.2. Details of Properties

This section details the properties of the TFTST-76.

1.3.4.2.1. Common Properties

AutoDisable

Type

boolean AutoDisable;

Mutability

Read / Write

Remarks

If TRUE, **DeviceEnabled** property is set to FALSE when **DataEvent** is notified.
If FALSE, **DeviceEnabled** property is not automatically changed even when **DataEvent** is notified. This property is initialized to FALSE by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapCompareFirmwareVersion

Type

boolean CapCompareFirmwareVersion;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
Usually, this property is TRUE when the Service/Device provides the function to compare the version of the firmware and the firmware can be updated.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapPowerReporting

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapStatisticsReporting

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapUpdateFirmware

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapUpdateStatistics

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 provided and the statistics can be reset to zero.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CheckHealthText

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 an empty string by the open method.
Even once CheckHealth is executed, CheckHealthText, which is explained in detail in the section "CheckHealth Method", is stored.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Claimed

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 are permitted and events can be thrown 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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DataCount

Type

int DataCount;

Mutability

Read Only

Remarks

Number of enqueued **DataEvents** at the control. By referring to **DataCount**, the application can check if there are enqueued inputs from the Device. And if there are, it can be assumed an event has not been thrown because the application is busy with other process or events are being frozen.
This property is initialized to "0" by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DataEventEnabled

Type

boolean DataEventEnabled;

Mutability

Read / Write

Remarks

If TRUE, a **DataEvent** is delivered as soon as input data is enqueued. If changed to TRUE and some input data is already queued, a **DataEvent** is delivered immediately. (Note that other conditions may delay "immediate" delivery: If **FreezeEvents** is TRUE or other event is already being processed by the application, **DataEvent** will remain enqueued at the JPOS Service until the status changes.)
If FALSE, input data is queued for later delivery to the application. Also, if an input error occurs, **ErrorEvent** is not delivered while **DataEventEnabled** is FALSE.

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DeviceEnabled

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 during which an access to the Device is not possible.

Before using the Device, the application must set this property to TRUE.
This property is initialized to FALSE by the **open** method.

* The Device cannot check a connection status due to its limitation. DeviceEnable successfully completes if the Device Service can use a communication port.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after executing the Claim method.
JPOS_E_FAILURE,0	Enabling the Device failed.	Enabling the Device failed. Try again after checking a status of the Device. If the error persists, investigate the error.

FreezeEvents

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

OutputID

Type

int OutputID;

Mutability

Read Only

Remarks

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

UPOS holds the identifier of the most recently started asynchronous output.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

PowerNotify

Type

int PowerNotify;

Mutability

Read / Write

Remarks

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	An invalid parameter value was specified.	Check the specified value and specify a valid one.
	The Device is enabled.	Try again after setting setDeviceEnabled to FALSE.
	Unsupported function was specified.	This function is not supported.

PowerState

Type

int PowerState;

Mutability

Read Only

Remarks

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

State

Type

int State;

Mutability

Read / Write

Remarks

Indicates a current state of the Control.

This property is always readable as long as the Service is loaded.

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. This value is set only by the ErrorEvent event handler.

Exception

If the module has been successfully loaded, no exceptions will be thrown when this property is accessed.

DeviceControlDescription

Type

String DeviceControlDescription;

Mutability

Read Only

Remarks

This property describes a Device Control class.

This property is always readable as long as the Service is loaded.

”JavaPOS MSR Device Control” is set to the Device.

Exception

If the module has been successfully loaded, no exceptions will be thrown when this property is accessed.

DeviceControlVersion

Type

int DeviceControlVersion;

Mutability

Read Only

Remarks

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

Exception

If the module has been successfully loaded, no exceptions will be thrown when this property is accessed.

DeviceServiceDescription

Type

String DeviceServiceDescription;

Mutability

Read Only

Remarks

This property describes the Device Service class.
”TEC JavaPOS MSR Device Service” is set for the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DeviceServiceVersion

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

PhysicalDeviceDescription

Type

String PhysicalDeviceDescription;

Mutability

Read Only

Remarks

This property describes a Physical Device.
"TEC MSR" is set for the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

PhysicalDeviceName

Type

String PhysicalDeviceName;

Mutability

Read Only

Remarks

This property describes a name of the Physical Device.
The name of the Physical Device is "TECMSR".

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

1.3.4.2.2. Specific Properties

CapISO

Type

boolean CapISO;

Mutability

Read Only

Remarks

Indicates whether or not ISO cards are supported.
This property is initialized to TRUE by the **open** method because the Device supports the ISO cards.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapJISOne

Type

boolean CapJISOne;

Mutability

Read Only

Remarks

Indicates whether or not JIS Type-I cards are supported.
It is FALSE because the TFTST-76 does not support the JIS Type-I cards.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapJISTwo

Type

boolean CapJISTwo;

Mutability

Read Only

Remarks

Indicates whether or not JIS Type-II cards are supported.
It is FALSE because the TFTST-76 does not support the JIS Type-II cards.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapTransmitSentinels

Type

boolean CapTransmitSentinels;

Mutability

Read Only

Remarks

Indicates whether or not there is a function that can set whether or not Sentinel characters in card data is to be recorded in the track data.

This property is initialized to TRUE because the Device supports this function.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapWritableTracks

Type

int CapWritableTracks;

Mutability

Read Only

Remarks

Indicates whether or not the Device has a function to write data to tracks and a function to specify a track to which data is to be written.

This property is always set to MSR_TR_NONE when opening the Device because this device is read-only.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

AccountNumber

Type

String AccountNumber;

Mutability

Read Only

Remarks

Indicates the account number read by the Device. If there is no such data for the card read, an empty string is set to the account number.

Initial value is empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DecodeData

Type

boolean DecodeData;

Mutability

Read / Write

Remarks

This property sets whether or not the original bit sequences obtained by the Device, which are known as “raw data” , are to be recorded as they exist.

Basically, this property must be set to TRUE because it is a requirement to set the **ParseDecodeData** property to TRUE.

Setting this property to FALSE automatically sets **ParseDecodeData** to FALSE.

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

EncodingMaxLength

Type

int EncodingMaxLength;

Mutability

Read Only

Remarks

Holds the maximum length of data that can be written to the track(s) defined by the TracksToWrite property.

If there are multiple tracks to which data can be written, the shortest length among the maximum values is selected.

This property is initialized to “0” by the **open** method because this Device does not support writing of data to tracks.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after obtaining an exclusive access using the Claim method.
JPOS_E_DISABLED,0	The Device has been disabled.	Try again after setting the DeviceEnabled property to TRUE.
JPOS_E_ILLEGAL	Unsupported function was specified.	No error handling is performed because the function to write data to tracks is not supported by the Device.

ErrorReportingType

Type

int ErrorReportiongType;

Mutability

Read / Write

Remarks

In accordance with the UPOS Specification, when a card is swiped or data and errors are contained in one or more tracks specified by the **TracksToRead** property, an error is reported by **ErrorEvent**.
This property is used to select a type of error, reported to the application by **ErrorEvent,** from the following two types.

- Card level: A general error status is given with no data returned. The card level is used to simply see if the card data has been read correctly.
- Track level: When *ErrorLocus* is OPOS_EL_INPUT and *ResultCode* is OPOS_E_EXTENDED, the *ResultCodeExtended* value contains a status of each tracks and the track's properties are updated together with **DataEvent**. For the tracks that contain invalid data, the track's properties are set to empty. This level should be used when other track(s) contain(s) an error or when the application can utilize a successfully read track or tracks.
  For example, suppose **TracksToRead** is MSR_TR_1_2_3, and a swiped card contains good track 1 and 2 data, but track 3 contains "random noise" that is flagged as an error by the Device. In a track level error report, **ErrorEvent** sets the track 1 and 2 properties with the valid data, sets the track 3 property to empty, and sets an error code indicating the status of each track.

The value to be set for each level is as follows:

Value	Meaning
MSR_ERT_CARD	Reports errors at a card level.
MSR_ERT_TRACK	Reports errors at a track level.

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ExpirationDate

Type

String ExpirationDate;

Mutability

Read Only

Remarks

Sets the expiration date read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

FirstName

Type

String FirstName;

Mutability

Read Only

Remarks

Sets the first name read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

MiddleInitial

Type

String MiddleInitial;

Mutability

Read Only

Remarks

Sets the middle initial read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ParseDecodeData

Type

boolean ParseDecodeData;

Mutability

Read / Write

Remarks

This property parses the card data format and determines whether each filed of data is to be stored in individual format or the data is to be stored as a sequence of data.

If TRUE, the decoded data contained within the **Track1Data** and **Track2Data** properties is further separated into fields and set to a corresponding property. **Track3Data** is not parsed because its data content is in a format defined by the card issuer.

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

Setting this property to TRUE automatically set **DecodeData** to TRUE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ServiceCode

Type

String ServiceCode;

Mutability

Read Only

Remarks

Sets the service code read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Suffix

Type

String Suffix;

Mutability

Read Only

Remarks

Sets the suffix read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Surname

Type

String Surname;

Mutability

Read Only

Remarks

Sets the surname read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Title

Type

String Title;

Mutability

Read Only

Remarks

Sets the title read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track1Data

Type

byte[] Track1Data;

Mutability

Read Only

Remarks

Sets Track 1 data read from the most recently swiped card.

If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.

If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.

byte[0] indicates there are no track data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track1DiscretionaryData

Type

byte[] Track1DiscretionaryData;

Mutability

Read Only

Remarks

Sets Track1 discretionary data read from the most recently swiped card.

If an array is an empty byte string, the following can be assumed:

- The field data was not contained.
- The track data format was not any of those listed in the ParseDecodeData property description.
- ParseDecodeData is FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track2Data

Type

byte[] Track2Data;

Mutability

Read Only

Remarks

Sets Track2 data read from the most recently swiped card.
If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.
If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.
byte[0] indicates there are no track data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track2DiscretionaryData

Type

byte[] Track2DiscretionaryData;

Mutability

Read Only

Remarks

Sets Track2 discretionary data read from the most recently swiped card.
If an array is an empty byte string, the following can be assumed:

- The field data was not contained.
- The track data format was not any of those listed in the ParseDecodeData property description.
- ParseDecodeData is FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track3Data

Type

byte[] Track3Data;

Mutability

Read Only

Remarks

Sets Track3 data read from the most recently swiped card.

If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.

If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.

byte[0] indicates there are no track data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track4Data

Type

byte[] Track4Data;

Mutability

Read Only

Remarks

Sets Track4 (JIS-II) data read from the most recently swiped card.

Not used because the TFT-ST56 does not support the JIS-II cards. A byte string of zero size is set.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

TracksToRead

Type

int TracksToRead;

Mutability

Read / Write

Remarks

Specifies from which track, Track1Data, Track2Data, and Track3Data the application should obtain, decode, and return data following a card swipe.

Value	Meaning
MSR_TR_1	Track 1 data
MSR_TR_2	Track 2 data
MSR_TR_3	Track 3 data
MSR_TR_1_2	Track 1 and 2 data
MSR_TR_1_3	Track 1 and 3 data
MSR_TR_2_3	Track 2 and 3 data
MSR_TR_1_2_3	Track 1.3 and 3 data
MSR_TR_4	Track 4 data
MSR_TR_1_4	Track 1 and 4 data
MSR_TR_2_4	Track 2 and 4 data
MSR_TR_3_4	Track 3 and 4 data
MSR_TR_1_2_4	Track 1.3 and 4 data
MSR_TR_1_3_4	Track 1, 3 and 4 data
MSR_TR_2_3_4	Track 2, 3 and 4 data
MSR_TR_1_2_3_4	Track 1.3, 3 and 4 data

This property is initialized to MSR_TR_1_2_3 by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

TracksToWrite

Type

int TracksToWrite;

Mutability

Read / Write

Remarks

When this property is accessed to write to a track, an exception is always thrown because the Device does not support writing to the track.

This property is initialized to MSR_TR_NONE when opening the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after obtaining an exclusive access using the Claim method.
JPOS_E_DISABLED,0	The Device has been disabled.	Try again after setting the DeviceEnabled property to TRUE.
JPOS_E_ILLEGAL	Unsupported function was specified.	No error handling is performed because the function to write data to tracks is not supported by the Device.

TransmitSentinels

Type

boolean TransmitSentinels;

Mutability

Read / Write

Remarks

If TRUE, track data properties contain sentinel values.
If FALSE, track data properties do not contain sentinel values.
Initial value is FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

1.3.5. Method Specifications

1.3.5.1. Supported/Unsupported Method List

Supported/unsupported methods by this Device (MCRST-76) are as follows:

Common Method	Supported or Not
open	Mandatory supported
close	Mandatory supported
claim	Mandatory supported
release	Mandatory supported
checkHealth	Only Interactive Check Health is supported
clearInput	Supported
clearInputProperties	Supported
clearOutput	Not supported
directIO	Not provided
compareFirmwareVersion	Not supported
resetStatistics	Not supported
retrieveStatistics	Not supported
updateFirmware	Not supported
updateStatistics	Not supported
Specific Method	**Requirement**
writeTracks	Not supported

Table 12 MSR JavaPOS Device(MCRST-76) – Method List

1.3.5.2. Details of Methods

Open

Type

open (String *logicalDeviceName*) throws JPOSException;

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

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_ILLEGAL,0	The Device is open.	The Device has been open.
JPOS_E_NOEXIST,0	The Device was not detected.	DeviceService was not found. Check the logicalDeviceName parameter value and jpos.xml setting.
JPOS_E_NOSERVICE,0	DeviceService is invalid.	DeviceService does not support the method which it should. Or, the version number is invalid. Check the correct module is used.

Close

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	–

Claim

Type

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 the processes can be performed, the **claim** method is completed successfully.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_CLAIMED,0	The Device is claimed by other instance.	Try again after other instance releases the Device.
JPOS_E_FAILURE,0	The claim process failed.	Try again. If the error still persists, there may be a communication problem with the Device. For example, the connector is disconnected.

Release

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ ILLEGAL,0	The Release process failed.	The state is automatically settled so that the Claim method can be executed again. When using the Device, always execute the Claim method.

CheckHealth

Type

checkHealth (int *Level*) throws JPOSException;

Remarks

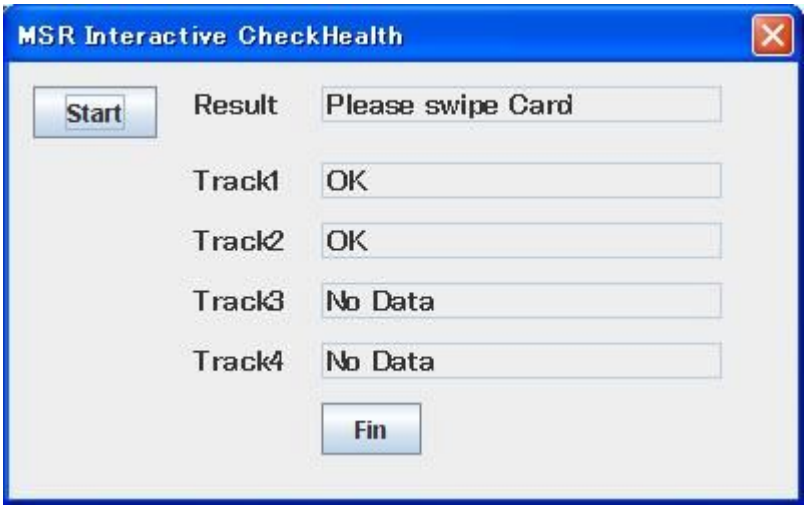
The *Level* parameter indicates the following types of health check to be performed on the Device.

Value	Meaning
JPOS_CH_INTERNAL	Internal tests. 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.

Clicking the Start button displays the dialog as shown below and the Device waits for a card to be swiped.

When a card is swiped under this condition, the display will be as follows:
“OK” is displayed for the tracks where data was correctly read.
“No Data” for the tracks where there was no data.
“NG” for the tracks where an error occurred.



Swipe cards several times to make sure no operational problem occur.

Exception

This Device Service only supports a helth check at an Interactive level.
Regardless of level, the checkHealth method throws the following exceptions.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after claiming the Device.
JPOS_E_DISABLED,0	The Device has been disabled.	Try again after setting the DeviceEnabled property to TRUE.
JPOS_E_ILLEGAL,0	An invalid level parameter value was specified.	Try again after setting the level parameter to JPOS_CH_INTERACTIVE.
JPOS_E_FAILURE,0	An error occurred during CheckHealth.	Not a JavaPOS exception. Read a message and take necessary action. Try again after checking the Device status. If the error persists, investigate the error.

The checkHealthText property values vary as shown below.

Exception's ErrorCode	CheckHealthText Property
JPOS_E_CLOSED	No change
JPOS_E_NOTCLAIMED	"HCheck:Exclusive"
JPOS_E_DISABLED	"HCheck:Disabled"
JPOS_E_ILLEGAL	"HCheck:Illegal"
JPOS_E_FAILURE	"HCheck:failure"

1) Internal Level (level=JPOS_CH_INTERNAL)
This Device Service does not support the checkHealth method at an Internal level.
The following exception is thrown when the checkHealth method at an Internal level is invoked.

Exception's ErrorCode	CheckHealthText Property	Meaning
JPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not supported

2) External Level (level=JPOS_CH_EXTERNAL)
This Device Service does not support the checkHealth method at an External level.
The following exception is thrown when the checkHealth method at an External level is invoked.

Exception's ErrorCode	CheckHealthText Property	Meaning
JPOS_E_ILLEGAL	"External HCheck:Illegal"	Not supported

3) Interactive Level (level=JPOS_CH_INTERACTIVE)
The following exceptions are thrown when the checkHealth method at an Interactive level is invoked.

Exception's ErrorCode	CheckHealthText Property	Meaning
– (No exceptions are thrown.)	"Interactive HCheck: Successful"	Did not show "NG" (reading error) until completed with the "Fin" button.

ClearInput

Type

clearInput ( )throws JPOSException;

Remarks

Clears **DataEvent** and **ErrorEvent** being bufferred. An expression, "being bufferred" indicates a state where usually the method is waiting for DataEventEnabled to be set to TRUE and FreezeEvents to be set to FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ClearInputProperties

Type

clearInputProperties ( ) throws JPOSException;

Remarks

Initializes all properties which are updated by DataEvent or ErrorEvent. Therefore, this method does not clear the DataCount property or the State property.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ClearOutput

Type

clearOutput() throws JPOSException;

Remarks

An exception is always thrown because the Device is an input device. Usually this method is used to clear all bufferred output data in the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	The function is not supported.

DirectIO

Type

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

Remarks

The Device does not support this function.

Exception

This Device Service provides no functions that can be performed using the directIO method.
This directIO method throws the following exceptions regardless of command parameter values.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	The function is not supported.

CompareFirmwareVersion

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported..

ResetStatistics

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

RetrieveStatistics

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

UpdateFirmware

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

UpdateStatistics

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

WriteTracks

Type

writeTracks (byte[][] *data*, int *timeout*) 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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

1.3.6. Event Specifications

This Device Service throws the following events.
For details of event specifications, refer to the UPOS Specification.

1.3.6.1. Event List

Common Event	Remarks
DataEvent	Notifies a data input from the Device.
DirectIOEvent	Not Supported
ErrorEvent	The Device Service detects an error and notifies of it.
OutputCompleteEvent	Not Supported
StatusUpdateEvent	Not Supported

Table 13 MSR JavaPOS Device – Event List

1.3.6.2. Details of Events

DataEvent

Type

DataEvent (int *Status*);

Parameter	Description
Status	The 32-bit data length information of the four tracks is divided into four and held as shown below:

High Word		Low Word	
High Byte	Low Byte	High Byte	Low Byte
Track 4	Track 3	Track 2	Track 1

If set to “0”, no data was read from the specified track. This is because the hardware device simply does not have a read head for the track, or the application intentionally precluded incoming data from the track via the **TracksToRead** property.
If set to 1 or larger, it indicates the data length of the corresponding **Track*x*Data** property.

Remarks

An event notification to indicate there is an incoming data from the Device
Data input from the swiped card is set to **Track1Data, Track2Data, Track3Data or Track4Data** before this event is delivered.

ErrorEvent

This Device Service throws the following ErrorEvent.

Type

void ErrorEvent (int *ErrorCode*, int *ErrorCodeExtended*,
int *ErrorLocus*, Object *pErrorResponse*);

Remarks

Parameter	Description
ErrorCode	A code which indicates a cause of the error event. For values, refer to the below.
ErrorCodeExtended	An extended code which indicates a cause of the error event. For values, refer to the below.
ErrorLocus	Location of the error. For values, refer to the below.
pErrorResponse	A pointer to the area which specifies a process to be performed for the error event. For values, refer to the below.

If the **ErrorReportingType** property is MSR_ERT_CARD, the following value is set for *ErrorCode*.

Value	Meaning
JPOS_E_FAILURE	An error occurred while decoding the data read from the Device.

If the **ErrorReportingType** property is MSR_ERT_TRACK, one of the following values is set for *ErrorCode*.

Value	Meaning
JPOS_E_FAILURE	An error occurred while decoding the data read from the Device.
JPOS_E_EXTENDED	A class-specific error occurred. The error state can be checked with the **ErrorCodeExtended** property.

Among the conditions above, if *ErrorLocus* is JPOS_EL_INPUT and *ErrorCode* is JPOS_E_EXTENDED, a track level is set to *ErrorCodeExtended.*

The 32-bit data length information of the four tracks is divided into four and held as shown below:

High Word		Low Word	
High Byte	Low Byte	High Byte	Low Byte
Track 4	Track 3	Track 2	Track 1

Error code for each track is either of the following:

Value	Meaning
JPOS_SUCCESS	No errors.
JPOS_E_FAILURE	An error occurred while parsing the track data

The *ErrorLocus* parameter is one of the following:

Value	Meaning
JPOS_EL_INPUT	An error occurred while processing event-driven input. No previously buffered input data is available.
JPOS_EL_INPUT_DATA	An error occurred while processing event-driven input. Previously queued data is available.

The contents at the location pointed by the *pErrorResponse* parameter are preset to a default value based on *ErrorLocus*. The application may change them to one of the following:

Value	Meaning
JPOS_ER_CLEAR	Clears all buffered input data, and the error state is exited. Default when *ErrorLocus*. is JPOS_EL_INPUT.
JPOS_ER_CONTINUEINPUT	Used only when *ErrorLocus*. is JPOS_EL_INPUT_DATA. Acknowledges the error and directs the Control to continue processing. Although the Control remains in the error state, an additional **DataEvent** is delivered as directed by the **DataEventEnabled** property. When all input has been delivered and the **DataEventEnabled** property is again set to TRUE, another **ErrorEvent** is delivered with JPOS_EL_INPUT. Default when *ErrorLocus* is JPOS_EL_INPUT_DATA.

An event is thrown when an error is found while the Device is reading card data. To perform correct application sequence, an input error event is not delivered until the **DataEventEnabled** property is set to TRUE.
If the **ErrorReportingType** property is MSR_ERT_CARD, the track having an error is not determined. The track data property is not changed.
If the **ErrorReportingType** property is MSR_ERT_TRACK, a track level status is indicated using the *ResultCode* and *ResultCodeExtended* properties. Also, the track data properties are updated as with a **DataEvent**, with the properties for the tracks in error set to empty strings.
Unlike **DataEvent**, data length of each track is not reported, but the application can determine the data length by obtaining length of each of the **TrackXData** properties. As this is an **ErrorEvent**, the **DataCount** property value is not incremented. Regardless of the **AutoDisable** property value, the Control remains enabled.

Refer to:

ErrorReportingType property

StatusUpdateEvent

When the MSR's power state changes, this event is thrown.
However, this event is not thrown from this Device Service which does not detect a power state.

DirectIOEvent

An event to the DirectIO method.
However, this event is not thrown from this Device Service which does not provide an access with the DirectIO method.

OtputCompleteEvent

An event to report the completion of an asynchronous output request
This event is not thrown from this Device Service which does not perform an asynchronous output process (writing data to track).

1.3.7. 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.

```
<JposEntry logicalName="TECMSR_MCRST76">
    <creation factoryClass="jpos.toshibatec.msr.loader.JavaPOSServiceFactory"
        serviceClass="jpos.toshibatec.msr.services.MSRService"/>
    <vendor name="TOSHIBA TEC Corporation" url="http://www.toshibatec.co.jp"/>
    <jpos category="MSR" version="1.11"/>
    <product description="TEC MSR" name="TECMSR" url="http://www.toshibatec.co.jp"/>
    <!--Other non JavaPOS required property (mostly vendor properties and bus specific
        properties i.e. RS232 )-->
    <prop name="portName" type="String" value="COM7"/>
    <prop name="dataBits" type="String" value="8"/>
    <prop name="modelName" type="String" value="MSRTFTST-76"/>
    <prop name="flowControl" type="String" value="None"/>
    <prop name="stopBits" type="String" value="1"/>
    <prop name="parityBit" type="String" value="NONE"/>
    <prop name="baudrate" type="String" value="9600"/>
    <prop name="deviceBus" type="String" value="RS232"/>
    <prop name="startBits" type="String" value="1"/>
</JposEntry>
```

Item Name (jposEntry)	Value
logicalName	Logical name which the application uses Specify a logical name which the application uses.

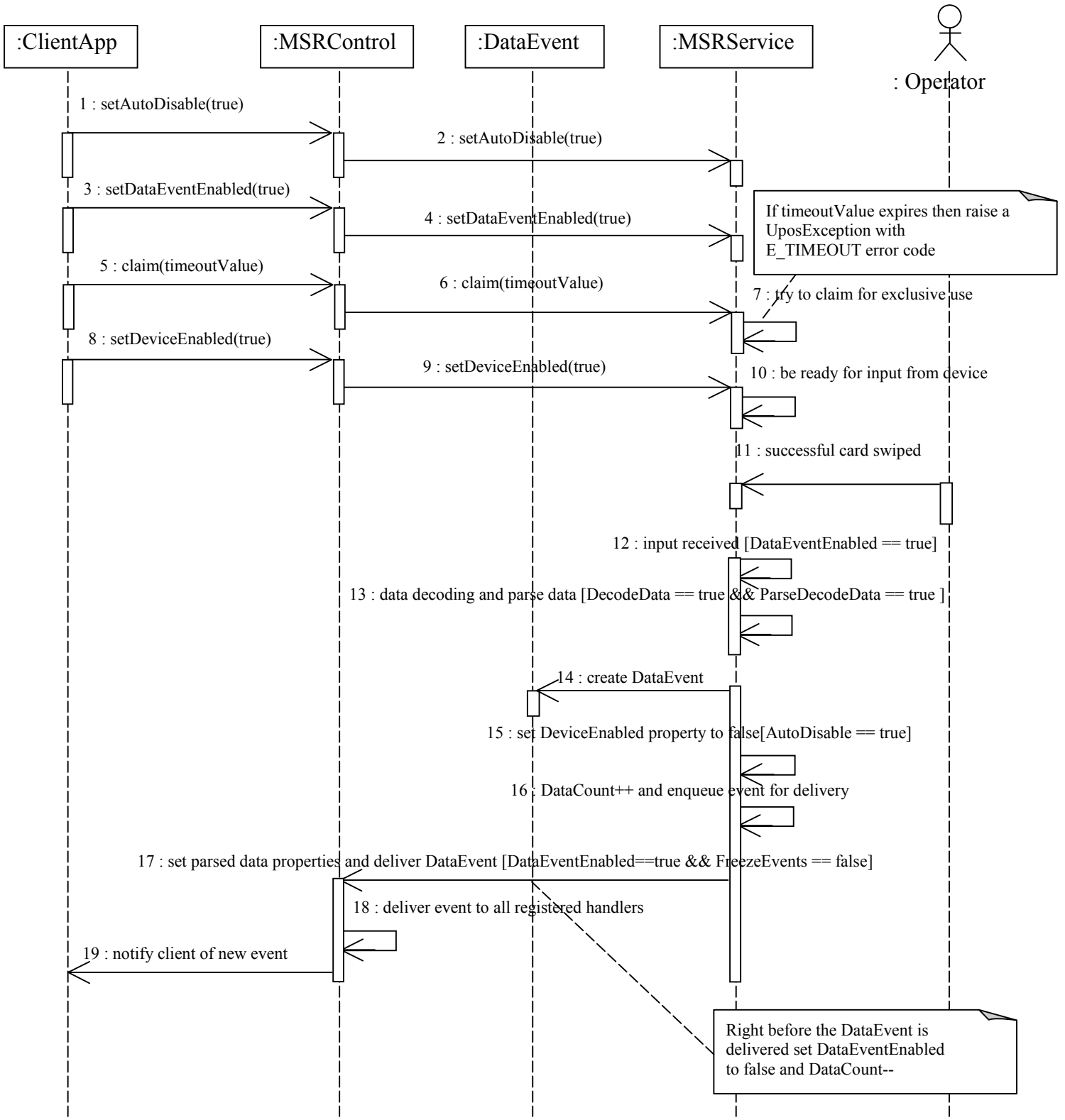
Item Name (Product)	Value
name	TECMSR (Fixed)

Item Name (prop name)	Value
portName	Specify a name of the port for connecting the Device. Format: COMn (n: numeral) for MS Windows /dev/xxxx for UNIX For TFTST-76: ”COM7” for MS Windows (”/dev/xxxx” for UNIX) (The Device supports a virtual COM port.)
dataBits	Specify the number of data bits of the serial port. Specify “8” for the MCRST-76.
modelName	Specify a device model number. Specify “MSRTFTST-76”.
flowControl	Specify the flow control method for the serial port. Specify “None” for the MCRST-76.
stopBits	Specify the number of stop bits of the serial port. Specify “1” for the MCRST-76.
parityBit	Specify the number of parity bits of the serial port. Specify “NONE” for the MCRST-76.
baudrate	Specify the baud rate of the serial port. Specify the baud rate of the serial port specified by portName. Specify “9600” for the MCRST-76.
deviceBus	Specify the device bus. Specify "RS-232" for the MCRST-76.
startBits	Specify the number of start bits of the serial port. Specify “1” for the MCRST-76.

Table 14 MSR JavaPOS Device –Setting Information List

1.3.8. 1.3.9 Usage Example

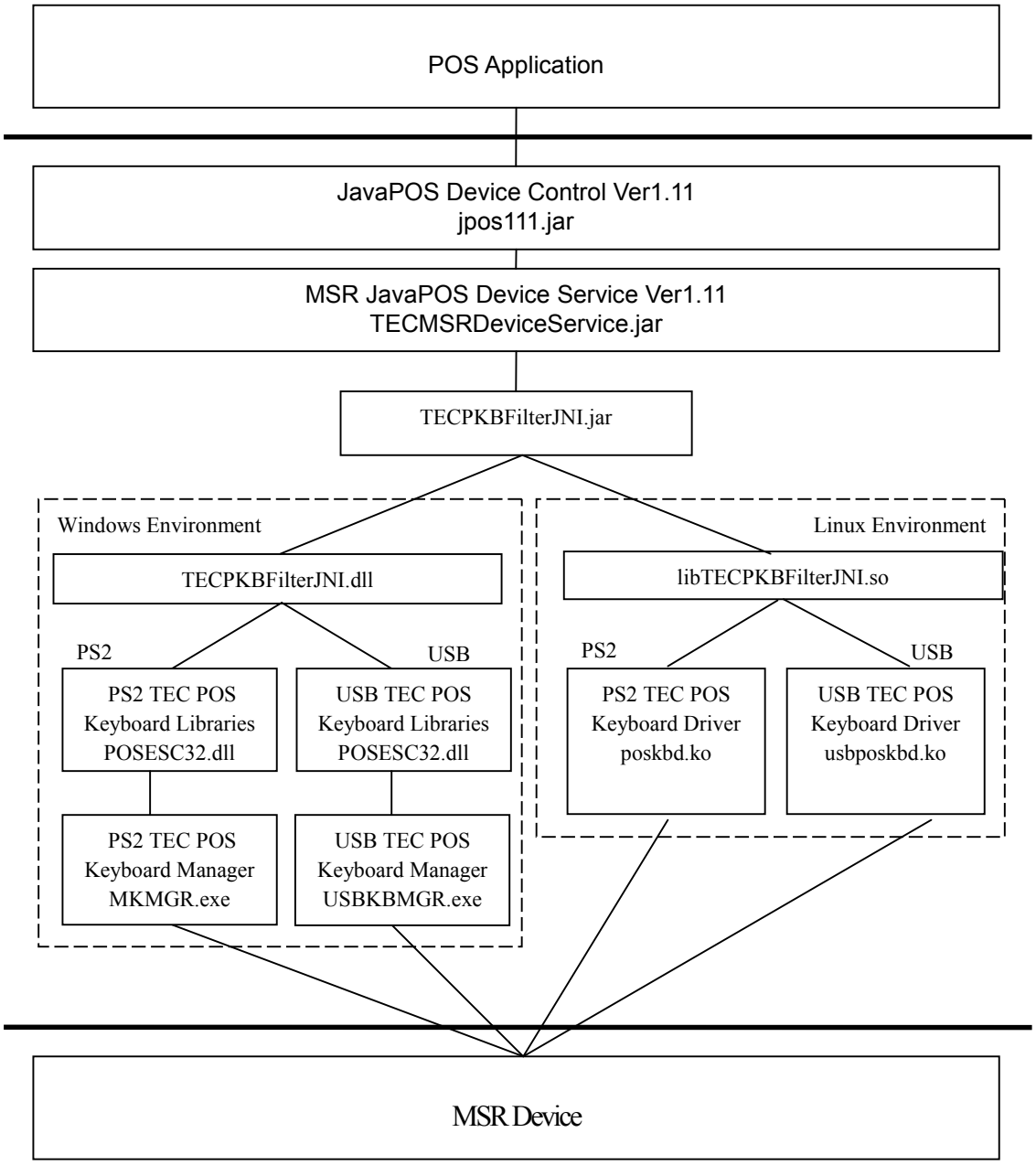
The following shows a general usage of this Device Service.



1.4. TEC MSR JavaPOS Device [“MCRST-5x”]

1.4.1. Architecture Structure

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



1.4.2. Supported Functions

The MCRST5x functions, supported/not supported by this Device Service, are as follows:

Function	UPOS Ver.	Common / Device	Supported or Not
Power status notification	1.4	Common	Not supported
Accumulation of statistics	1.8	Common	Not supported
Update of statistics	1.8	Common	Not supported
Update of firmware	1.9	Common	Not supported
Comparison of firmware version	1.9	Common	Not supported
Reading of ISO or JIS-I tracks 1.4,3 and JIS-II	1.0	Device	Supported*1
Additional track sentinel function	1.5	Device	Supported
Writing data to track	1.10	Device	Not supported

Table 15 MSR JavaPOS Device - Functions

*1: The Device only supports the ISO (track1, 2, 3).

1.4.3. Property Specifications

1.4.3.1. Initial Value of PKBST-5x-MSR Properties (when opening the Service)

Common Property	**Value**
AutoDisable	false
CapCompareFirmwareVersion	false
CapPowerReporting	JPOS_PR_NONE
CapStatisticsReporting	false
CapUpdateFirmware	false
CapUpdateStatistics	false
CheckHealthText	“” (empty string)
Claimed	false
DataCount	0
DataEventEnabled	false
DeviceEnabled	false
FreezeEvents	false
OutputID	0
PowerNotify	JPOS_PN_DISABLED
PowerState	JPOS_PS_UNKNOWN
State	JPOS_S_IDLE
DeviceControlDescription	“JavaPOS MSR Device Control”
DeviceControlVersion	“1011000”
DeviceServiceDescription	“TEC JavaPOS MSR Device Service”
DeviceServiceVersion	“1011XXX” **(*1)**
PhysicalDeviceDescription	“TEC MSR "
PhysicalDeviceName	“TECMSR” **(*2)**
Specific Property	**Value**
CapISO	true
CapJISOne	false
CapJISTwo	false
CapTransmitSentinels	true
CapWritableTracks	false
AccountNumber	“” (empty string)
DecodeData	true
EncodingMaxLength	0
ErrorReportingType	MSR_ERT_CARD
ExpirationData	“” (empty string)
FirstName	“” (empty string)
MiddleInitial	“” (empty string)
ParseDecodeData	true
ServiceCode	“” (empty string)
Suffix	“” (empty string)
Surname	“” (empty string)
Title	“” (empty string)
Track1Data	byte[0]
Track1DiscretionaryData	byte[0]
Track2Data	byte[0]
Track2DiscretionaryData	byte[0]
Track3Data	byte[0]
Track4Data	byte[0]
TracksToRead	MSR_TR_1_2_3
TracksToWrite	MSR_TR_NONE
TransmitSentinels	false

(*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 description of the XML file, the Device’s module name is obtained and displayed.

(*3) Basically, a value, at the time when an access to a property becomes available, is displayed.

Table 16 MSR JavaPOS Device – Property Initial Value List

1.4.3.2. Details of Properties

This section details the properties of the MCRST-5x.

1.4.3.2.1. Common Properties

AutoDisable

Type

boolean AutoDisable;

Mutability

Read / Write

Remarks

If TRUE, **DeviceEnabled** property is set to FALSE when **DataEvent** is notified.
If FALSE, **DeviceEnabled** property is not automatically changed even when **DataEvent** is notified. This property is initialized to FALSE by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapCompareFirmwareVersion

Type

boolean CapCompareFirmwareVersion;

Mutability

Read Only

Remarks

Always set to FALSE because this function is not supported by the Device.
Usually, this property is TRUE when the Service/Device provides the function to compare the version of the firmware and the firmware can be updated.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapPowerReporting

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapStatisticsReporting

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapUpdateFirmware

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapUpdateStatistics

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 provided and the statistics can be reset to zero.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CheckHealthText

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 an empty string by the open method.
Even once CheckHealth is executed, CheckHealthText, which is explained in detail in the section "CheckHealth Method", is stored.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Claimed

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 are permitted and events can be thrown 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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DataCount

Type

int DataCount;

Mutability

Read Only

Remarks

Number of enqueued **DataEvents** at the control. By referring to **DataCount**, the application can check if there are enqueued inputs from the Device. And if there are, it can be assumed an event has not been thrown because the application is busy with other process or events are being frozen.
This property is initialized to "0" by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DataEventEnabled

Type

boolean DataEventEnabled;

Mutability

Read / Write

Remarks

If TRUE, a **DataEvent** is delivered as soon as input data is enqueued. If changed to TRUE and some input data is already queued, a **DataEvent** is delivered immediately. (Note that other conditions may delay "immediate" delivery: If **FreezeEvents** is TRUE or other event is already being processed by the application, **DataEvent** will remain enqueued at the JPOS Service until the status changes.)
If FALSE, input data is queued for later delivery to the application. Also, if an input error occurs, **ErrorEvent** is not delivered while **DataEventEnabled** is FALSE.

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DeviceEnabled

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 during which an access to the Device is not possible.

Before using the Device, the application must set this property to TRUE.
This property is initialized to FALSE by the **open** method.

* The Device cannot check a connection status due to its limitation. DeviceEnable successfully completes if the Device Service can use a communication port.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after executing the Claim method.
JPOS_E_FAILURE,0	Enabling the Device failed.	Enabling the Device failed. Try again after checking a status of the Device. If the error persists, investigate the error.

FreezeEvents

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

OutputID

Type

int OutputID;

Mutability

Read Only

Remarks

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

UPOS holds the identifier of the most recently started asynchronous output.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

PowerNotify

Type

int PowerNotify;

Mutability

Read / Write

Remarks

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	An invalid parameter value was specified.	Check the specified value and specify a valid one.
	The Device is enabled.	Try again after setting setDeviceEnabled to FALSE.
	Unsupported function was specified.	This function is not supported.

PowerState

Type

int PowerState;

Mutability

Read Only

Remarks

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

State

Type

int State;

Mutability

Read / Write

Remarks

Indicates a current state of the Control.

This property is always readable as long as the Service is loaded.

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. This value is set only by the ErrorEvent event handler.

Exception

If the module has been successfully loaded, no exceptions will be thrown when this property is accessed.

DeviceControlDescription

Type

String DeviceControlDescription;

Mutability

Read Only

Remarks

This property describes a Device Control class.

This property is always readable as long as the Service is loaded.

”JavaPOS MSR Device Control” is set to the Device.

Exception

If the module has been successfully loaded, no exceptions will be thrown when this property is accessed.

DeviceControlVersion

Type

int DeviceControlVersion;

Mutability

Read Only

Remarks

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

Exception

If the module has been successfully loaded, no exceptions will be thrown when this property is accessed.

DeviceServiceDescription

Type

String DeviceServiceDescription;

Mutability

Read Only

Remarks

This property describes the Device Service class.
”TEC JavaPOS MSR Device Service” is set for the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DeviceServiceVersion

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 JposException is thrown.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

PhysicalDeviceDescription

Type

String PhysicalDeviceDescription;

Mutability

Read Only

Remarks

This property describes a Physical Device.
"TEC MSR" is set for the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

PhysicalDeviceName

Type

String PhysicalDeviceName;

Mutability

Read Only

Remarks

This property describes a name of the Physical Device.
The name of the Physical Device is "TECMSR".

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

1.4.3.2.2. Specific Properties

CapISO

Type

boolean CapISO;

Mutability

Read Only

Remarks

Indicates whether or not ISO cards are supported.
This property is initialized to TRUE by the **open** method because the Device supports the ISO cards.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapJISOne

Type

boolean CapJISOne;

Mutability

Read Only

Remarks

Indicates whether or not JIS Type-I cards are supported.
It is FALSE because the MCRST-5x does not support the JIS Type-I cards.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapJISTwo

Type

boolean CapJISTwo;

Mutability

Read Only

Remarks

Indicates whether or not JIS Type-II cards are supported.
It is FALSE because the MCRST-5x does not support the JIS Type-II cards.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapTransmitSentinels

Type

boolean CapTransmitSentinels;

Mutability

Read Only

Remarks

Indicates whether or not there is a function that can set whether or not Sentinel characters in card data is to be recorded in the track data.

This property is initialized to TRUE because the Device supports this function.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

CapWritableTracks

Type

int CapWritableTracks;

Mutability

Read Only

Remarks

Indicates whether or not the Device has a function to write data to tracks and a function to specify a track to which data is to be written.

This property is always set to MSR_TR_NONE when opening the Device because this device is read-only.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

AccountNumber

Type

String AccountNumber;

Mutability

Read Only

Remarks

Indicates the account number read by the Device. If there is no such data for the card read, an empty string is set to the account number.

Initial value is empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

DecodeData

Type

boolean DecodeData;

Mutability

Read / Write

Remarks

This property sets whether or not the original bit sequences obtained by the Device, which are known as “raw data” , are to be recorded as they exist.

Basically, this property must be set to TRUE because it is a requirement to set the **ParseDecodeData** property to TRUE.

Setting this property to FALSE automatically sets **ParseDecodeData** to FALSE.

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

EncodingMaxLength

Type

int EncodingMaxLength;

Mutability

Read Only

Remarks

Holds the maximum length of data that can be written to the track(s) defined by the TracksToWrite property.

If there are multiple tracks to which data can be written, the shortest length among the maximum values is selected.

This property is initialized to “0” by the **open** method because this Device does not support writing of data to tracks.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after obtaining an exclusive access using the Claim method.
JPOS_E_DISABLED,0	The Device has been disabled.	Try again after setting the DeviceEnabled property to TRUE.
JPOS_E_ILLEGAL	Unsupported function was specified.	No error handling is performed because the function to write data to tracks is not supported by the Device.

ErrorReportingType

Type

int ErrorReportiongType;

Mutability

Read / Write

Remarks

In accordance with the UPOS Specification, when a card is swiped or data and errors are contained in one or more tracks specified by the **TracksToRead** property, an error is reported by **ErrorEvent**.
This property is used to select a type of error, reported to the application by **ErrorEvent,** from the following two types.

- Card level: A general error status is given with no data returned. The card level is used to simply see if the card data has been read correctly.
- Track level: When *ErrorLocus* is OPOS_EL_INPUT and *ResultCode* is OPOS_E_EXTENDED, the *ResultCodeExtended* value contains a status of each tracks and the track's properties are updated together with **DataEvent**. For the tracks that contain invalid data, the track's properties are set to empty. This level should be used when other track(s) contain(s) an error or when the application can utilize a successfully read track or tracks.
  For example, suppose **TracksToRead** is MSR_TR_1_2_3, and a swiped card contains good track 1 and 2 data, but track 3 contains "random noise" that is flagged as an error by the Device. In a track level error report, **ErrorEvent** sets the track 1 and 2 properties with the valid data, sets the track 3 property to empty, and sets an error code indicating the status of each track.

The value to be set for each level is as follows:

Value	Meaning
MSR_ERT_CARD	Reports errors at a card level.
MSR_ERT_TRACK	Reports errors at a track level.

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

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ExpirationDate

Type

String ExpirationDate;

Mutability

Read Only

Remarks

Sets the expiration date read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

FirstName

Type

String FirstName;

Mutability

Read Only

Remarks

Sets the first name read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

MiddleInitial

Type

String MiddleInitial;

Mutability

Read Only

Remarks

Sets the middle initial read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ParseDecodeData

Type

boolean ParseDecodeData;

Mutability

Read / Write

Remarks

This property parses the card data format and determines whether each filed of data is to be stored in individual format or the data is to be stored as a sequence of data.

If TRUE, the decoded data contained within the **Track1Data** and **Track2Data** properties is further separated into fields and set to a corresponding property. **Track3Data** is not parsed because its data content is in a format defined by the card issuer.

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

Setting this property to TRUE automatically set **DecodeData** to TRUE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ServiceCode

Type

String ServiceCode;

Mutability

Read Only

Remarks

Sets the service code read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Suffix

Type

String Suffix;

Mutability

Read Only

Remarks

Sets the suffix read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Surname

Type

String Surname;

Mutability

Read Only

Remarks

Sets the surname read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Title

Type

String Title;

Mutability

Read Only

Remarks

Sets the title read by the Device. When no such data exists in the card read, this property is set to an empty string.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track1Data

Type

byte[] Track1Data;

Mutability

Read Only

Remarks

Sets Track 1 data read from the most recently swiped card.

If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.

If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.

byte[0] indicates there are no track data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track1DiscretionaryData

Type

byte[] Track1DiscretionaryData;

Mutability

Read Only

Remarks

Sets Track1 discretionary data read from the most recently swiped card.

If an array is an empty byte string, the following can be assumed:

- The field data was not contained.
- The track data format was not any of those listed in the ParseDecodeData property description.
- ParseDecodeData is FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track2Data

Type

byte[] Track2Data;

Mutability

Read Only

Remarks

Sets Track2 data read from the most recently swiped card.
If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.
If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.
byte[0] indicates there are no track data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track2DiscretionaryData

Type

byte[] Track2DiscretionaryData;

Mutability

Read Only

Remarks

Sets Track2 discretionary data read from the most recently swiped card.
If an array is an empty byte string, the following can be assumed:

- The field data was not contained.
- The track data format was not any of those listed in the ParseDecodeData property description.
- ParseDecodeData is FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track3Data

Type

byte[] Track3Data;

Mutability

Read Only

Remarks

Sets Track3 data read from the most recently swiped card.

If the TransmitSentinels property is FALSE, the track data is saved after deleting Sentinel codes. If the TransmitSentinels property is TRUE, the track data with the Sentinel codes is saved.

If DecodeData is TRUE, track data decoded from the raw data is saved here. The data may also be parsed into other properties when the ParseDecodeData property is set.

byte[0] indicates there are no track data.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

Track4Data

Type

byte[] Track4Data;

Mutability

Read Only

Remarks

Sets Track4 (JIS-II) data read from the most recently swiped card.

Not used because the TFT-ST56 does not support the JIS-II cards. A byte string of zero size is set.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

TracksToRead

Type

int TracksToRead;

Mutability

Read / Write

Remarks

Specifies from which track, Track1Data, Track2Data, and Track3Data the application should obtain, decode, and return data following a card swipe.

Value	Meaning
MSR_TR_1	Track 1 data
MSR_TR_2	Track 2 data
MSR_TR_3	Track 3 data
MSR_TR_1_2	Track 1 and 2 data
MSR_TR_1_3	Track 1 and 3 data
MSR_TR_2_3	Track 2 and 3 data
MSR_TR_1_2_3	Track 1.4 and 3 data
MSR_TR_4	Track 4 data
MSR_TR_1_4	Track 1 and 4 data
MSR_TR_2_4	Track 2 and 4 data
MSR_TR_3_4	Track 3 and 4 data
MSR_TR_1_2_4	Track 1.4 and 4 data
MSR_TR_1_3_4	Track 1.4 and 4 data
MSR_TR_2_3_4	Track 2, 3 and 4 data
MSR_TR_1_2_3_4	Track 1.4, 3 and 4 data

This property is initialized to MSR_TR_1_2_3 by the **open** method.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

TracksToWrite

Type

int TracksToWrite;

Mutability

Read / Write

Remarks

When this property is accessed to write to a track, an exception is always thrown because the Device does not support writing to the track.

This property is initialized to MSR_TR_NONE when opening the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after obtaining an exclusive access using the Claim method.
JPOS_E_DISABLED,0	The Device has been disabled.	Try again after setting the DeviceEnabled property to TRUE.
JPOS_E_ILLEGAL	Unsupported function was specified.	No error handling is performed because the function to write data to tracks is not supported by the Device.

TransmitSentinels

Type

boolean TransmitSentinels;

Mutability

Read / Write

Remarks

If TRUE, track data properties contain sentinel values.
If FALSE, track data properties do not contain sentinel values.
Initial value is FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

1.4.4. Method Specifications

1.4.4.1. Supported/Unsupported Method List

Supported/unsupported methods by this Device (MCRST-5x) are as follows:

Common Method	Supported or Not
open	Mandatory supported
close	Mandatory supported
claim	Mandatory supported
release	Mandatory supported
checkHealth	Only Interactive Check Health is supported
clearInput	Supported
clearInputProperties	Supported
clearOutput	Not supported
directIO	Not provided
compareFirmwareVersion	Not supported
resetStatistics	Not supported
retrieveStatistics	Not supported
updateFirmware	Not supported
updateStatistics	Not supported
Specific Method	**Requirement**
writeTracks	Not supported

Table 17 MSR JavaPOS Device (MCRST-5x) – Method List

1.4.4.2. Details of Methods

Open

Type

open (String *logicalDeviceName*) throws JPOSException;

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

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_ILLEGAL,0	The Device is open.	The Device has been open.
JPOS_E_NOEXIST,0	The Device was not detected.	DeviceService was not found. Check the logicalDeviceName parameter value and jpos.xml setting.
JPOS_E_NOSERVICE,0	DeviceService is invalid.	DeviceService does not support the method which it should. Or, the version number is invalid. Check the correct module is used.

Close

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	–

Claim

Type

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 the processes can be performed, the **claim** method is completed successfully.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_CLAIMED,0	The Device is claimed by other instance.	Try again after other instance releases the Device.
JPOS_E_FAILURE,0	The claim process failed.	Try again. If the error still persists, there may be a communication problem with the Device. For example, the connector is disconnected.

Release

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ ILLEGAL,0	The Release process failed.	The state is automatically settled so that the Claim method can be executed again. When using the Device, always execute the Claim method.

CheckHealth

Type

checkHealth (int *Level*) throws JPOSException;

Remarks

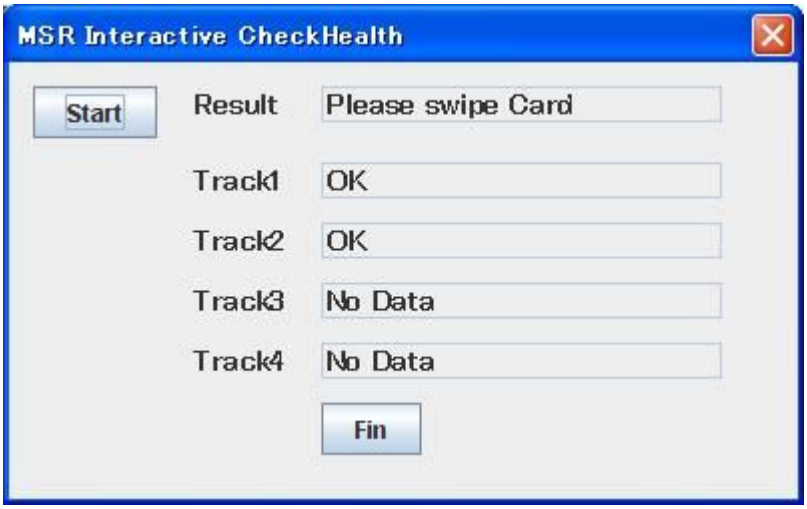
The *Level* parameter indicates the following types of health check to be performed on the Device.

Value	Meaning
JPOS_CH_INTERNAL	Internal tests. 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.

Clicking the Start button displays the dialog as shown below and the Device waits for a card to be swiped.

When a card is swiped under this condition, the display will be as follows:
“OK” is displayed for the tracks where data was correctly read.
“No Data” for the tracks where there was no data.
“NG” for the tracks where an error occurred.



Swipe cards several times to make sure no operational problem occur.

Exception

This Device Service only supports a helth check at an Interactive level.
Regardless of level, the checkHealth method throws the following exceptions.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_NOTCLAIMED,0	The Device is not claimed.	Try again after claiming the Device.
JPOS_E_DISABLED,0	The Device has been disabled.	Try again after setting the DeviceEnabled property to TRUE.
JPOS_E_ILLEGAL,0	An invalid level parameter value was specified.	Try again after setting the level parameter to JPOS_CH_INTERACTIVE.
JPOS_E_FAILURE,0	An error occurred during CheckHealth.	Not a JavaPOS exception. Read a message and take necessary action. Try again after checking the Device status. If the error persists, investigate the error.

The checkHealthText property values vary as shown below.

Exception's ErrorCode	CheckHealthText Property
JPOS_E_CLOSED	No change
JPOS_E_NOTCLAIMED	"HCheck:Exclusive"
JPOS_E_DISABLED	"HCheck:Disabled"
JPOS_E_ILLEGAL	"HCheck:Illegal"
JPOS_E_FAILURE	"HCheck:failure"

1) Internal Level (level=JPOS_CH_INTERNAL)
This Device Service does not support the checkHealth method at an Internal level.
The following exception is thrown when the checkHealth method at an Internal level is invoked.

Exception's ErrorCode	CheckHealthText Property	Meaning
JPOS_E_ILLEGAL	"Internal HCheck:Illegal"	Not supported

2) External Level (level=JPOS_CH_EXTERNAL)
This Device Service does not support the checkHealth method at an External level.
The following exception is thrown when the checkHealth method at an External level is invoked.

Exception's ErrorCode	CheckHealthText Property	Meaning
JPOS_E_ILLEGAL	"External HCheck:Illegal"	Not supported

3) Interactive Level (level=JPOS_CH_INTERACTIVE)
The following exceptions are thrown when the checkHealth method at an Interactive level is invoked.

Exception's ErrorCode	CheckHealthText Property	Meaning
– (No exceptions are thrown.)	"Interactive HCheck: Successful"	Did not show "NG" (reading error) until completed with the "Fin" button.

ClearInput

Type

clearInput ( )throws JPOSException;

Remarks

Clears **DataEvent** and **ErrorEvent** being bufferred. An expression, "being bufferred" indicates a state where usually the method is waiting for DataEventEnabled to be set to TRUE and FreezeEvents to be set to FALSE.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ClearInputProperties

Type

clearInputProperties ( ) throws JPOSException;

Remarks

Initializes all properties which are updated by DataEvent or ErrorEvent. Therefore, this method does not clear the DataCount property or the State property.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.

ClearOutput

Type

clearOutput() throws JPOSException;

Remarks

An exception is always thrown because the Device is an input device. Usually this method is used to clear all bufferred output data in the Device.

Exception

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

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	The function is not supported.

DirectIO

Type

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

Remarks

The Device does not support this function.

Exception

This Device Service provides no functions that can be performed using the directIO method.
This directIO method throws the following exceptions regardless of command parameter values.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	The function is not supported.

CompareFirmwareVersion

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported..

ResetStatistics

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

RetrieveStatistics

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

UpdateFirmware

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

UpdateStatistics

Type

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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

WriteTracks

Type

writeTracks (byte[][] *data*, int *timeout*) 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.

ErrorCode & ErrorCodeExtended	Meaning	Error Handling
JPOS_E_CLOSED,0	The Device has been closed.	Try again after executing the open method.
JPOS_E_ILLEGAL,0	Unsupported function was specified.	This function is not supported.

1.4.5. Event Specifications

This Device Service throws the following events.
For details of event specifications, refer to the UPOS Specification.

1.4.5.1. Event List

Common Event	Remarks
DataEvent	Notifies a data input from the Device.
DirectIOEvent	Not Supported
ErrorEvent	The Device Service detects an error and notifies of it.
OutputCompleteEvent	Not Supported
StatusUpdateEvent	Not Supported

Table 18 MSR JavaPOS Device – Event List

1.4.5.2. Details of Events

DataEvent

Type

DataEvent (int *Status*);

Parameter	Description
Status	The 32-bit data length information of the four tracks is divided into four and held as shown below:

High Word		Low Word	
High Byte	Low Byte	High Byte	Low Byte
Track 4	Track 3	Track 2	Track 1

If set to “0”, no data was read from the specified track. This is because the hardware device simply does not have a read head for the track, or the application intentionally precluded incoming data from the track via the **TracksToRead** property.
If set to 1 or larger, it indicates the data length of the corresponding **Track*x*Data** property.

Remarks

An event notification to indicate there is an incoming data from the Device
Data input from the swiped card is set to **Track1Data, Track2Data, Track3Data or Track4Data** before this event is delivered.

ErrorEvent

This Device Service throws the following ErrorEvent.

Type

void ErrorEvent (int *ErrorCode*, int *ErrorCodeExtended*,
int *ErrorLocus*, Object *pErrorResponse*);

Remarks

Parameter	Description
ErrorCode	A code which indicates a cause of the error event. For values, refer to the below.
ErrorCodeExtended	An extended code which indicates a cause of the error event. For values, refer to the below.
ErrorLocus	Location of the error. For values, refer to the below.
pErrorResponse	A pointer to the area which specifies a process to be performed for the error event. For values, refer to the below.

If the **ErrorReportingType** property is MSR_ERT_CARD, the following value is set for *ErrorCode*.

Value	Meaning
JPOS_E_FAILURE	An error occurred while decoding the data read from the Device.

If the **ErrorReportingType** property is MSR_ERT_TRACK, one of the following values is set for *ErrorCode*.

Value	Meaning
JPOS_E_FAILURE	An error occurred while decoding the data read from the Device.
JPOS_E_EXTENDED	A class-specific error occurred. The error state can be checked with the **ErrorCodeExtended** property.

Among the conditions above, if *ErrorLocus* is JPOS_EL_INPUT and *ErrorCode* is JPOS_E_EXTENDED, a track level is set to *ErrorCodeExtended.*

The 32-bit data length information of the four tracks is divided into four and held as shown below:

High Word		Low Word	
High Byte	Low Byte	High Byte	Low Byte
Track 4	Track 3	Track 2	Track 1

Error code for each track is either of the following:

Value	Meaning
JPOS_SUCCESS	No errors.
JPOS_E_FAILURE	An error occurred while parsing the track data

The *ErrorLocus* parameter is one of the following:

Value	Meaning
JPOS_EL_INPUT	An error occurred while processing event-driven input. No previously buffered input data is available.
JPOS_EL_INPUT_DATA	An error occurred while processing event-driven input. Previously queued data is available.

The contents at the location pointed by the *pErrorResponse* parameter are preset to a default value based on *ErrorLocus*. The application may change them to one of the following:

Value	Meaning
JPOS_ER_CLEAR	Clears all buffered input data, and the error state is exited. Default when *ErrorLocus*. is JPOS_EL_INPUT.
JPOS_ER_CONTINUEINPUT	Used only when *ErrorLocus*. is JPOS_EL_INPUT_DATA. Acknowledges the error and directs the Control to continue processing. Although the Control remains in the error state, an additional **DataEvent** is delivered as directed by the **DataEventEnabled** property. When all input has been delivered and the **DataEventEnabled** property is again set to TRUE, another **ErrorEvent** is delivered with JPOS_EL_INPUT. Default when *ErrorLocus* is JPOS_EL_INPUT_DATA.

An event is thrown when an error is found while the Device is reading card data. To perform correct application sequence, an input error event is not delivered until the **DataEventEnabled** property is set to TRUE.
If the **ErrorReportingType** property is MSR_ERT_CARD, the track having an error is not determined. The track data property is not changed.
If the **ErrorReportingType** property is MSR_ERT_TRACK, a track level status is indicated using the *ResultCode* and *ResultCodeExtended* properties. Also, the track data properties are updated as with a **DataEvent**, with the properties for the tracks in error set to empty strings.
Unlike **DataEvent**, data length of each track is not reported, but the application can determine the data length by obtaining length of each of the **TrackXData** properties. As this is an **ErrorEvent**, the **DataCount** property value is not incremented. Regardless of the **AutoDisable** property value, the Control remains enabled.

Refer to:

ErrorReportingType property

StatusUpdateEvent

When the MSR's power state changes, this event is thrown.
However, this event is not thrown from this Device Service which does not detect a power state.

DirectIOEvent

An event to the DirectIO method.
However, this event is not thrown from this Device Service which does not provide an access with the DirectIO method.

OtputCompleteEvent

An event to report the completion of an asynchronous output request
This event is not thrown from this Device Service which does not perform an asynchronous output process (writing data to track).

1.4.6. 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.

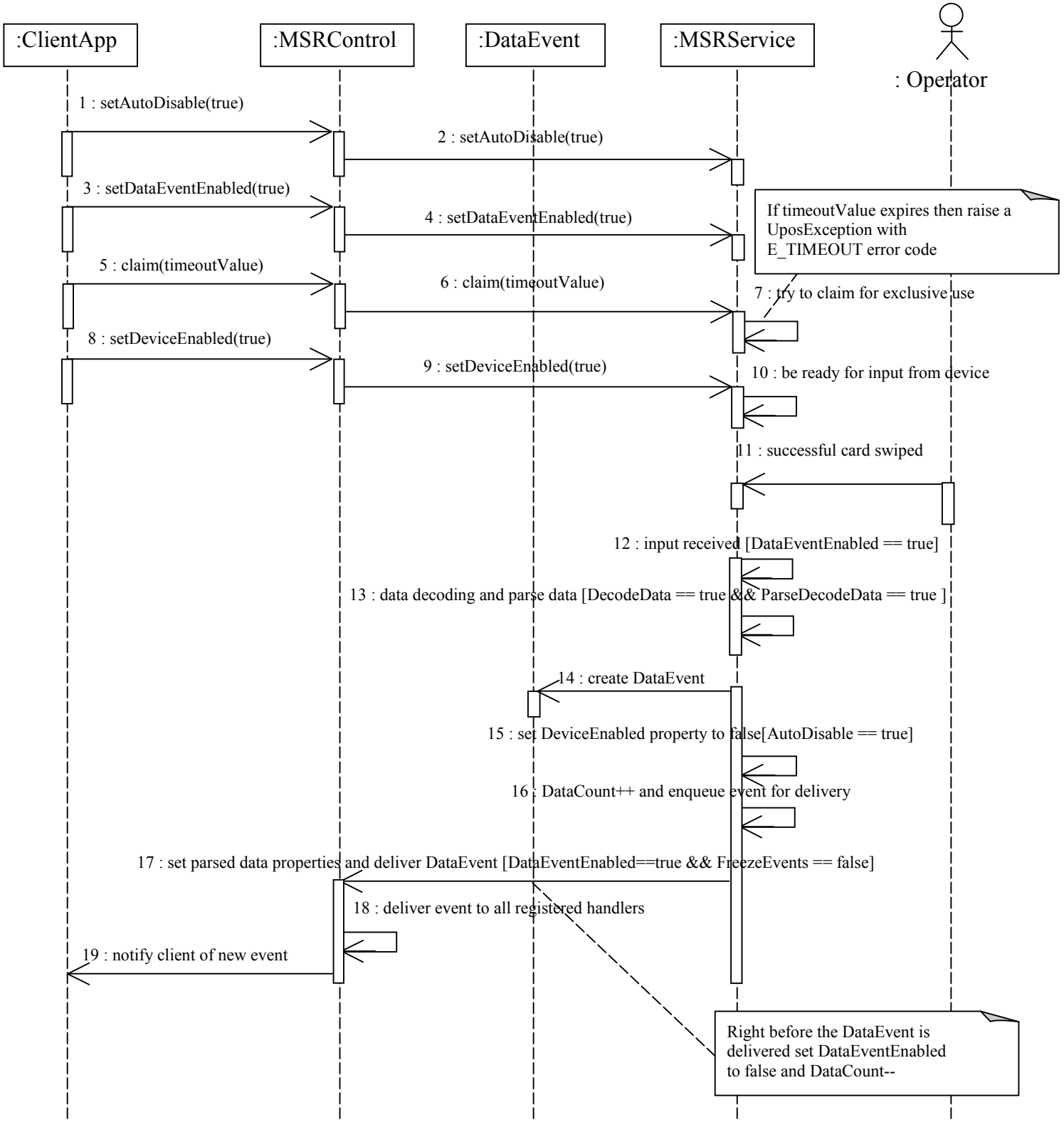
```
<JposEntries>
  <JposEntry logicalName="TECMSR_PKBST5x">
      <creation factoryClass="jpos.toshibatec.msr.loader.JavaPOSServiceFactory"
          serviceClass="jpos.toshibatec.services.MSRService"/>
      <vendor name="TOSHIBA TEC Corporation" url="http://www.toshibatec.co.jp"/>
      <jpos category="MSR" version="1.11"/>
      <product description=" TEC MSR "
          name=" TECMSR " url="http://www.toshibatec.co.jp"/>
      <!--Other non JavaPOS required property (mostly vendor properties and bus specific
          properties  i.e. RS232 )-->
      <prop name="modelName" type="String" value="MSRPKBST-5x"/>
          <prop name="deviceBus" type="String" value="PS2"/>
  </JposEntry>
</JposEntries>
```

Item Name (jposEntry)	Value
logicalName	Logical name which the application uses Specify a logical name which the application uses.

Item Name (Product)	Value
name	TECMSR (Fixed)

Item Name (prop name)	Value
modelName	Specify a device model number. Specify “MSRPKBST-5x”, “MSRLKBST-65” or “MSRPKBST-52”. PKBST-50 のときは、MSRPKBST-5x を指定してください。 LKBST-65 のときは、MSRLKBST-65 PKBST-52 のときは、MSRPKBST-52
deviceBus	Specify the method for connecting the Device. Specify ”PS2” for the PKBST-50 or LKBST-65. Specify ”USB” for the PKBST-52.

Table 19 MSR JavaPOS Device –Setting Information List

1.4.7. Usage Example

The following shows a general usage of this Device Service.