TELIUM SDK 9.4.1 RELEASE NOTE

Reference: ICO-OPE-00214

Ingenico - 28/32 boulevard de Grenelle - 75015 Paris - France
Tél. 33(0)1 58 01 80 00 - Fax 33 (0) 1 58 01 91 35 - ingenico@ingenico.com

Contents

1. Specific Note : functions deprecation for future releases of SDK

Please note that, in SDK 9.6.0 and next ones, fioctl and some low level functions will be replaced by high level functions in order to facilitate future developments and to prepare the migration to our future platform.
The results of the survey to which regions answered in the past weeks, are in the entry point to define the removal of old functions and the designing of new ones.

There will be three steps in this deprecation process:

1. First step: The API is deprecated

The user, when compiling the function gets an error message:

- He can remove this error and continue to use temporarily the function, adding a specific define ;
- He shall work on the replacement solution.

In the specific case of fioctl (driver access functions), they will not be accessible directly as today. We will provide high level functions answering to the need of the current fioctl users.

2. Second step: Function is no more provided in the library

After migration to the SDK containing this evolution, user can't anymore compile the API. An application, using this function, continues to work if it was compiled with a previous SDK.
There will some SDKs between the first step and the second step.

3. Third step: Function is no more provided in the components (DLL, application)

The user can't compile anymore the function. An application compiled with a previous SDK providing the function, does not work anymore, even if it is compiled with a previous SDK.

2. What's new? Why should you use this SDK?

Issues solved are detailed in paragraph 5
Here are main evolutions coming with this Telium SDK release compared to the release 9.4.0.

- Issue seen in Turkey has been fixed: it is now possible to read SMS coming from iPhone
- An iUC150 connected by serial link to an U32 product can now be downloaded (SDDA 1.02 is required).
- Regression in SDK 9.4.0 fixed: on CUSTOMIZE_CARD_ENTRY entry point, fct_amount did not display the currency correctly;
- IST150 is now supported on iSC350. The update of the iST software via the Telium Manager menu "Evolution > CLess" on iSC350 is not possible. It will be available in the next release.

3. Compatibility

3.1. Telium System

Version of Telium System is different between iSC350 and iUC1xx and the other terminals. Telium System for iSC350 and iUC1xx are located in the directory Component\OS_iUC1XX_iSC350.

3.2. List of compatible terminals

This SDK release is compatible with the following products.

3.2.1. Wireless

Telium 2:

- iWL220B, iWL220G,
- iWL250B, iWL250G ,
- iWL250 3G,
- iWL250 2SCR, 2SCR stands for 2 Smart Card Reader,
- iWL280,
- iWL350

Telium 1:

- EFT930

3.2.2. Countertop terminals

Telium 2:

- iCT220, iCT250,
- iCT220 Contactless (for development only)
- E532

Telium 1:

- EFT SMART Plus,
- EFT SMART,
- EFT30

3.2.3. Retail pinpads (Signature capture terminals)

Telium 2:

- iSC250,
- iSC350.

3.2.4. Pinpads

Telium 2:

- IPP320, iPP350,
- IPP3xx used as a smart card reader (Pinpad emulation mode).
- iPP480

Telium 1:

- ML30, ML30 color, ML30 color contactless.

'Booster only' pinpads:

- IPP220, iPP250, iPP280, P30, P30 Contactless, PP30S.

3.2.5. Unattended

Telium 2:

Qualification of iUN range of product is in progress at the release date of this version.

- iUC150, IUC180,
- iUP250
- iUR250 (you have to load the system of iUP250 provided by add-on Unattended).

Telium 1:
See the add-on Unattended package for the exhaustive list of CAD30.

Nota: For iUC180 and iUP250, it is not possible to load an SDK older than SDK 9.4.0, after loading this one.

3.2.6. Satellite terminals

Telium 2:
- iST150.

Telium 1:
- TeliumPass Plus.

3.2.7. Mobile payment

Telium 2:
- iMP320, iMP350,
- SPM (iPA280).

3.2.8. French healthcare

- TWINs.

3.3. Compatibility terminals vs SDK

3.3.1. Compatibility

In the following table, you will find the first SDK in which the terminal was managed for production purpose.
This table concerns terminals out since SDK 7.1.

Terminals	Supported since
iCT220	iCT220 Contactless : *(For development since SDK 9.4)*
iWL220	iWL220 G : SDK 7.6 iWL 220 B : SDK 8.0
iWL250	iWL250 G : SDK 7.6 iWL250 B : SDK 8.0 iWL250 2SCR : SDK 8.0 iWL250 3G : SDK 8.2
iWL280	SDK 8.1.2 GPRS only since SDK 8.0.1
iWL350	SDK9.4.0
iWL Bases	Base BEM : SDK 8.0 Base PEM : SDK 8.1
E532	SDK 8.2

iSC250	SDK 7.5
iSC350	SDK 7.1
iPP3XX, iPP3XX in pinpad emulation	Please use SDK 7.5 minimum
iPP220	iPP220, iPP250 : SDK 7.1 iPP280 : SDK 7.5
iST150	SDK 7.5
iUC150, iUC180	SDK 9.2.0
iMP320	SDK 9.2.0
iMP350	SDK 7.6
Twin31	SDK 7.6.1
iPP480	SDK 9.4.0

3.4. Terminals certified PCI V3

The following terminals are certified for PCI v3:

Terminal	Certified since
iWL220	Since SDK 8.0.1
iWL250	Since SDK 8.0.1
iWL280	Since SDK 8.0.1
iSC250	Since SDK 8.0.1
iPP3xx	Since SDK 8.1
iMP350	Since SDK 8.2
iCT2xx (Only iCT2xx referenced 11Txxxxx are certified PCI-V3)	Since SDK 8.2
iPP2xx	Since SDK 8.2
iWL350	Since SDK 9.2.0
iPP480	Since SDK 9.4.0

3.5. Public Key Infrastructure

This release supports PKI v3 infrastructure ensuring communications using IngeTrust keys with larger size, compliant with PCI v3.

4. Highlighted points

4.1. New highlighted points

4.1.1. Use of schemes tlvAESCiph, tlvHMac and tlvMAKeyGen

If your application uses schemes tlvAESCiph, tlvHMac and tlvMAKeyGen on terminals other than iSC350, you must use version of these schemes provided in SDK 9.2.0 or newer.
On iSC350, there is no restriction; you can sign your application with version schemes provided in SDK 9.0.x or older.

4.1.2. GTL (Graphic Tool Library) API

'GTL_TagsInfo.h' is only used by contactless applications that need to manage proprietary tags. So, it has been moved to Easy Path to C'Less 3.7.3.

'GTL_DataStorage.h' is no more available, it is not useful. Applications must not include this file (=> just remove the corresponding #include in ClessSample_Implementation.h').
However, a compilation problem may occur because some contactless CUSTOMs used an incorrect define:
Some applications will have to replace DS_POSITION_NULL by SHARED_EXCHANGE_POSITION_NULL.
These define have the same value (NULL) and replacement will not cause dysfunctions.

4.1.3. Information about downward compatibility for applications compiled with SDK newer or equal to 9.2.0

This paragraph adds precisions to the technical information bulletin referenced ICO-OPE-00132 about downward compatibility for applications compiled with SDK newer or equal to 9.2.0

This information is done in the event that this case occurs even if it should not happen because we do not assure downward compatibility.

4.1.3.1. Context

The list of functions concerned by this information is given in appendix 1.
If you do not use one the functions concerned, you can ignore this information.
Before SDK 9.2.0, these Telium Manager functions were provided in static library. They are now provided in DLLs.
Benefits of this change are:

- Improvement of performance.
- A re-compilation of your application is no more needed to get improvements on these functions provided in future SDK.

4.1.3.2. Compatibility

Due to this evolution, applications built with a version of SDK 9.2.0 or newer, requires a SDK version 9.2.0 or greater loaded in the terminal.
When using an older SDK than 9.2.0, the terminal will reboot when the application calls one of the listed functions.

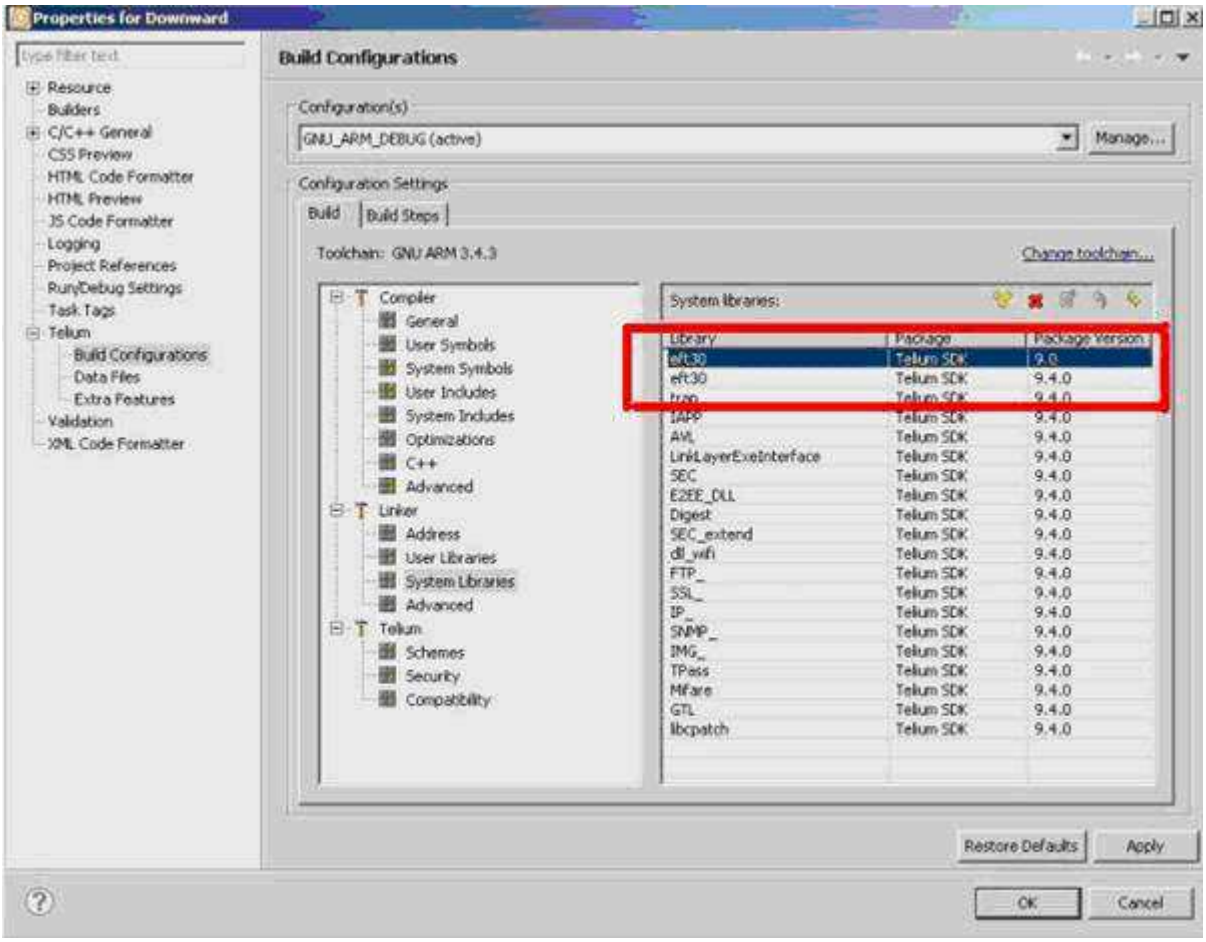
4.1.3.3. Solution

You are not concerned by this point:

- if you don't use the functions concerned, or
- If you use ones of these functions and don't need to be downward compatible.

To be downward compatible on this point, you have to add the eft30.lib provided in SDK 9.0 to your link. This library must be added in the list of libraries before the eft30.lib provided with the SDK you build with.

For example, with Ingedev, you have to do the following:



4.2. Reminder for important highlighted points

4.2.1. Desfire library

"Desfire" library was renamed in "mifare" library in SDK 9.4.0. You have to adapt your project.

4.2.2. Contactless restriction on iWL280 and iWL350

During a transaction, on iWL280 and iWL350, when contactless field is activated, the touch screen is disabled to avoid disruption.
Instead of the direct access to functions provided on other terminals, a menu is accessible after pressing "F" key.

4.2.3. Support of functions vsnprintf, new, Reserve, printf (%f),..

It is now possible to use the functions vsnprintf, new, Reserve, printf (%f) on the Telium platform.
To use these functions in your application, you have to link it with libcpatch.o. This file is provided for GNU 3.4.3 and GNU 4.3.4 in the SDK.
If you use Ingedev,

- When you start a new project since SDK 9.4.0, you will automatically have this object in you link;
- If you migrate your application from an older SDK, you have to add this file to your link (In IngeDev, open your project properties, select Telium/Build Configuration/System Libraries, and

add libcpatch for each GNU configuration). Once done, you must not remove this file from your link if these functions are used.

If you compile your application with ARM, you are not concerned by this point.

4.2.4. Numbering of Telium SDK (Stable vs. Beta releases)

For a SDK versioned V.R.S:

- If R is an odd number, the SDK is a Beta release also called odd release (Example: SDK 9.3.0);
- If R is an even number, the SDK is a stable release also called even release (Example: SDK 9.4.0)

The beta releases propose by advance the features to integrate in the next stable major release. They allow qualifying at the earliest the new features either by platform qualification team or by regions if requested.

Stable (even) releases are fully qualified.

4.2.5. Telium Manager catalogues naming rule

The integration of GOAL in the Telium SDK 9.0 had introduced changes in the Telium Manager catalogues provided.

The naming rules have been maintained for compatibility and to minimize the changes for users.

This sheet describes the application compatibility and Telium Manager MMI regarding names of catalogues.

Thunder	Catalogues names	Application compatibility	Telium Manager MMI
Thunder 1 and 2	xxx_GOAL_yyy.mZZ	GOAL and Libgr	GOAL
Thunder 1 and 2	xxx_CGUI_yyy.mZZ	CGUI, GOAL and Libgr	GOAL
Thunder 1 and 2	xxx_yyy.mZZ	Libgr	Libgr
Thunder 3	xxx_GOAL_yyy.mZZ	GOAL and Libgr	GOAL
Thunder 3	xxx_yyy.mZZ	CGUI, GOAL and Libgr	GOAL

The Telium manager displayed with CGUI interface doesn't exist anymore; it is replaced by the GOAL interface. The name xxx_CGUI_yyy.mZZ for a catalogue means that it is compatible with CGUI applications but the Manager interface is GOAL.

The Telium Manager catalogues xxx_MOCKUP.mZZ don't exist anymore. They were designed to use the Ingedev preview feature. If you want to use this feature, you have to load in your terminal, the catalogue CGUI_PREVIEW_PROXY.mZZ which is in the directory Components\CGUI_PREVIEW_PROXY, additionally to the CGUI manager catalogue.

The Telium Manager catalogues include NanoX, the plug-in Signature Capture and the plug-in Multimedia. So, the plug-ins are no more delivered in the directory \Component\plugins.

4.2.6. Restriction for iPA280 and PCI PED 2.x compliance

During the PCI PED 2.x certification of the iPA280 devices, some constraints have been put at the level of communication of sensitive data from the Secure Payment Module (SPM) to the external world. The PDA part of the product has to be considered as the external world. The reason of this restriction is that the scope of the PCI PED evaluation was the SPM, which has a secure Telium architecture, and not the iPA280 product as a whole.

The restriction forbids communicating:

- Any APDU command response;
- Any cardholder data (i.e. ISO tracks 1 & 2 and their EMV counterpart).

It is also forbidden to receive APDU command queries from the external and to relay them to the smartcard. The restriction imposed by PCI SSC is not limited to banking cards. Direct communication to other types of cards (e.g. loyalty) is not allowed.

The communication APIs to establish communication between SPM and PDA propose some interfaces. It is for sure possible to address communication by using lower level functionalities. This must not be used to circumvent the protocol restrictions for communication.

Since cardholder data must remain within the SPM, the implication of this restriction is that payment applications have to be executed in the SPM and can not be based on a split design between SPM and PDA parts of the device. The PDA can be used for merchant application only (i.e. advertising, product selection)

4.2.7. Contactless

4.2.7.1. Best practices for Contactless

4.2.7.1.1. Field on/off

The contactless field is to be activated only when a contactless card is waited by the terminal. It must be stopped when the management of the contactless card is finished.
If the contactless field is opened all the time:

- On wireless terminals, product battery autonomy is reduced a lot;
- The contactless module and antenna are highly stressed and reliability could decrease quickly with time;

Applications have to manage the opening and the closing of the field according their business logic.

4.2.7.1.2. Implicit selection

Following terminals having the contactless feature inside are concerned: iWL2xx, iCT250, iSC2xx, iSC3xx, EFT930 GCC, EFT930 BCC, iPP3XX, iPA280 (SPM), ML30C and P30C.

Implicit selection is not recommended and must be managed with caution.
Due to physical reason, implicit selection can lead to unexpected issues, for example, at the beginning of the swipe, the card would possibly enter the antenna field and contactless chip would be handled instead of magnetic track.

4.2.7.1.3. Use of PSTN modem with contactless activated

The electro-magnetic field created when the contactless is activated, on an integrated terminal, prevents the usage of the PSTN modem with contactless activated.
This is not a software issue, and no software solution exists. The contactless field shall not be activated at the same time as the modem.

Currently, the issue exists only on the iCT250, which is the only Ingenico integrated terminal with contactless and PSTN modem.
(For instance, on EFT930BCC or EFT930GCC with modem, it works, because the modem is on the cradle, and the distance between the modem and the contactless field is sufficient).

4.2.7.2. Add-on Contactless

The add-on contactless doesn't exist anymore.
All components provided previously in this package are now by default since Telium SDK 8.1. It concerns

- TPass library and component;
- Entry point component;
- GTL library (GTL stands for Generic Tool Library);
- Contactless sample.

4.2.7.3. Card supported

The list of cards supported by this SDK is given in the paragraph 8: Supported card types .

Recommendation:
Even if a card is managed since an old SDK or Add-On Contactless, usage of a recent SDK is strongly recommended because bugs could have been fixed.

4.2.8. Use of printf - like functions in SDK 9.2.0

On SDK 9.2.0, the use of the functions sprintf (), printf (), fprintf (), pprintf()... can make your application crash or application becoming bigger than ones compiled with previous SDKs.
There was a regression due to the implementation of SUPTEL 3275 adding support of floats for the printf - like functions. The evolution is removed since SDK 9.2.1.

4.2.9. PCI PTS version

The function GetTerminalPCIPTSVersion() allows to know the PCI PTS version of the terminal (return is PCI_PTSV2 or PCI_PTSV3).
The function GetTerminalPKIVersion() allows to know the PKI version of the terminal (return is PKIV1 or PKIV3).

4.2.10. New software numbers for Telium Manager DLLs

4.2.10.1. Numbering rule

To conform to Ingenico numbering convention, software numbers of binaries provided by Telium Manager have been changed. The software number is the first part of the name of the binary.
As a rule, when the software number was on 4 digits until SDK 9.0.x, from SDK 9.2.0 the first digit of the prefix is replaced by 844.
There is no change in application types.
Your application should not check the presence of a binary in the terminal by testing the software number but by testing the application type.

Example: For Libgr,

- Until SDK 9.0.x, software number was 3596 and application type was 3.
- From SDK 9.2.0, software number is 844596 and application type is 3.

4.2.10.2. Specific case of Manager Pack parameter file (3778, 4778)

The Manager Pack parameter files (3778xxyy.SGN/PDF and 4778xxyy.PGN) are kept in SDK 9.2.0 only for compatibility with Ingestate.
After the application of this rule:

- The file 844778xxyy has the application type 2 (ID of the files 3778xxyy/4778xxyy previously),

- The files 3778xxyy and 4778xxyy are dummy files (they are empty) with application type 0xAEEA.

4.2.11. Binary name

The binary name, defined in the descriptor used to sign the binary, must follow the pattern "<FAMILY_NAME><VV><AA>" where:

- FAMILY_NAME is the family name of the application (maximum 7 ASCII characters);
- VV is the version (2 number);
- AA is the amendment (2 number)

4.2.12. Pinpad system

To avoid problems when a non mock-up pinpad is linked to a mock-up terminal, the terminal mock-up catalogues don't include pinpad systems. So, you have to load the pinpad system (located in the directory "Component\OS") according to the pinpad you are using.

4.2.13. DIR system version downgrade

It is not possible to downgrade from a system managing directories (catalogue XXX_DIR.mYY) to a system which not manages directories (catalogue XXX.mYY).

4.2.14. Reserved numbers

Service numbers from 1 to 100 and from 0x1E00 à 0x1FFF are reserved for Ingenico internal use.
Tag numbers used by applications must be taken in the range 0x9FA000-0x9FAFFF.

4.2.15. EFT930 embedding 8MB of flash

It is possible to use this SDK on EFT930 which has only 8 MB of flash (special system catalogue is provided: EFT930_8MO_PROD.m31). This catalogue is not a DIR one. If you use Ingestate you may need some adjustments: please contact your R&D Regional Interface for more information.

For SDK 8.0.x, SDK 8.1 and SDK 8.1.1:
It is forbidden to load a catalogue designed for 8MB terminals on a terminal loaded with a generic catalogue (that is to say non-8 MB). You must contact the Ingenico support for the rules of this migration.

4.2.16. Fix in link layer

A bug has been identified in the LinkLayer component, in versions 3.22 and 3.23 (SDK 8.1.2, SDK 8.1.3, SDK 8.2 and SDK 8.2.1).
For these versions only, on Bluetooth terminals, not associated with any base, the connection (call to LL_Connect()) fails when using the physical link LL_PHYSICAL_V_DEFAULT_TCPIP, with return code -1013 (LL_ERROR_NETWORK_NOT_SUPPORTED).
This bug is now corrected in SDK 9.0 (Link Layer version 3.25)

4.2.17. IMP3

4.2.17.1. Bluetooth printer for iMP3

It is possible to use a Bluetooth printer with an iMP3.
The parameters and documentation for this feature are provided via an add-on called "Bluetooth printer for iMP3". Please contact your region interface to request it.

4.2.17.2. IMP3 connected to an iPhone running on IOS 5.0

If the iPhone runs on system iOS 5.0, the iMP3 can not go to sleep mode when iPhone is in sleep mode. This case is to handle at application level.

4.2.18. Deprecation

4.2.18.1. Features from AVL

Following feature provided by AVL are deprecated since SDK 9.2.0:

- VGE_UIM. It was based on Black and White functions. To implement MMI, please use advanced graphical library GOAL or legacy libgr graphical mode;
- VGE_DBG. Use functions from GTL library (Generic Tool Library);
- VGE_DRM. Use file system functions instead (see sample in SDK/Samples/Training/Src/FFMS.c);
- VGE_TMS. Use system functions instead;
- VGE_BLM.

The deprecated functions are grouped in the library AVL_Deprecated.lib. If you want to continue to generate your application with these deprecated features, you need to add this library to your build.
You will have warnings about deprecation. To remove it, clean your code by removing calls to these deprecated functions.

4.2.18.2. Pinlib

Pinlib.lib is deprecated since SDK 9.2.0. Please use functions provided by Security DLL (See documentation in the CHM help file).
These deprecated functions are grouped in the library Pinlib_Deprecated.lib. If you want to continue to generate your application with this deprecated feature, you need to add this library to your build. Pinlib.lib doesn't exist anymore.
You will have warning about deprecation. To remove it, clean your code by removing calls to these deprecated functions.

4.2.18.3. Libgr functions

SetRegionColor(), ClearRegionColor() et GetRegionColor() are deprecated (FT12423) since SDK 9.4.0.
See CHM for information.

5. Issues solved in this release by component

See table in chapter 7 "Versions of components" for the list of versions of components provided in this Telium SDK.

Main points delivered in this release regarding **the last major release SDK 9.4.0** are listed below.

5.1. Telium System

Following points are delivered in this release.

5.1.1. Generic

Internal tracker	SUPTEL	Issuer	Description
12764	SUPTEL-4360	NAR	Possibility added to use, with this SDK, versions of schemes tlvAESCiph, tlvHMac and tlvMAKeyGen provided in SDK 9.0.x or older on iSC350 terminals.
12576			IST150 is now supported on iSC350. The update of the iST software via the Telium Manager menu "Evolution > CLess" on iSC350 is not possible. It will be available in a next release.

5.1.2. iUNxxx

Internal tracker	SUPTEL	Description
12638		An iUC150 connected by serial link to an U32 product can now be downloaded. It requires the use of SDDA component 1.02. SDDA will be delivered in the next version of Easy Path To Contactless. In the meantime, if you need it, please contact your Ingenico interface.

5.2. Telium Manager

Following points are delivered in this release.

5.2.1. General issues

Internal tracker	SUPTEL	Issuer	Description
12557	SUPTEL-3650	EMEA	SMS: We have not provided support for foreign characters in the Management SMS so we have corrected the problem by ignoring the header indicating that specific characters language may appear in the message
12649	SUPTEL-4451	FRANCE	Issue when terminal has more than seven language fixed

12698	SUPTEL-4484	FRANCE	Reset with SDL (License server) activated and more than 15 applications fixed
12703	SUPTEL-4490	NER	Documentation only
12695	SUPTEL-4507	FRANCE	Regression in SDK 9.4.0 fixed: on CUSTOMIZE_CARD_ENTRY entry point, fct_amount did not display the currency correctly.
12718	SUPTEL-4523	FRANCE	Fixed problem with deletion using shortcut "07" of Telium Manager.
12592			Use '*' and '.' keys for navigation in delete menu on iUC180
12606			Reset when print Scheme version on iUC180 resolved Don't print Scheme version in maintenance MODE
12612			IWL350 keyboard management added in maintenance menu
12737			Correction in DrawEntendedString8859() function for IS06 font (Arabic)
12749			iWL350: font Tiresias used for Pincode entry, font recommended for the visually impaired.

5.2.2. APIs evolutions

Internal tracker	SUPTEL	Issuer	Description
12748	SUPTEL-4493	NAR	Remove unused define : T_E and T_D
12635	SUPTEL-4376	NER	Remove GetStatusCamo from public include
12597			Function IsFooter () provided

5.3. Security

No evolutions

5.4. Communication

No evolutions

5.5. Display

5.5.1. CGUI

Following other points are delivered in this release:

Internal tracker	SUPTEL	Issuer	Description
12641	SUPTEL-4448	NAR	cGUI now handles correctly html entities (&name;) when located on 8kbytes boundaries

5.5.2. GOAL

Reminder:
GOAL binaries are integrated in the Telium Manager catalogues as described above.
New fonts usable with GOAL are added in repository Component\Fonts\GOAL (See documentation in CHM)

- Latin (Lucida and GOAL standard)

- Arabic and Hebrew
- Traditional Chinese
- Simplified Chinese
- Cyrillic and Greek

Following other points are delivered in this release:

Internal tracker	SUPTEL	Issuer	Description
12370	SUPTEL-4228	FRANCE	Virtual keyboard badly display in GL_Dialog_Scheme
12469	SUPTEL-4296	FRANCE	Adds the valid button in GL_Dialog_Menu
12505			Cannot start application named "GOAL"
12553			Add the possibility to have many skins in several directories in WIN32
12590			Clicking checkbox in GL_Dialog_MultiFile enter in the directory
12595			Font XXSmall not well centered on black and white terminal

5.6. Contactless

5.6.1. DLL TPass

Following point is delivered in this release.

Internal tracker	SUPTEL	Issuer	Description
12637			The ASK Smart cards CTS 256 and CTS 512 are now correctly detected

5.7. Applications

5.7.1. Incendo Online browser

Technical documentation and the Incendo SDK are provided with Ingedev (from version 7.8.0).

5.7.1.1. Memory

Before deploying this solution, please check the memory usage of your terminals.

5.7.1.2.Migration to this version

5.7.1.2.1. Migration from a version before 3.0.4

Incendo Online smart browser was previously delivered as an independent package (up to version 3.0.3). It was designed to be signed with region security keys.
The version in this Telium SDK is signed with manufacturer key. So the application type is different between these two versions. If you have already deployed the browser, to migrate to the version included in a Telium SDK, you must manage the change of application type. For further details, please contact the Incendo support.

5.7.1.3. Compatibility

Incendo is compatible with GOAL versions only.

5.7.1.3.1. Terminals managed

Minimal hardware prerequisites are:

- Terminal is Ethernet or GPRS;
- Terminals is Ingetrust ready;
- Minimum of 16 MB of Flash is mandatory;
- 16 MB of RAM are mandatory.

Incendo Online is compatible with the following terminal:

- iCT250;
- iWL280;
- iWL350.

Qualification of iWL250 and iSC350 is in progress.

You must not use it on other terminals.

5.7.1.4. Evolutions

No evolution.

5.7.2. Image Loader

At the end of the Telium SDK setup you can choose to install Image Loader on your PC. Documentation is available in this installed package.
Please read all the documentation located in the directory you installed Image Loader.

5.7.2.1. Evolutions

No evolution.

5.8. IPP3 in Pinpad emulation mode

Please see description in the CHM help file of the Telium SDK (SDK General Documentation > How To Develop user guides > How to use iPP3xx as a smart card reader).

5.8.1.1. Evolutions

No evolution.

5.9. AVL

AVL stands for Added Value Libraries.

No evolution.

5.10. Miscellaneous

Following point is delivered in this release.

Internal tracker	SUPTEL	Issuer	Description
12651	SUPTEL-4463	FRANCE	See instructions in the paragraph 4.1.3

5.11. Documentation

There are improvements of documentation in this release including the following:

Internal tracker	SUPTEL	Description
12722		Graph in contactless documentation back in SDK
12750		GTL API documentation added in Release Note

5.12. Samples

Following point is delivered in this release.

Internal tracker	SUPTEL	Issuer	Description
12714			Sample for Open BT back in SDK

6. Add-ons to Telium SDK

The following table presents the versions of recommended add-ons to use with this SDK.

Add on	Recommended version to use with this SDK	Comment
Easy Path To EMV	21.00	
Easy Path To Contactless	3.07.03	
Add On PCL for iPA280	1.19	
Add On PCL for iWP	1.15	
Add On PCL for iMP3xx	1.04	
Bluetooth printer for iMP3	1.01	
Add On Morpho	2.00	
Add On Telicapt	2.17	
Add On Unattended	3.02	Qualification of this SDK with add-on Unattended 3.02 is in progress
Add On SPDH	1.01	
Add On APACS 40 Generic	1.08	
Add On ISO8583 Generic	3.02	

7. Version of components

The following table compiles the versions of components provided in this version of the SDK and in the previous ones.
In this table, grey cells correspond to evolution of the component.

SDK	System	Manager	DLL Hardware	Security						Communication					Display							Contactless						Applications		AVL	iPP3xx in emulation mode	
				DLL Security	DLL Security Extend	DLL Security Digest	DLL E2EE	TLV Schemes	Schemes	Link Layer	Pack IP	FTP	SNMP	SSL	GOAL	Cgui	Cgui tools	Signature capture	Multimedia	Telium Fonts	DLL Image	DLL Tpass	Entry Point	GTL	Telium Pass	Vending Pass	Mifare	Incendo Online browser	Image Loader		DLL PPLoad	iPP3 conf
9.4.1	24.00*	70.01	2.72	3.28	2.14	2.01	4.05	2.12	3.07	3.27	3.13	1.23	1.01	1.95	3.23	2.06	2.03	2.12	2.11	1.11	1.01	2.38	0.25	1.40	2.24	3.02	2.02	03.01.05	2.01	2.01	2.01	4.02
9.4.0	24.00	70.00	2.71	3.28	2.14	2.01	4.05	2.12	3.07	3.27	3.13	1.23	1.01	1.95	3.22	2.05	2.03	2.12	2.11	1.11	1.01	2.37	0.25	1.40	2.24	3.02	2.02	03.01.05	2.01	2.01	2.01	4.02
9.3.1	23.10	69.03	2.69	3.27	2.14	2.01	4.05	2.12	3.07	3.27	3.13	1.23	1.01	1.95	3.21	2.05	2.03	2.12	2.11	1.11	1.01	2.36	0.25	1.34	2.24	3.02	2.02	03.01.05 RC	2.01	2.01	2.01	4.02
9.3.0	23.00	69.02	2.68	3.25	2.13	2.01	4.04	2.12	3.07	3.27	3.12	1.22	1.01	1.89	3.20	2.03	2.01	2.12	2.11	1.11	1.01	2.35	0.25	1.34	2.24	3.02	2.01	03.01.01	2.01	2.01	2.01	4.02
9.2.2	22.20	68.06	2.68	3.25	2.14	1.01	4.04	2.12	3.07	3.26	3.12	1.22	1.01	1.89	3.11	2.05	2.01	2.11	2.11	1.11	1.01	2.35	0.25	1.34	2.24	3.02	2.01	03.01.01	2.01	2.01	2.01	4.02
9.2.1	22.12	68.05	2.67	3.25	2.12	1.01	4.04	2.11	3.07	3.26	3.12	1.22	1.01	1.89	3.10	2.03	2.01	2.11	2.11	1.11	1.01	2.35	0.25	1.34	2.24	3.02	2.01	03.01.01	2.01	2.01	2.01	4.02
9.2.0	22.06	68.02	2.67	3.25	2.12	1.01	4.04	2.11	3.07	3.26	3.12	1.22	1.01	1.89	3.10	2.03	2.01	2.11	2.11	1.11	1.01	2.34	0.23	1.34	2.24	3.02	2.01	03.01.01	2.01	2.01	2.01	4.02
9.1.1	*22.04*	*67.03*	*2.65*	*3.24*	*2.11*	*1.01*	*4.04*	*2.10*	*3.07*	*3.26*	*3.11*	*1.21*	*1.01*	*1.89*	*3.08*	*2.02*	*2.01*	*2.11*	*2.10*	*1.10*	*1.01*	*2.34*	*0.23*	*1.16*	*2.24*	*3.02*		*03.01.01*	*1.06*	*2.00*	*2.01*	*4.01*
9.1.0	*21.00*	*67.01*	*2.63*	*3.21*	*2.08*	*1.01*	*4.02*	*2.06*	*3.07*	*3.25*	*3.11*	*1.21*	*1.01*	*1.85*	*3.06*	*2.02*	*1.10*	*2.11*	*2.10*	*1.10*	*1.01*	*2.32*	*0.22*	*1.16*	*2.24*	*3.01*		*03.01.01*	*1.06*	*1.19*	*1.04*	*3.02*
9.0.2	11.04	65.05	2.63	3.21	2.08	1.01	4.04	2.06	3.07	3.26	3.11	1.21	1.01	1.85	3.07	2.02	2.00	2.11	2.10	1.10	1.01	2.34	0.23	1.16	2.24	3.01		03.01.01	1.06	1.18	1.04	3.00
9.0.1	11.04	65.03	2.62	3.21	2.08	1.01	4.02	2.06	3.07	3.25	3.11	1.21	1.01	1.83	3.06	2.00	1.10	2.11	2.10	1.10	1.01	2.32	0.22	1.16	2.24	3.01		03.01.01	1.06	1.18	1.04	3.00
9.0	11.02	65.01	2.61	3.21	2.07	1.01	4.02	2.06	3.07	3.25	3.11	1.21	1.01	1.79	3.05	2.00	1.10	2.10	2.10	1.10	1.01	2.31	0.22	1.16	2.24	3.01		03.01.00	1.06	1.18	1.04	3.00

* 24.04 for iUC1xx and iSC350, 24.00 for the other terminals

8. Supported card types

This table shows the minimal version of package (add-on contactless and SDK) for the support of a type of card by a terminal.

Product	EMV 1.1	EMV 2.0	EMV 2.0.1	Mifare Plus	Mifare Desfire*	Mifare 1K	Mifare 4K	Mifare UltraLight	STM	Innovatron Calypso
Telium Pass+	A-O 3.0	-	-	-	SDK9.4	A-O 3.0	A-O 3.5	A-O 3.5	A-O 3.5	A-O 3.6
Vending Pass	A-O 3.0	-	-	-	SDK9.4	A-O 3.0	A-O 3.6	A-O 3.5	A-O 3.5	A-O 3.5
P30	SDK5.8 A-O 3.0	-	-	-	SDK9.4	SDK5.8 A-O 3.0	SDK7.2 A-O 3.5	SDK6.4.1 A-O 3.5	-	-
ML30	SDK5.8 A-O 3.0	-	-	-	SDK9.4	SDK5.8 A-O 3.0	SDK6.6 A-O 3.5	SDK6.4.1 A-O 3.5	-	-
CAD30UCR + EPSUM A40	SDK5.8 A-O 3.0	-	-	-	SDK9.4	SDK5.8 A-O 3.0	SDK7.1 A-O 3.5	SDK6.2.2 A-O 3.5	SDK5.8 A-O 3.5	SDK7.3 A-O 3.5
iUC150/iUC180	-	-	SDK9.4	SDK9.4		SDK9.4	SDK9.4	SDK9.4	SDK9.4	SDK9.4
EFT930CC	SDK6.2 A-O 3.0	-	-	-	SDK9.4	SDK6.2 A-O 3.0	SDK7.1 A-O 3.5	SDK6.4 A-O 3.5	-	SDK7.1 A-O 3.5
iCT2xx	SDK6.4 A-O 3.0	-	-	SDK9.4	SDK9.4	SDK6.4 A-O 3.0	SDK7.1 A-O 3.5	SDK6.4 A-O 3.5	SDK7.1 A-O 3.5	SDK7.1 A-O 3.6
iCT2xx PCI-V3	-	-	SDK8.2	SDK9.4		SDK8.2	SDK8.2	SDK8.2	SDK8.2	SDK8.2
iPA280	SDK6.4 A-O 3.0	-	-	SDK9.4	SDK9.4	SDK6.4 A-O 3.0	SDK7.1 A-O 3.5	SDK6.4 A-O 3.5	SDK7.1 A-O 3.5	SDK7.1 A-O 3.6
iPP220 iPP250	-	SDK7.1 A-O 3.2	-	SDK9.4	SDK9.4	SDK7.1 A-O 3.2	SDK7.1 A-O 3.5	SDK7.1 A-O 3.5	SDK7.1 A-O 3.5	SDK7.2 A-O 3.5
iPP280	-	SDK7.5 A-O 3.7	-	SDK9.4	SDK9.4	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7
iPP320 iPP350	-	SDK7.1 A-O 3.2	-	SDK9.4	SDK9.4	SDK7.1 A-O 3.2	SDK7.1 A-O 3.5	SDK7.1 A-O 3.5	SDK7.1 A-O 3.5	SDK7.1 A-O 3.6
iPP480	-	-	SDK9.4	SDK9.4		SDK9.4	SDK9.4	SDK9.4	SDK9.4	SDK9.4
iSC250	-	-	SDK7.5 A-O 3.7	SDK9.4	SDK9.4	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7
iSC350	-	SDK7.2 A-O 3.2	-	SDK9.4	SDK9.4	SDK7.2 A-O 3.2	SDK7.2 A-O 3.5	SDK7.2 A-O 3.5	SDK7.2 A-O 3.5	SDK7.1 A-O 3.6
iWL220 iWL250	-	-	SDK7.5 A-O 3.7	SDK9.4	SDK9.4	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7
iWL280	-	-	SDK8.0.1 A-O 3.10	SDK9.4	SDK9.4	SDK8.0.1 A-O 3.10	SDK8.0.1 A-O 3.10	SDK8.0.1 A-O 3.10	SDK8.0.1 A-O 3.10	SDK8.0.1 A-O 3.10
iMP3xx	-	-	SDK8.0.1 A-O 3.10	SDK9.4	SDK9.4	SDK8.0.1 A-O 3.10	SDK8.0.1 A-O 3.10	SDK8.0.1 A-O 3.10	SDK8.0.1 A-O 3.10	SDK8.0.1 A-O 3.10
iST150 (TeliumPass emul.)	-	-	SDK7.5 A-O 3.7	SDK9.4	SDK9.4	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7	SDK7.5 A-O 3.7
iST150 (Intelligent mode)	-	-	SDK7.5 A-O 3.9	SDK9.4	SDK9.4	SDK7.5 A-O 3.9	SDK7.5 A-O 3.9	SDK7.5 A-O 3.9	SDK7.5 A-O 3.9	SDK7.5 A-O 3.9

A-O = Add-On

*** Mifare Desfire cards are supported by older SDKs if used with Easy Path to C'Less 3.7.1 or 3.7.2**

9. Appendix 1: Functions concerned by information of §4.1.3

Here is the list of functions concerned by the subjet "downward compatibility for applications compiled with SDK newer or equal to 9.2.0"

hterm_t *GetConfiguration(void)
char GetTerminalType(void)
unsigned long lire_gamme_produit(unsigned char *produit)
int IsBIO(void)
int IsRadioETHERNET(void)
int IsPortable(void)
int IsUsbHost(void)
int IsUsbSlave(void)
int IsPrinter(void)
int IsSlowPrinter(void)
int IsISO1(void)
int IsISO2(void)
int IsISO3(void)
int IsCAM1(void)
int IsCAM2(void)
int IsCAM3(void)
int IsSAM1(void)
int IsSAM2(void)
int IsSAM3(void)
int IsSAM4(void)
int IsCOM0(void)
int IsEFT30(void)
int IsCOM1(void)
int IsCOM1Pinpad(void)
int IsCOM1RS232(void)
int IsCOMN(void)
int IsCOMU(void)
int IsCOM2(void)
int IsCOM3(void)
int IsBUZZER(void)
int IsTILTO(void)
int IsMMC(void)
int IsSmallDisplay(void)
int IsMODEM(void)
int IsDisplay(void)
int IsHeaderDisplayed(void)
int IsCless(void)
int IsTwin33(void)
int IsICT220(void)
int IsICT250(void)
int IsICT280(void)

int IsISC350(void)
int IsSPM(void)
int IsLargeDisplay(void)
int is_ZKA(void)
int IsLedOnDisplay(void)
int IsModemV34(void)
int IsIPP320(void)
int IsIPP350(void)
int IsISC250(void)
int IsTwin32(void)
int IsIWL220(void)
int IsIWL250(void)
int IsE532(void)
int IsColorDisplay(void)
int IsIST150(void)
int IsIWL280(void)
int IsIMP350(void)
int IsIWL2XX(void)
int IsTermCGUI(void)
char *GetCguiFileName(char *FileName)
int IsIPP3XX(void)
int IsWifi(void)
ethernet_t *GetEthernetConfiguration(void)
int IsRadio(void)
int IsETHERNET(void)
int IsCOM0Available(void)
int IsCOM1Available(void)
int IsCOM2Available(void)
int IsMODEMAvailable(void)
int IsETHERNETAvailable(void)
int IsCOM1RS232Available(void)
int IsScreenSaver(void)
int IsBacklightSaver(void)
int IsPinpadAuthorized(void)
int IsModePinpadAvailable(void)
int IsIWL350(void)
int BoosterType(void)
int IsTwin31(void)
int GetPKIVersion(int Periph)
int IsML30(void)
int IsIUC180(void)
int IsIUC150(void)
int IsTargetModeAvailable(void)
int IsIPP480(void)
int GetProductName(unsigned char *Name)
int IsIUP250(void)
int IsBT(void)
int IsRadioWifi(void)
int IsRadioGPRS(void)
int IsRadioCDMA(void)

int IsGPRS(void)
int IsRadio3G(void)
int IsIngetrust(void)
int IsTouchScreen(void)
int GetTerminalPKIVersion(void)
int GetTerminalPCIPTSVersion(void)

WARNING: Integrity of TELIUM Manager and TELIUM System must be respected
You shall respect the integrity of SDK components (c.f. list)
and **never mix components from different SDKs,** except following INGENICO requirements.
INGENICO only guarantees a standard package. Partial or modified packages cannot be either downloaded, nor supported, nor guaranteed by INGENICO.

This SDK is available on CDROM format on request or can be downloaded from INGENICO FTP server.