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**Specifikacija vmesnika razširitev za finančne storitve (XFS), izdaja 3.50 - 73. del:
Vmesnik razreda naprave za tiskanje kartic - Referenca za programerje - Prehod z
različice 3.40 (CWA 16926:2020) na različico 3.50 (ta CWA)**

Extensions for Financial Services (XFS) interface specification Release 3.50 - Part 73:
Card Embossing Unit Device Class Interface - Programmer's Reference - Migration from
Version 3.40 (CWA 16926:2020) to Version 3.50 (this CWA)

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| | | |
|-----------|---|--|
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| 35.240.15 | Identifikacijske kartice. Čipne kartice. Biometrija | Identification cards. Chip cards. Biometrics |
| 35.240.40 | Uporabniške rešitve IT v bančništvu | IT applications in banking |

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CEN**CWA 16926-73****WORKSHOP**

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AGREEMENT

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**Extensions for Financial Services (XFS) interface
specification Release 3.50 - Part 73: Card Embossing Unit
Device Class Interface - Programmer's Reference -
Migration from Version 3.40 (CWA 16926:2020) to
Version 3.50 (this CWA)**

This CEN Workshop Agreement has been drafted and approved by a Workshop of representatives of interested parties, the constitution of which is indicated in the foreword of this Workshop Agreement.

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European Foreword

This CEN Workshop Agreement has been developed in accordance with the CEN-CENELEC Guide 29 “CEN/CENELEC Workshop Agreements – The way to rapid consensus” and with the relevant provisions of CEN/CENELEC Internal Regulations - Part 2. It was approved by a Workshop of representatives of interested parties on 2022-11-08, the constitution of which was supported by CEN following several public calls for participation, the first of which was made on 1998-06-24. However, this CEN Workshop Agreement does not necessarily include all relevant stakeholders.

The final text of this CEN Workshop Agreement was provided to CEN for publication on 2022-11-18. The following organizations and individuals developed and approved this CEN Workshop Agreement:

- AURIGA SPA
- CIMA SPA
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The CWA is published as a multi-part document, consisting of:

- Part 1: Application Programming Interface (API) - Service Provider Interface (SPI) - Programmer's Reference
- Part 2: Service Classes Definition - Programmer's Reference
- Part 3: Printer and Scanning Device Class Interface - Programmer's Reference
- Part 4: Identification Card Device Class Interface - Programmer's Reference
- Part 5: Cash Dispenser Device Class Interface - Programmer's Reference
- Part 6: PIN Keypad Device Class Interface - Programmer's Reference
- Part 7: Check Reader/Scanner Device Class Interface - Programmer's Reference
- Part 8: Depository Device Class Interface - Programmer's Reference
- Part 9: Text Terminal Unit Device Class Interface - Programmer's Reference
- Part 10: Sensors and Indicators Unit Device Class Interface - Programmer's Reference
- Part 11: Vendor Dependent Mode Device Class Interface - Programmer's Reference
- Part 12: Camera Device Class Interface - Programmer's Reference
- Part 13: Alarm Device Class Interface - Programmer's Reference
- Part 14: Card Embossing Unit Device Class Interface - Programmer's Reference
- Part 15: Cash-In Module Device Class Interface - Programmer's Reference
- Part 16: Card Dispenser Device Class Interface - Programmer's Reference
- Part 17: Barcode Reader Device Class Interface - Programmer's Reference
- Part 18: Item Processing Module Device Class Interface - Programmer's Reference
- Part 19: Biometrics Device Class Interface - Programmer's Reference
- Parts 20 - 28: Reserved for future use.
- Parts 29 through 47 constitute an optional addendum to this CWA. They define the integration between the SNMP standard and the set of status and statistical information exported by the Service Providers.
- Part 29: XFS MIB Architecture and SNMP Extensions - Programmer's Reference
- Part 30: XFS MIB Device Specific Definitions - Printer Device Class
- Part 31: XFS MIB Device Specific Definitions - Identification Card Device Class
- Part 32: XFS MIB Device Specific Definitions - Cash Dispenser Device Class
- Part 33: XFS MIB Device Specific Definitions - PIN Keypad Device Class
- Part 34: XFS MIB Device Specific Definitions - Check Reader/Scanner Device Class
- Part 35: XFS MIB Device Specific Definitions - Depository Device Class
- Part 36: XFS MIB Device Specific Definitions - Text Terminal Unit Device Class
- Part 37: XFS MIB Device Specific Definitions - Sensors and Indicators Unit Device Class
- Part 38: XFS MIB Device Specific Definitions - Camera Device Class
- Part 39: XFS MIB Device Specific Definitions - Alarm Device Class
- Part 40: XFS MIB Device Specific Definitions - Card Embossing Unit Class
- Part 41: XFS MIB Device Specific Definitions - Cash-In Module Device Class
- Part 42: Reserved for future use.
- Part 43: XFS MIB Device Specific Definitions - Vendor Dependent Mode Device Class
- Part 44: XFS MIB Application Management
- Part 45: XFS MIB Device Specific Definitions - Card Dispenser Device Class
- Part 46: XFS MIB Device Specific Definitions - Barcode Reader Device Class
- Part 47: XFS MIB Device Specific Definitions - Item Processing Module Device Class

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Part 48: XFS MIB Device Specific Definitions - Biometrics Device Class

Parts 49 - 60 are reserved for future use.

Part 61: Application Programming Interface (API) - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Service Provider Interface (SPI) - Programmer's Reference

Part 62: Printer and Scanning Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 63: Identification Card Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 64: Cash Dispenser Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 65: PIN Keypad Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 66: Check Reader/Scanner Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 67: Depository Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 68: Text Terminal Unit Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 69: Sensors and Indicators Unit Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 70: Vendor Dependent Mode Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 71: Camera Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 72: Alarm Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 73: Card Embossing Unit Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 74: Cash-In Module Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 75: Card Dispenser Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 76: Barcode Reader Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 77: Item Processing Module Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

Part 78: Biometric Device Class Interface - Migration from Version 3.40 (CWA 16296:2020) to Version 3.50 (this CWA) - Programmer's Reference

In addition to these Programmer's Reference specifications, the reader of this CWA is also referred to a complementary document, called Release Notes. The Release Notes contain clarifications and explanations on the CWA specifications, which are not requiring functional changes. The current version of the Release Notes is available online from: <https://www.cenelec.eu/areas-of-work/cen-sectors/digital-society-cen/cwa-download-area/>.

The information in this document represents the Workshop's current views on the issues discussed as of the date of publication. It is provided for informational purposes only and is subject to change without notice. CEN makes no warranty, express or implied, with respect to this document.

Revision History:

| | | |
|------|-------------------|---|
| 3.00 | October 18, 2000 | Initial Release. |
| 3.10 | November 29, 2007 | For a description of changes from version 3.00 to version 3.10 see the CEU 3.10 Migration document. |
| 3.20 | March 2, 2011 | For a description of changes from version 3.10 to version 3.20 see the CEU 3.20 Migration document. |
| 3.30 | March 19, 2015 | For a description of changes from version 3.20 to version 3.30 see the CEU 3.30 Migration document. |
| 3.40 | December 06, 2019 | For a description of changes from version 3.30 to version 3.40 see the CEU 3.40 Migration document. |
| 3.50 | November 18, 2022 | For a description of changes from version 3.40 to version 3.50 see the CEU 3.50 Migration document. |

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1. Introduction

1.1 Background to Release 3.50

The CEN/XFS Workshop aims to promote a clear and unambiguous specification defining a multi-vendor software interface to financial peripheral devices. The XFS (eXtensions for Financial Services) specifications are developed within the CEN (European Committee for Standardization/Information Society Standardization System) Workshop environment. CEN Workshops aim to arrive at a European consensus on an issue that can be published as a CEN Workshop Agreement (CWA).

The CEN/XFS Workshop encourages the participation of both banks and vendors in the deliberations required to create an industry standard. The CEN/XFS Workshop achieves its goals by focused sub-groups working electronically and meeting quarterly.

Release 3.50 of the XFS specification is based on a C API and is delivered with the continued promise for the protection of technical investment for existing applications. This release of the specification extends the functionality and capabilities of the existing devices covered by the specification:

- Addition of E2E security
- PIN Password Entry.

1.2 XFS Service-Specific Programming

The service classes are defined by their service-specific commands and the associated data structures, error codes, messages, etc. These commands are used to request functions that are specific to one or more classes of Service Providers, but not all of them, and therefore are not included in the common API for basic or administration functions.

When a service-specific command is common among two or more classes of Service Providers, the syntax of the command is as similar as possible across all services, since a major objective of XFS is to standardize function codes and structures for the broadest variety of services. For example, using the **WFSExecute** function, the commands to read data from various services are as similar as possible to each other in their syntax and data structures.

In general, the specific command set for a service class is defined as a superset of the specific capabilities likely to be provided by the developers of the services of that class; thus any particular device will normally support only a subset of the defined command set.

There are three cases in which a Service Provider may receive a service-specific command that it does not support:

The requested capability is defined for the class of Service Providers by the XFS specification, the particular vendor implementation of that service does not support it, and the unsupported capability is *not* considered to be fundamental to the service. In this case, the Service Provider returns a successful completion, but does no operation. An example would be a request from an application to turn on a control indicator on a passbook printer; the Service Provider recognizes the command, but since the passbook printer it is managing does not include that indicator, the Service Provider does no operation and returns a successful completion to the application.

The requested capability is defined for the class of Service Providers by the XFS specification, the particular vendor implementation of that service does not support it, and the unsupported capability *is* considered to be fundamental to the service. In this case, a `WFS_ERR_UNSUPP_COMMAND` error for Execute commands or `WFS_ERR_UNSUPP_CATEGORY` error for Info commands is returned to the calling application. An example would be a request from an application to a cash dispenser to retract items where the dispenser hardware does not have that capability; the Service Provider recognizes the command but, since the cash dispenser it is managing is unable to fulfil the request, returns this error.

The requested capability is *not* defined for the class of Service Providers by the XFS specification. In this case, a `WFS_ERR_INVALID_COMMAND` error for Execute commands or `WFS_ERR_INVALID_CATEGORY` error for Info commands is returned to the calling application.

This design allows implementation of applications that can be used with a range of services that provide differing subsets of the functionalities that are defined for their service class. Applications may use the **WFSGetInfo** and **WFSAsyncGetInfo** commands to inquire about the capabilities of the service they are about to use, and modify their behavior accordingly, or they may use functions and then deal with error returns to make decisions as to how

to use the service.

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2. Card Embossing Units

This section describes the functions provided by a generic card embossing unit (CEU). These descriptions include definitions of the service-specific commands that can be issued, using the **WFSAsyncExecute**, **WFSExecute**, **WFSGetInfo** and **WFSAsyncGetInfo** functions.

Embossing card units are generally viewed by XFS as compound devices with the following capabilities and features:

- Embossing or printing of magnetic stripe card/ smart card.
- Reading/encoding magnetic stripe tracks 1, 2, and 3.
- Reading/writing smart card.
- LCD display/ keypad input.

The XFS services supporting the various embossing card unit components are outlined as follows:

- Embossing or printing of magnetic stripe card/ smart card - Card Embossing Unit (CEU) service.
- Reading/encoding magnetic stripe tracks 1, 2, and 3 - ID Card (IDC) service, however when combined encoding/ embossing is performed the CEU service class is used.
- Reading/writing smart cards - ID Card (IDC) service, however when combined writing smart card/ embossing is performed the CEU service class is used.
- LCD display/ keypad input - Text Terminal Unit (TTU) service.

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3. References

1. XFS Application Programming Interface (API)/Service Provider Interface (-SPI), Programmer's Reference Revision 3.4050

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4. Info Commands

4.1 WFS_INF_CEU_STATUS

Description This command reports the full range of information available, including the information that is provided either by the Service Provider or directly from the device.

Input Param None.

Output Param LPWFSCEUSTATUS lpStatus;

```
typedef struct _wfs_ceu_status
{
    WORD                fwDevice;
    WORD                fwMedia;
    WORD                fwRetainBin;
    WORD                fwOutputBin;
    WORD                fwInputBin;
    USHORT              usTotalCards;
    USHORT              usOutputCards;
    USHORT              usRetainCards;
    LPSTR               lpszExtra;
    WORD                wDevicePosition;
    USHORT              usPowerSaveRecoveryTime;
    WORD                wToner;
    WORD                wAntiFraudModule;
} WFSCEUSTATUS, *LPWFSCEUSTATUS;
```

fwDevice

Specifies the state of the ID card device as one of the following flags:

| Value | Meaning |
|-------------------------|---|
| WFS_CEU_DEVONLINE | The device is present, powered on and online (i.e. operational, not busy processing a request and not in an error state). |
| WFS_CEU_DEVOFFLINE | The device is offline (e.g. the operator has taken the device offline by turning a switch). |
| WFS_CEU_DEVPOWEROFF | The device is powered off or physically not connected. |
| WFS_CEU_DEVNODEVICE | There is no device intended to be there; e.g. this type of self service machine does not contain such a device or it is internally not configured. |
| WFS_CEU_DEVHWERROR | The device is present but inoperable due to a hardware fault that prevents it from being used. |
| WFS_CEU_DEVUSERERROR | The device is present but a person is preventing proper device operation. The application should suspend the device operation or remove the device from service until the Service Provider generates a device state change event indicating the condition of the device has changed e.g. the error is removed (WFS_CEU_DEVONLINE) or a permanent error condition has occurred (WFS_CEU_DEVHWERROR). |
| WFS_CEU_DEVBUSY | The device is busy and unable to process an execute command at this time. |
| WFS_CEU_DEVFRAUDATTEMPT | The device is present but is inoperable because it has detected a fraud attempt. |

| | |
|---------------------------|---|
| WFS_CEU_DEVPOTENTIALFRAUD | The device has detected a potential fraud attempt and is capable of remaining in service. In this case the application should make the decision as to whether to take the device offline. |
|---------------------------|---|

fwMedia

Specifies the state of the ID card unit as one of the following flags:

| Value | Meaning |
|-------------------------|---|
| WFS_CEU_MEDIAPRESENT | Media is present in the device, not in the entering position and not jammed. |
| WFS_CEU_MEDIANOTPRESENT | Media is not present in the device and not at the entering position. |
| WFS_CEU_MEDIAJAMMED | Media is jammed in the device; operator intervention is required. |
| WFS_CEU_MEDIANOTSUPP | Capability to report media position is not supported by the device. |
| WFS_CEU_MEDIAUNKNOWN | The media state cannot be determined with the device in its current state (e.g. the value of <i>fwDevice</i> is WFS_CEU_DEVNODEVICE, WFS_CEU_DEVPOWEROFF, WFS_CEU_DEVOFFLINE, or WFS_CEU_DEVHWERROR). |
| WFS_CEU_MEDIAENTERING | Media is at the entry/exit slot. |
| WFS_CEU_MEDIATOPPER | Topper failure. |
| WFS_CEU_MEDIAINHOPPER | Card is positioned in input bin. |
| WFS_CEU_MEDIAOUTHOPPER | Card is positioned in output bin. |
| WFS_CEU_MEDIAMSRE | Encoding failure. |
| WFS_CEU_MEDIARETAINED | Card is positioned in retain bin. |

fwRetainBin

Specifies the state of the CEU retain bin as one of the following flags:

| Value | Meaning |
|--------------------------|---|
| WFS_CEU_RETAINBINOK | The retain bin is in a good state. |
| WFS_CEU_RETAINBINFULL | The retain bin is full. |
| WFS_CEU_RETAINBINHIGH | The retain bin is nearly full. |
| WFS_CEU_RETAINBINNOTSUPP | The retain bin state can not be reported. |

fwOutputBin

Specifies the state of the Embossing unit output bin as one of the flags:

| Value | Meaning |
|-----------------------|---|
| WFS_CEU_OUTPUTBINOK | The output bin is in a good state. |
| WFS_CEU_OUTPUTBINFULL | The output bin is full. |
| WFS_CEU_OUTPUTBINHIGH | The output bin is nearly full. |
| WFS_CEU_OUTPUTNOTSUPP | The output bin state can not be reported. |

fwInputBin

Specifies the state of the Embossing unit input bin as one of the flags:

| Value | Meaning |
|-----------------------|--|
| WFS_CEU_INPUTBINOK | The input bin is in a good state. |
| WFS_CEU_INPUTBINEMPTY | The input bin is empty. |
| WFS_CEU_INPUTBINLOW | The input bin is nearly empty. |
| WFS_CEU_INPUTNOTSUPP | The input bin state can not be reported. |

usTotalCards

The total number of cards, including those in input bin, output bin, and retain bin.

usOutputCards

The total number of output bin cards.

usRetainCards

The total number of retain bin cards.