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WORKSHOP

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AGREEMENT

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**Extensions for Financial Services (XFS) interface specification -
Release 3.0 - Part 15: Cash In Module Device Class Interface -
Programmer's Reference**

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Foreword

This CWA is revision 3.02 of the XFS interface specification.

The CEN/ISSS XFS Workshop gathers suppliers as well as banks and other financial service companies. A list of companies participating in this Workshop and in support of this CWA is available from the CEN/ISSS Secretariat.

This document supersedes CWA 14050-15:2000.

This CWA was formally approved by the XFS Workshop meeting on 2003-05-21. The specification is continuously reviewed and commented in the CEN/ISSS Workshop on XFS. It is therefore expected that an update of the specification will be published in due time as a CWA, superseding this revision 3.02.

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 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 Class Interface - Programmer's Reference

Part 15: Cash In Module Device Class Interface- Programmer's Reference

Part 16: Application Programming Interface (API) - Service Provider Interface (SPI) - Migration from Version 2.00 (see CWA 13449) to Version 3.00 (this CWA) - Programmer's Reference

Part 17: Printer Device Class Interface - Migration from Version 2.00 (see CWA 13449) to Version 3.00 (this CWA) - Programmer's Reference

Part 18: Identification Card Device Class Interface - Migration from Version 2.00 (see CWA 13449) to Version 3.00 (see CWA 14050-4:2000; superseded) - Programmer's Reference

Part 19: Cash Dispenser Device Class Interface - Migration from Version 2.00 (see CWA 13449) to Version 3.00 (this CWA) - Programmer's Reference

Part 20: PIN Keypad Device Class Interface - Migration from Version 2.00 (see CWA 13449) to Version 3.00 (see CWA 14050-6:2000; superseded) - Programmer's Reference

Part 21: Depository Device Class Interface - Migration from Version 2.00 (see CWA 13449) to Version 3.00 (this CWA) - Programmer's Reference

Part 22: Text Terminal Unit Device Class Interface - Migration from Version 2.00 (see CWA 13449) to Version 3.00 (this CWA) - Programmer's Reference

Part 23: Sensors and Indicators Unit Device Class Interface - Migration from Version 2.00 (see CWA 13449) to Version 3.01 (this CWA) - Programmer's Reference

Part 24: Camera Device Class Interface - Migration from Version 2.00 (see CWA 13449) to Version 3.00 (this CWA) - Programmer's Reference

Part 25: Identification Card Device Class Interface - PC/SC Integration Guidelines

Part 26: Identification Card Device Class Interface - Migration from Version 3.00 (see CWA 14050-4:2000; superseded) to Version 3.02 (this CWA) - Programmer's Reference

Part 27: PIN Keypad Device Class Interface - Migration from Version 3.00 (see CWA 14050-6:2000; superseded) to Version 3.02 (this CWA) - Programmer's Reference

Part 28: Cash In Module Device Class Interface - Migration from Version 3.00 (see CWA 14050-15:2000; superseded) to Version 3.02 (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 <http://www.cenorm.be/iss/Workshop/XFS>.

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

Revision History:

3.00	18 October 2000	First edition
3.02	21 May 2003	Update release encompassing the Article 6 Paragraph 36 European legislation to deal with handling of forgery and suspected forgery notes.
For a detailed description see CWA 14050-28: 2003 CIM migration from version 3.00 to version 3.02		

1. Introduction

1.1 Background to Release 3.02

The CEN XFS Workshop is a continuation of the Banking Solution Vendors Council workshop and maintains a technical commitment to the Win 32 API. However, the XFS Workshop has extended the franchise of multi vendor software by encouraging the participation of both banks and vendors to take part in the deliberations of the creation of an industry standard. This move towards opening the participation beyond the BSVC's original membership has been very successful with a current membership level of more than 20 companies.

The fundamental aims of the XFS Workshop are to promote a clear and unambiguous specification for both service providers and application developers. This has been achieved to date by sub groups working electronically and quarterly meetings.

The move from an XFS 3.00 specification to a 3.02 specification has been prompted by customer demand for support of ECB Article 6 legislation to deal with handling of forgery and suspected forgery notes. To do cash recycling in Europe there are requirements defined in article 6 how to deal with money that is a forgery or might be a forgery.

The bank notes are classified in levels. The following levels are defined at the moment:

- level1: no bank note
- level2: forgery
- level3: possibly a forgery
- level4: real money

A signature is a unique identifier for a bank note. It is used together with the transaction data like an account number to identify the customer who has deposited this banknote

The clear direction of the XFS Workshop, therefore, is the delivery of a new Release 3.02 specification based on a C API. It will be delivered with the promise of the protection of technical investment for existing applications and the design to safeguard future developments. All XFS 3.00 CIM clarifications apply to this document.

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 the Extensions for Financial Services 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 is returned to the calling application. An example would be a request from an application to a cash dispenser to dispense coins; the service provider recognizes the command but, since the cash dispenser it is managing dispenses only notes, 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 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 behaviour accordingly, or they may use functions and then deal with WFS_ERR_UNSUPP_COMMAND error returns to make decisions as to how to use the service.

2. Cash-In Module

This specification describes the functionality of a XFS compliant Cash In Module (CIM) service provider. It defines the service-specific commands that can be issued to the service provider using the **WFSGetInfo**, **WFSAsyncGetInfo**, **WFSExecute** and **WFSAsyncExecute** functions.

Persistent values are maintained through power failures, open sessions, close session and system resets.

This specification covers the acceptance of items. An “item” is defined as any media that can be accepted and includes coupons, documents, bills and coins. However, if coins and bills are both to be accepted separate service providers must be implemented for each.

All currency parameters in this specification are expressed as a quantity of minimum dispense units, as defined in the description of the WFS_INF_CIM_CURRENCY_EXP command (see Section 4.5).

There are two types of CIM: Self-Service CIM and Teller CIM. A Self-Service CIM operates in an automated environment, while a Teller CIM has an operator present. The functionality provided by the following commands is only applicable to a Teller CIM:

WFS_CMD_CIM_SET_TELLER_INFO
WFS_INF_CIM_SET_TELLER_INFO

It is possible for the CIM to be part of a compound device with the Cash Dispenser Module (CDM). This CIM\CDM combination is referred to throughout this specification as a “Cash Recycler”. For details of the CDM interface see Ref. 3.

If the device is a Cash Recycler then, if cash unit exchanges are required on both interfaces, the exchanges cannot be performed concurrently. An exchange on one interface must be complete (the WFS_CMD_CIM_END_EXCHANGE must have completed) before an exchange can start on the other interface. The WFS_ERR_CIM_EXCHANGEACTIVE error code will be returned if the correct sequence is not adhered to. If the device has recycle units of multiple currencies and/or denominations, then the CIM interface should be used for exchange operations involving these cash units.

The Cash-Out cash unit counts will be available through the CDM interface and the Cash-In cash unit counts will be available through the CIM interface. Counts for recycle cash units are available through both interfaces. The event WFS_SRVE_CIM_COUNTS_CHANGED will be posted if an operation on the CDM interface effects the recycle cash unit counts which are available through the CIM interface.

The following commands on the CDM interface may affect the CIM counts :

WFS_CMD_CDM_DISPENSE
WFS_CMD_CDM_PRESENT
WFS_CMD_CDM_RETRACT
WFS_CMD_CDM_COUNT
WFS_CMD_CDM_REJECT
WFS_CMD_CDM_SET_CASH_UNIT_INFO
WFS_CMD_CDM_END_EXCHANGE
WFS_CMD_CDM_RESET
WFS_CMD_CDM_TEST_CASH_UNITS

3. References

1. XFS Application Programming Interface (API)/Service Provider Interface (SPI), Programmer's Reference Revision 3.00, October 18, 2000
2. ISO 4217 at http://www.iso.ch
3. XFS Cash Dispenser Device Class Interface, Programmer's Reference, Revision 3.00, October 18, 2000
4. Paragraph 6 of the EU council regulation 1338/2001 Terms of reference for the adaptation of paragraph 6 on cash in and cash recycling machines (18.04.2002)