

ICS 35.200; 35.240.15; 35.240.40

English version

**Extensions for Financial Services (XFS) interface
specification Release 3.40 - Part 74: Cash-In Module Device
Class Interface - Migration from version 3.30 (CWA 16926)
to Version 3.40 (this CWA) - Programmer's Reference**

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.

The formal process followed by the Workshop in the development of this Workshop Agreement has been endorsed by the National Members of CEN but neither the National Members of CEN nor the CEN-CENELEC Management Centre can be held accountable for the technical content of this CEN Workshop Agreement or possible conflicts with standards or legislation.

This CEN Workshop Agreement can in no way be held as being an official standard developed by CEN and its Members.

This CEN Workshop Agreement is publicly available as a reference document from the CEN Members National Standard Bodies.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Table of Contents

European Foreword.....	6
1. Migration Information.....	10
2. Cash-In Module	11
3. References	12
4. Note Classification	13
5. Info Commands	14
5.1 WFS_INF_CIM_STATUS	14
5.2 WFS_INF_CIM_CAPABILITIES.....	20
5.3 WFS_INF_CIM_CASH_UNIT_INFO	27
5.4 WFS_INF_CIM_TELLER_INFO	37
5.5 WFS_INF_CIM_CURRENCY_EXP	39
5.6 WFS_INF_CIM_BANKNOTE_TYPES	40
5.7 WFS_INF_CIM_CASH_IN_STATUS	41
5.8 WFS_INF_CIM_GET_P6_INFO	43
5.9 WFS_INF_CIM_GET_P6_SIGNATURE.....	44
5.10 WFS_INF_CIM_GET_ITEM_INFO	46
5.11 WFS_INF_CIM_POSITION_CAPABILITIES	48
5.12 WFS_INF_CIM_REPLENISH_TARGET	50
5.13 WFS_INF_CIM_DEVICELOCK_STATUS.....	51
5.14 WFS_INF_CIM_CASH_UNIT_CAPABILITIES	52
5.15 WFS_INF_CIM_DEplete_SOURCE.....	54
5.16 WFS_INF_CIM_GET_ALL_ITEMS_INFO.....	55
5.17 WFS_INF_CIM_GET_BLACKLIST	59
5.18 WFS_INF_CIM_GET_CLASSIFICATION_LIST	60
5.19 WFS_INF_CIM_CASH_UNIT_COUNT_STATUS.....	61
5.20 WFS_INF_CIM_PRESENT_STATUS	63
6. Execute Commands	65
6.1 WFS_CMD_CIM_CASH_IN_START	65
6.2 WFS_CMD_CIM_CASH_IN	67
6.3 WFS_CMD_CIM_CASH_IN_END.....	70
6.4 WFS_CMD_CIM_CASH_IN_ROLLBACK	72
6.5 WFS_CMD_CIM_RETRACT	74
6.6 WFS_CMD_CIM_OPEN_SHUTTER.....	77
6.7 WFS_CMD_CIM_CLOSE_SHUTTER.....	78
6.8 WFS_CMD_CIM_SET_TELLER_INFO.....	79
6.9 WFS_CMD_CIM_SET_CASH_UNIT_INFO	80

6.10	WFS_CMD_CIM_START_EXCHANGE.....	82
6.11	WFS_CMD_CIM_END_EXCHANGE	85
6.12	WFS_CMD_CIM_OPEN_SAFE_DOOR.....	86
6.13	WFS_CMD_CIM_RESET	87
6.14	WFS_CMD_CIM_CONFIGURE_CASH_IN_UNITS.....	89
6.15	WFS_CMD_CIM_CONFIGURE_NOTETYPES.....	91
6.16	WFS_CMD_CIM_CREATE_P6_SIGNATURE.....	92
6.17	WFS_CMD_CIM_SET_GUIDANCE_LIGHT	95
6.18	WFS_CMD_CIM_CONFIGURE_NOTE_READER	97
6.19	WFS_CMD_CIM_COMPARE_P6_SIGNATURE	98
6.20	WFS_CMD_CIM_POWER_SAVE_CONTROL.....	100
6.21	WFS_CMD_CIM_REPLENISH.....	101
6.22	WFS_CMD_CIM_SET_CASH_IN_LIMIT	104
6.23	WFS_CMD_CIM_CASH_UNIT_COUNT.....	107
6.24	WFS_CMD_CIM_DEVICE_LOCK_CONTROL.....	109
6.25	WFS_CMD_CIM_SET_MODE	111
6.26	WFS_CMD_CIM_PRESENT_MEDIA.....	112
6.27	WFS_CMD_CIM_DEplete.....	114
6.28	WFS_CMD_CIM_SET_BLACKLIST	116
6.29	WFS_CMD_CIM_SYNCHRONIZE_COMMAND.....	117
6.30	WFS_CMD_CIM_SET_CLASSIFICATION_LIST	118
6.31	WFS_CMD_CIM_PREPARE_PRESENT.....	119
7.	Events.....	120
7.1	WFS_SRVE_CIM_SAFEDOOROPEN	120
7.2	WFS_SRVE_CIM_SAFEDOORCLOSED	121
7.3	WFS_USRE_CIM_CASHUNITTHRESHOLD	122
7.4	WFS_SRVE_CIM_CASHUNITINFOCHANGED	123
7.5	WFS_SRVE_CIM_TELLERINFOCHANGED.....	124
7.6	WFS_EXEE_CIM_CASHUNITERROR	125
7.7	WFS_SRVE_CIM_ITEMSTAKEN	126
7.8	WFS_SRVE_CIM_COUNTS_CHANGED	127
7.9	WFS_EXEE_CIM_INPUTREFUSE	128
7.10	WFS_SRVE_CIM_ITEMSPRESENTED.....	129
7.11	WFS_SRVE_CIM_ITEMSINSERTED	130
7.12	WFS_EXEE_CIM_NOTEERROR.....	131
7.13	WFS_EXEE_CIM_SUBCASHIN	132
7.14	WFS_SRVE_CIM_MEDIADETECTED.....	133
7.15	WFS_EXEE_CIM_INPUT_P6.....	134
7.16	WFS_EXEE_CIM_INFO_AVAILABLE.....	135
7.17	WFS_EXEE_CIM_INSERTITEMS.....	136
7.18	WFS_SRVE_CIM_DEVICEPOSITION	137

7.19	WFS_SRVE_CIM_POWER_SAVE_CHANGE	138
7.20	WFS_EXEE_CIM_INCOMPLETEREPLENISH	139
7.21	WFS_EXEE_CIM_INCOMPLETEDELETE	140
7.22	WFS_SRVE_CIM_SHUTTERSTATUSCHANGED	141
7.23	WFS_SRVE_CIM_COUNTACCURACYCHANGED	142
8.	ATM Cash-In Transaction Flow - Application Guidelines	143
8.1	OK Transaction (Explicit Shutter Control)	144
8.2	Cancellation by Customer (Explicit Shutter Control)	145
8.3	Stacker Becomes Full (Explicit Shutter Control)	146
8.4	Bill Recognition Error (Explicit Shutter Control)	148
8.5	OK Transaction (Explicit Shutter Control) - Level 2 and 3 Note classification Supported	149
8.6	Multiple Bunches Returned During WFS_CMD_CIM_CASH_IN Refused Notes (Explicit Shutter Control)	150
8.7	Multiple Bunches Returned During WFS_CMD_CIM_CASH_IN_ROLLBACK (Explicit Shutter Control)	152
8.8	OK Transaction (Implicit Shutter Control)	154
8.9	Customer Initiates Returning Of Previously Recognized Items (Implicit Shutter Control)	155
8.10	OK Transaction - (Implicit Shutter Control and WFS_EXEE_CIM_SUBCASHIN event supported)	156
8.11	Multiple Bunches Returned During WFS_CMD_CIM_CASH_IN (Implicit Shutter Control and Implicit Present Control)	157
8.12	Multiple Bunches Returned During WFS_CMD_CIM_CASH_IN_ROLLBACK (Implicit Shutter Control and Implicit Present Control)	159
8.13	Retracting Items When Multiple Bunches Are Returned During WFS_CMD_CIM_CASH_IN (Implicit Shutter Control and Implicit Present Control)	161
8.14	Bill Recognition Error (WFS_CMD_CIM_PRESENT_MEDIA Command Supported)	162
8.15	Cancellation by Customer (Implicit Shutter Control and WFS_CMD_CIM_PRESENT_MEDIA Command Supported)	163
8.16	Multiple Bunch Timeout Handling	164
8.16.1	No Items Inserted	164
8.16.2	First Bunch Not Taken	164
8.16.3	Last Bunch Taken	165
8.17	Exchange using DEPOSITINTO (Implicit Shutter Control)	167
8.18	Multiple Bunches Returned During WFS_CMD_CIM_CASH_IN Refused Notes (using WFS_CMD_CIM_PREPARE_PRESENT)	169
8.19	Multiple Bunches Returned During WFS_CMD_CIM_CASH_IN_ROLLBACK (using WFS_CMD_CIM_PREPARE_PRESENT)	171
9.	ATM Mixed Media Transaction Flow – Application Guidelines	173
9.1	Mixed Media OK Transaction	175
9.2	Mixed Media Cancellation by Customer	177
9.3	Mixed Media Cancellation by Customer on Cash Part Only	178
9.4	Mixed Media Multiple Refused Items	179
10.	Rules for Cash Unit Exchange	181

11. Events Associated with Cash Unit Status Changes	184
11.1 One Physical Cash Unit Goes HIGH.....	184
11.2 Last Physical Cash Unit Goes HIGH	185
11.3 One Physical Cash Unit Goes INOP.....	186
11.4 Last Physical Cash Unit Goes FULL	187
12. C - Header file	188

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 2019-10-08, 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 2019-12-12. The following organizations and individuals developed and approved this CEN Workshop Agreement:

- ATM Japan LTD
- AURIGA SPA
- BANK OF AMERICA
- CASHWAY TECHNOLOGY
- CHINAL ELECTRONIC FINANCIAL EQUIPMENT SYSTEM CO.
- CIMA SPA
- CLEAR2PAY SCOTLAND LIMITED
- DIEBOLD NIXDORF
- EASTERN COMMUNICATIONS CO. LTD – EASTCOM
- FINANZ INFORMATIK
- FUJITSU FRONTECH LIMITED
- FUJITSU TECHNOLOGY
- GLORY LTD
- GRG BANKING EQUIPMENT HK CO LTD
- HESS CASH SYSTEMS GMBH & CO. KG
- HITACHI OMRON TS CORP.
- HYOSUNG TNS INC
- JIANGSU GUOQUANG ELECTRONIC INFORMATION TECHNOLOGY
- KAL
- KEBA AG
- NCR FSG
- NEC CORPORATION
- OKI ELECTRIC INDUSTRY SHENZHEN
- OKI ELECTRONIC INDUSTRY CO
- PERTO S/A

- REINER GMBH & CO KG
- SALZBURGER BANKEN SOFTWARE
- SIGMA SPA
- TEB
- ZIJIN FULCRUM TECHNOLOGY CO

It is possible that some elements of this CEN/CWA may be subject to patent rights. The CEN-CENELEC policy on patent rights is set out in CEN-CENELEC Guide 8 “Guidelines for Implementation of the Common IPR Policy on Patents (and other statutory intellectual property rights based on inventions)”. CEN shall not be held responsible for identifying any or all such patent rights.

The Workshop participants have made every effort to ensure the reliability and accuracy of the technical and non-technical content of CWA 16926-74, but this does not guarantee, either explicitly or implicitly, its correctness. Users of CWA 16926-74 should be aware that neither the Workshop participants, nor CEN can be held liable for damages or losses of any kind whatsoever which may arise from its application. Users of CWA 16926-74 do so on their own responsibility and at their own risk.

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

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 3.30 (CWA 16926) to Version 3.40 (this CWA) - Service Provider Interface (SPI) - Programmer's Reference

Part 62: Printer and Scanning Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 63: Identification Card Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 64: Cash Dispenser Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 65: PIN Keypad Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 66: Check Reader/Scanner Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 67: Depository Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 68: Text Terminal Unit Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 69: Sensors and Indicators Unit Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 70: Vendor Dependent Mode Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 71: Camera Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 72: Alarm Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 73: Card Embossing Unit Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 74: Cash-In Module Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 75: Card Dispenser Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 76: Barcode Reader Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (this CWA) - Programmer's Reference

Part 77: Item Processing Module Device Class Interface - Migration from Version 3.30 (CWA 16926) to Version 3.40 (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.cen.eu/work/Sectors/Digital_society/Pages/WSXFS.aspx.

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.

1. Migration Information

XFS 3.40 has been designed to minimize backwards compatibility issues. This document highlights the changes made to the CIM device class between version 3.30 and 3.40, by highlighting the additions and deletions to the text.

2. Cash-In Module

This specification describes the functionality of an 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.

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.

The CIM interface can be used for all exchange operations on cash recycle devices, and this interface should be used for cash units of multiple currencies and/or denominations (including multiple note identifiers associated with the same denomination).

The event WFS_SRVE_CIM_COUNTS_CHANGED will be posted if an operation on the CDM interface affects 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_CALIBRATE_CASH_UNIT
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 3.40
2. ISO 4217 at http://www.iso.org
3. XFS Cash Dispenser Device Class Interface, Programmer's Reference, Revision 3.40
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) at: http://www.ecb.int/pub/pdf/other/recyclingeurobanknotes2005en.pdf
5. Extensions for Financial Services (XFS) interface specification, Release 3.40, Part 18: Item Processing Module Device Class Interface Programmer's Reference.