

**CEN**

**CWA 16926-13**

**WORKSHOP**

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**AGREEMENT**

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English version

**Extensions for Financial Services (XFS) interface  
specification Release 3.50 - Part 13: Alarm Device Class  
Interface - 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.

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Ref. No.:CWA 16926-13:2022 E

## Table of Contents

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European Foreword.....	3
1. Introduction.....	7
1.1 Background to Release 3.50 .....	7
1.2 XFS Service-Specific Programming.....	7
2. Alarms .....	9
3. References .....	10
4. Info Commands .....	11
4.1 WFS_INF_ALM_STATUS .....	11
4.2 WFS_INF_ALM_CAPABILITIES .....	13
5. Execute Commands .....	14
5.1 WFS_CMD_ALM_SET_ALARM .....	14
5.2 WFS_CMD_ALM_RESET_ALARM .....	15
5.3 WFS_CMD_ALM_RESET .....	16
5.4 WFS_CMD_ALM_SYNCHRONIZE_COMMAND .....	17
6. Events.....	18
6.1 WFS_SRVE_ALM_DEVICE_SET .....	18
6.2 WFS_SRVE_ALM_DEVICE_RESET .....	19
7. C - Header file .....	20

## European Foreword

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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 2019-11-18. The following organizations and individuals developed and approved this CEN Workshop Agreement:

- AURIGA SPA
- CIMA SPA
- DIEBOLD NIXDORF SYSTEMS GMBH
- FIS BANKING SOLUTIONS UK LTD (OTS)
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## **CWA 16926-13:2022 (E)**

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 3.40 (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 ALM 3.10 Migration document.
3.20	March 2, 2011	For a description of changes from version 3.10 to version 3.20 see the ALM 3.20 Migration document.
3.30	March 19, 2015	For a description of changes from version 3.20 to version 3.30 see the ALM 3.30 Migration document.
3.40	December 06, 2019	For a description of changes from version 3.30 to version 3.40 see the ALM 3.40 Migration document.
3.50	November 18, 2022	For a description of changes from version 3.40 to version 3.50 see the ALM 3.50 Migration document.

# 1. Introduction

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## 1.1 Background to Release 3.50

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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

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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

**CWA 16926-13:2022 (E)**

to use the service.



## 2. Alarms

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This specification describes the functionality of the services provided by Alarms (ALM) under XFS, by defining the service-specific commands that can be issued, using the **WFSGetInfo**, **WFSAsyncGetInfo**, **WFSExecute** and **WFSAsyncExecute** functions. This section describes the functionality of an Alarm (ALM) service that applies to both attended and unattended (self-service) devices.

The Alarm device class is provided as a separate service due to the need to set or reset an Alarm when one or more logical services associated with an attended CDM or unattended (self-service) device are locked. Because logical services can be locked by the application the Alarm is implemented in a separate device class to ensure that a set (trigger) or reset operation can be performed at any time.

### 3. References

---

1. XFS Application Programming Interface (API)/Service Provider Interface (SPI), Programmer's Reference Revision 3.50
--

## 4. Info Commands

---

### 4.1 WFS\_INF\_ALM\_STATUS

---

**Description** This command is used to request the Alarm status.

**Input Param** None.

**Output Param** LPWFSALMSTATUS lpStatus;

```
typedef struct _wfs_alm_status
{
    WORD          fwDevice;
    BOOL          bAlarmSet;
    LPSTR         lpszExtra;
    WORD          wAntiFraudModule;
} WFSALMSTATUS, *LPWFSALMSTATUS;
```

*fwDevice*

Specifies the state of the alarm device as one of the following flags:

Value	Meaning
WFS_ALM_DEVONLINE	The device is present, powered on and online (i.e. operational, not busy processing a request and not in an error state).
WFS_ALM_DEVOFFLINE	The device is offline (e.g. the operator has taken the device offline by turning a switch).
WFS_ALM_DEVPOWEROFF	The device is powered off or physically not connected.
WFS_ALM_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_ALM_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_ALM_DEVONLINE) or a permanent error condition has occurred (WFS_ALM_DEVHWERROR).
WFS_ALM_DEVHWERROR	The device is present but inoperable due to a hardware fault that prevents it from being used.
WFS_ALM_DEVBUSY	The device is busy and unable to process an execute command at this time.
WFS_ALM_DEVFRAUDATTEMPT	The device is present but is inoperable because it has detected a fraud attempt.
WFS_ALM_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.

*bAlarmSet*

Specifies the state of the Alarm as either Reset (FALSE) or Set (TRUE).

*lpzExtra*

Pointer to a list of vendor-specific, or any other extended, information. The information is returned as a series of “*key=value*” strings so that it is easily extensible by Service Providers. Each string is null-terminated, with the final string terminating with two null characters. An empty list may be indicated by either a NULL pointer or a pointer to two consecutive null characters.

*wAntiFraudModule*

Specifies the state of the anti-fraud module as one of the following values:

Value	Meaning
WFS_ALM_AFMNOTSUPP	No anti-fraud module is available.
WFS_ALM_AFMOK	Anti-fraud module is in a good state and no foreign device is detected.
WFS_ALM_AFMINOP	Anti-fraud module is inoperable.
WFS_ALM_AFMDEVICEDETECTED	Anti-fraud module detected the presence of a foreign device.
WFS_ALM_AFMUNKNOWN	The state of the anti-fraud module cannot be determined.

**Error Codes** Only the generic error codes defined in [Ref. 1] can be generated by this command.

**Comments** Applications which require or expect specific information to be present in the *lpzExtra* parameter may not be device or vendor-independent.

In the case where communications with the device has been lost, the *fwDevice* field will report WFS\_ALM\_DEVPOWEROFF when the device has been removed or WFS\_ALM\_DEVHWERROR if the communications are unexpectedly lost. All other fields should contain a value based on the following rules and priority:

1. Report the value as unknown.
2. Report the value as a general h/w error.
3. Report the value as the last known value.

## 4.2 WFS\_INF\_ALM\_CAPABILITIES

---

**Description** This command is used to retrieve the capabilities of the Alarm.

**Input Param** None.

**Output Param** LPWFSALMCAPS lpCaps;

```
typedef struct _wfs_alm_caps
{
    WORD                wClass;
    BOOL                bProgrammaticallyDeactivate;
    LPSTR               lpszExtra;
    BOOL                bAntiFraudModule;
    LPDWORD             lpdwSynchronizableCommands;
} WFSALMCAPS, *LPWFSALMCAPS;
```

*wClass*

Specifies the logical service class as WFS\_SERVICE\_CLASS\_ALM.

*bProgrammaticallyDeactivate*

Specifies whether the Alarm can be programmatically deactivated (TRUE) or can not be programmatically deactivated (FALSE).

*lpszExtra*

Pointer to a list of vendor-specific, or any other extended, information. The information is returned as a series of “*key=value*” strings so that it is easily extensible by Service Providers. Each string is null-terminated, with the final string terminating with two null characters. An empty list may be indicated by either a NULL pointer or a pointer to two consecutive null characters.

*bAntiFraudModule*

Specifies whether the anti-fraud module is available. This can either be TRUE if available or FALSE if not available.

*lpdwSynchronizableCommands*

Pointer to a zero-terminated list of DWORDs which contains the execute command IDs that can be synchronized. If no execute command can be synchronized then this parameter will be NULL.

**Error Codes** Only the generic error codes defined in [Ref. 1] can be generated by this command.

**Comments** Applications which require or expect specific information to be present in the *lpszExtra* parameter may not be device or vendor-independent.

## 5. Execute Commands

---

### 5.1 WFS\_CMD\_ALM\_SET\_ALARM

---

**Description** This command is used to trigger an Alarm.

**Input Param** None.

**Output Param** None.

**Error Codes** Only the generic error codes defined in [Ref. 1] can be generated by this command.

**Events** In addition to the generic events defined in [Ref. 1], the following events can be generated as a result of this command:

Value	Meaning
WFS_SRVE_ALM_DEVICE_SET	The alarm device has been triggered.

**Comments** None.

## 5.2 WFS\_CMD\_ALM\_RESET\_ALARM

---

**Description** This command is used to reset an Alarm.

**Input Param** None.

**Output Param** None.

**Error Codes** Only the generic error codes defined in [Ref. 1] can be generated by this command.

**Events** In addition to the generic events defined in [Ref. 1], the following events can be generated as a result of this command:

Value	Meaning
WFS_SRVE_ALM_DEVICE_RESET	The alarm device has been reset.

**Comments** None.

### 5.3 WFS\_CMD\_ALM\_RESET

---

<b>Description</b>	Sends a service reset to the Service Provider.
<b>Input Param</b>	None.
<b>Output Param</b>	None.
<b>Error Codes</b>	Only the generic error codes defined in [Ref. 1] can be generated by this command.
<b>Events</b>	Only the generic events defined in [Ref. 1] can be generated by this command.
<b>Comments</b>	This command is used by an application control program to cause a device to reset itself to a known good condition.



## 5.4 WFS\_CMD\_ALM\_SYNCHRONIZE\_COMMAND

---

<b>Description</b>	<p>This command is used to reduce response time of a command (e.g. for synchronization with display) as well as to synchronize actions of the different device classes. This command is intended to be used only on hardware which is capable of synchronizing functionality within a single device class or with other device classes.</p> <p>The list of execute commands which this command supports for synchronization is retrieved in the <i>lpdwSynchronizableCommands</i> parameter of the WFS_INF_ALM_CAPABILITIES.</p> <p>This command is optional, i.e. any other command can be called without having to call it in advance. Any preparation that occurs by calling this command will not affect any other subsequent command. However, any subsequent execute command other than the one that was specified in the <i>dwCommand</i> input parameter will execute normally and may invalidate the pending synchronization. In this case the application should call the WFS_CMD_ALM_SYNCHRONIZE_COMMAND again in order to start a synchronization.</p>						
<b>Input Param</b>	<p>LPWFSALMSYNCHRONIZECOMMAND lpSynchronizeCommand;</p> <pre>typedef struct _wfs_alm_synchronize_command {     DWORD                dwCommand;     LPVOID               lpCmdData; } WFSALMSYNCHRONIZECOMMAND, *LPWFSALMSYNCHRONIZECOMMAND;</pre> <p><i>dwCommand</i> The command ID of the command to be synchronized and executed next.</p> <p><i>lpCmdData</i> Pointer to data or a data structure that represents the parameter that is normally associated with the command that is specified in <i>dwCommand</i>. This parameter can be NULL if no command input parameter is needed or if this detail is not needed to synchronize for the command.</p> <p>It will be device-dependent whether the synchronization is effective or not in the case where the application synchronizes for a command with this command specifying a parameter but subsequently executes the synchronized command with a different parameter. This case should not result in an error; however, the preparation effect could be different from what the application expects. The application should, therefore, make sure to use the same parameter between <i>lpCmdData</i> of this command and the subsequent corresponding execute command.</p>						
<b>Output Param</b>	None.						
<b>Error Codes</b>	<p>In addition to the generic error codes defined in [Ref. 1], the following error codes can be generated by this command:</p> <table border="0"> <thead> <tr> <th style="text-align: left; border-bottom: 1px solid black;">Value</th> <th style="text-align: left; border-bottom: 1px solid black;">Meaning</th> </tr> </thead> <tbody> <tr> <td>WFS_ERR_ALM_COMMANDUNSUPP</td> <td>The command specified in the <i>dwCommand</i> field is not supported by the Service Provider.</td> </tr> <tr> <td>WFS_ERR_ALM_SYNCHRONIZEUNSUPP</td> <td>The preparation for the command specified in the <i>dwCommand</i> with the parameter specified in the <i>lpCmdData</i> is not supported by the Service Provider.</td> </tr> </tbody> </table>	Value	Meaning	WFS_ERR_ALM_COMMANDUNSUPP	The command specified in the <i>dwCommand</i> field is not supported by the Service Provider.	WFS_ERR_ALM_SYNCHRONIZEUNSUPP	The preparation for the command specified in the <i>dwCommand</i> with the parameter specified in the <i>lpCmdData</i> is not supported by the Service Provider.
Value	Meaning						
WFS_ERR_ALM_COMMANDUNSUPP	The command specified in the <i>dwCommand</i> field is not supported by the Service Provider.						
WFS_ERR_ALM_SYNCHRONIZEUNSUPP	The preparation for the command specified in the <i>dwCommand</i> with the parameter specified in the <i>lpCmdData</i> is not supported by the Service Provider.						
<b>Events</b>	Only the generic events defined in [Ref. 1] can be generated by this command.						
<b>Comments</b>	For sample flows of this synchronization see the [Ref 1] Appendix C.						

## 6. Events

---

### 6.1 WFS\_SRVE\_ALM\_DEVICE\_SET

---

<b>Description</b>	The Alarm has been set (triggered) by an external event or a programmatic request to set (trigger) the Alarm.
<b>Event Param</b>	None.
<b>Comments</b>	None.

## **6.2 WFS\_SRVE\_ALM\_DEVICE\_RESET**

---

<b>Description</b>	The Alarm has been manually or programmatically reset.
<b>Event Param</b>	None.
<b>Comments</b>	None.

## 7. C - Header file

---

```

/*****
*
* xfsalm.h      XFS - Alarm (ALM) definitions
*
*              Version 3.40   (November 18 2022)
*
*****/

#ifndef __INC_XFSALM_H
#define __INC_XFSALM_H

#ifdef __cplusplus
extern "C" {
#endif

#include <xfsapi.h>

/* be aware of alignment */
#pragma pack (push, 1)

/* values of WFSALMCAPS.wClass */

#define WFS_SERVICE_CLASS_ALM                (11)
#define WFS_SERVICE_CLASS_VERSION_ALM      (0x3203) /*Version 3.50 */
#define WFS_SERVICE_CLASS_NAME_ALM        "ALM"

#define ALM_SERVICE_OFFSET                 (WFS_SERVICE_CLASS_ALM * 100)

/* ALM Info Commands */

#define WFS_INF_ALM_STATUS                   (ALM_SERVICE_OFFSET + 1)
#define WFS_INF_ALM_CAPABILITIES            (ALM_SERVICE_OFFSET + 2)

/* ALM Execute Commands */

#define WFS_CMD_ALM_SET_ALARM                (ALM_SERVICE_OFFSET + 1)
#define WFS_CMD_ALM_RESET_ALARM             (ALM_SERVICE_OFFSET + 2)
#define WFS_CMD_ALM_RESET                   (ALM_SERVICE_OFFSET + 3)
#define WFS_CMD_ALM_SYNCHRONIZE_COMMAND     (ALM_SERVICE_OFFSET + 4)

/* ALM Messages */

#define WFS_SRVE_ALM_DEVICE_SET              (ALM_SERVICE_OFFSET + 1)
#define WFS_SRVE_ALM_DEVICE_RESET          (ALM_SERVICE_OFFSET + 2)

/* values of WFSALMSTATUS.fwDevice */

#define WFS_ALM_DEVONLINE                   WFS_STAT_DEVONLINE
#define WFS_ALM_DEVOFFLINE                  WFS_STAT_DEVOFFLINE
#define WFS_ALM_DEVPPOWEROFF                WFS_STAT_DEVPPOWEROFF
#define WFS_ALM_DEVNODEVICE                 WFS_STAT_DEVNODEVICE
#define WFS_ALM_DEVHWERROR                  WFS_STAT_DEVHWERROR
#define WFS_ALM_DEVUSERERROR                WFS_STAT_DEVUSERERROR
#define WFS_ALM_DEVBUSY                     WFS_STAT_DEVBUSY
#define WFS_ALM_DEVFRAUDATTEMPT            WFS_STAT_DEVFRAUDATTEMPT
#define WFS_ALM_DEVPOTENTIALFRAUD          WFS_STAT_DEVPOTENTIALFRAUD

/* values of WFSALMSTATUS.wAntiFraudModule */

#define WFS_ALM_AFMNOTSUPP                   (0)
#define WFS_ALM_AFMOK                       (1)
#define WFS_ALM_AFMINOP                     (2)
#define WFS_ALM_AFMDEVICEDETECTED           (3)
#define WFS_ALM_AFMUNKNOWN                  (4)

/* XFS ALM Errors */

```

```

#define WFS_ERR_ALM_COMMANDUNSUPP          (- (ALM_SERVICE_OFFSET + 0))
#define WFS_ERR_ALM_SYNCHRONIZEUNSUPP     (- (ALM_SERVICE_OFFSET + 1))

/*=====*/
/* ALM Info Command Structures */
/*=====*/

typedef struct _wfs_alm_status
{
    WORD                fwDevice;
    BOOL                bAlarmSet;
    LPSTR               lpszExtra;
    WORD                wAntiFraudModule;
} WFSALMSTATUS, *LPWFSALMSTATUS;

typedef struct _wfs_alm_caps
{
    WORD                wClass;
    BOOL                bProgrammaticallyDeactivate;
    LPSTR               lpszExtra;
    BOOL                bAntiFraudModule;
    LPDWORD             lpdwSynchronizableCommands;
} WFSALMCAPS, *LPWFSALMCAPS;

typedef struct _wfs_alm_synchronize_command
{
    DWORD               dwCommand;
    LPVOID              lpCmdData;
} WFSALMSYNCHRONIZECOMMAND, *LPWFSALMSYNCHRONIZECOMMAND;

/* restore alignment */
#pragma pack(pop)

#ifdef __cplusplus
} /*extern "C"*/
#endif
#endif /* __INC_XFSALM__H */

```