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AMENDMENT 1
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Information technology — Multimedia framework (MPEG-21) —

Part 10: Digital Item Processing

AMENDMENT 1: Additional C++ bindings

Technologies de l'information — Cadre multimédia (MPEG-21) —

Partie 10: Traitement d'élément numérique

AMENDEMENT 1: Liaisons C++ additionnelles

Reference number
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Amendment 1 to ISO/IEC 21000-10:2006 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 29, *Coding of audio, picture, multimedia and hypermedia information*.

This Amendment defines normative C++ bindings for Digital Item Base Operations, informative security and platform dependence considerations, an informative example of a safe DIP profile and an entry to be appended to the Bibliography.

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Information technology — Multimedia framework (MPEG-21) —

Part 10: Digital Item Processing

AMENDMENT 1: Additional C++ bindings

In Clause 1, Scope, second paragraph, replace the text:

three normative annexes

with:

four normative annexes

In Clause 1, Scope, add at the end:

— C++ bindings for Digital Item Base Operations:

Annex E specifies the C++ bindings for the Digital Item Base Operations described in 5.4.

In Clause 2, Normative references, insert the following normative reference before the reference to ISO/IEC 16262:2002:

ISO/IEC 14882:2003, *Programming languages — C++*

Add a new subclause 5.6:

5.6 Security and platform dependence considerations (informative)

5.6.1 Security considerations

5.6.1.1 Execute DIBO

The use of the `DIP.execute` DIBO can potentially result in security issues, because the DIBO provides means to execute arbitrary code.

5.6.1.2 C++ bindings

The use of the C++ DIBO bindings can potentially result in security issues.

5.6.1.3 DOM Load and Save

The DOM Load and Save API exposes potential security issues, because they provide access to the file system.

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5.6.2 Platform dependence considerations

5.6.2.1 Execute DIBO

The use of the `DIP.execute` DIBO can result in the use of platform dependent code. It is possible to avoid those issues by creating a profile removing `DIP.execute`. This can be done using profiles as demonstrated in subclause Annex I.8.

5.6.2.2 C++ bindings

The use of the C++ DIBO bindings will result in the use of platform dependent code. It is possible to avoid those issues by creating a profile removing the C++ bindings. This can be done using profiles as demonstrated in subclause Annex I.8.

Adjust numbering clauses:

"5.6 Digital Item eXtension Operations" numbering change to "5.7 Digital Item eXtension Operations" numbering.

And change following (sub)clauses numbering accordingly.

Add a new Annex E:

Annex E
(normative)

C++ bindings for Digital Item Base Operations

E.1 Introduction

C++ bindings for DIBOs are specified so that C++ executables can interact with the DIP environment. The way in which C++ executables are executed and the reference to the bindings are obtained, is done in an implementation specific way.

E.2 C++ data type bindings for DIML object types

E.2.1 DIPError

See 5.4.3.2

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```
#ifndef DIPERROR_H
#define DIPERROR_H

/**
 * C++ interface for the DIPError.
 */

class DIPError {
  public:
        /**
         * General DIP error not covered by other defined error codes.
         * The value of this property is 1.
         */
        static const int GENERAL_EXCEPTION;

        /**
         * A parameter provided to a DIBO or other DIP function is invalid.
         * The value of this property is 2.
         */
        static const int INVALID_PARAM;

        /**
         * Permission to execute this operation is unavailable in the host environment.
         * The value of this property is 3.
         */
        static const int INVALID_PERMISSION;

        /**
         * Something needed to complete the operation is not found.
         * The value of this property is 4.
         */
        static const int NOT_FOUND;

        /**
         * An error occurred during an attempt to adapt a resource.
         * The value of this property is 5.
         */
        static const int ADAPTATION_FAILED;

        /**
         * An error occurred during an attempt to play.
         * The value of this property is 6.
         */
        static const int PLAYBACK_FAILED;

        /**
         * An error occurred during an attempt to execute.
         * The value of this property is 7.
         */
        static const int EXECUTE_FAILED;

        /**
         * An error occurred during an attempt to print.
         * The value of this property is 8.
         */
        static const int PRINT_FAILED;

        /**
         * Returns the code of an error caused by an exception.
         * @return int value representing DIPErrorCode or other value specified in ISO/IEC
         *          21000.
         */
        virtual int getDIPErrorCode() const = 0;
};

#endif
```

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