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Information technology — Information Resource Dictionary System (IRDS) Services Interface

AMENDMENT 3: CORBA IDL binding

*Technologies de l'information — Interface de services du gestionnaire de
ressources du système d'informations (IRDS)*

AMENDEMENT 3: Liaison CORBA IDL



Reference number
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Foreword

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Amendment 3 to International Standard ISO/IEC 10728:1993 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 21, *Open systems interconnection, data management and open distributed processing*.

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Contents

Add a new entry to the Table of Contents as follows:

"Annex E - CORBA IDL binding"

Page 1

Clause 1

Add a new sentence in Clause 1 paragraph 2, before the last sentence.

"A language binding for CORBA IDL is provided in Annex E."

Page 5

Subclause 4.4

Add a new sentence in subclause 4.4.

"Data structures for use with CORBA IDL are defined in Annex E."

Page 5

Subclause 4.5

Add a new sentence in subclause 4.5.

"CORBA IDL bindings for the services are provided in Annex E."

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Subclause 8.1

Amend the first sentence of the NOTE in clause 8.1 to read:

"For the Pascal language binding specified in this clause, the C language binding specified in Annex C, the Ada language binding specified in Annex D and the CORBA IDL binding specified in Annex E, enumerated types are"

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Clause 9

Amend the first sentence of the second paragraph of Clause 9 to read:

"The service formats are specified in this clause using ISO standard Pascal. Alternative service formats for use with the C language binding are specified in Annex C, for the Ada language binding in Annex D and the CORBA IDL binding in Annex E."

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Add a new Annex E as follows:

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Annex E

(normative)

CORBA IDL Binding

The IRDS Services Interface language bindings for the CORBA Interface Definition Language are presented in the form of a .idl file as set out in clause E.4 below.

E.1 Strategy for the Language Binding

In this binding the data names and data structures defined in clause 8 have been adhered to except where the CORBA IDL does not provide an appropriate construct.

In this binding the procedure names and their parameters defined in clause 8 have been adhered to except where the CORBA IDL does not provide an appropriate construct.

#define statements have been used for various limits instead of because CORBA IDL compilers will not accept a as an array length specifier.

Use of this language binding requires the use of a CORBA IDL compiler that conforms to ISO/IEC {Editor to insert reference} level {Editor to insert level identification}.

E.2 Class Architecture

The following class architecture is proposed. Note that these are only the classes that *need* to be visible across the CORBA interface. A finer grained class structure may be appropriate in future, but that this probably ought to be a starting point. Moving to further classes such as IRDDefinition, IRD, WorkingSet and IRDObject would be a natural next step and not inconsistent with the objects defined below.

Class Name	Services	10728 Clause Reference
IrdsServicesInterfaceProcessor	IrdsCreateIRDDefinition	9.1.1
	IrdsDropIRDDefinition	9.1.2
	IrdsOpen	9.1.3
IrdsSession	IrdsPrepare	9.1.4
	IrdsCommit	9.1.5
	IrdsRollback	9.1.6
	IrdsClose	9.1.7
	IrdsGetDiagnostics	9.1.8
	IrdsSetContext	9.2.1
	IrdsAddObject	9.2.2
	IrdsOpenCursor	9.2.3

Class Name	Services	10728 Clause Reference
IrdSession (continued)		
	IrdRetrieveObject	9.2.4
	IrdModifyObject	9.2.5
	IrdDeleteObject	9.2.6
	IrdDeclassifyObject	9.2.7
	IrdReclassify	9.2.8
	IrdCloseCursor	9.2.9
	IrdCreateWorkingSet	9.2.10
	IrdDropWorkingSet	9.2.11
	IrdModifyContentStatus	9.2.12
	IrdCreateReferencePath	9.2.13
	IrdModifyReferencePath	9.2.14
	IrdDropReferencePath	9.2.15
	IrdCreateIRD	9.3.1
	IrdDropIRD	9.3.2
	IrdDeactivateIRD	9.3.3
	IrdReactivateIRD	9.3.4
	IrdValidateIRDSchemaGroup	9.3.5

E.3 General Rules

1. Those data names in E.4 below that also appear in Clause 8 shall have the same meaning as is defined in Clause 8. The same rules for the use of separators as defined in Clause 8 shall apply.
2. The function and parameter names in E.4 below shall have the same meaning as is defined in Clause 9.
3. The Service Return Codes returned shall be those defined by Clause 9 and Annex A and they shall have the same meaning.

4. The following mappings from SQL data types to CORBA IDL data types have been used:

SQL DATA TYPE	CORBA IDL DATA TYPE
CHARACTER	string /* See 8.2.1 */
CHARACTER VARYING	string /* See 8.2.1 */
NATIONAL CHARACTER	string /* See 8.2.1 */
NATIONAL CHARACTER VARYING	string /* See 8.2.1 */
REAL	float
DOUBLE PRECISION	double
FLOAT	float
INTEGER	long
SMALLINT	short
NUMERIC	long
DECIMAL	long
DATE	IrdsDate /* See 8.2.1 */
TIME	IrdsTime /* See 8.2.1 */
TIMESTAMP	IrdsTimeStamp /* See 8.2.1 */
INTERVAL	IrdsInterval /* See 8.2.1 */

5. Every function returns an int which is to be set to the value of the NumStates field of the RetCode returned by the function.

E.4. IDL Interface Definition

The following is the IDL interface definition for the object classes set out in clause E.1.

```
module irds
{
    /* Clause 8.1.1 */

    const short IrdsNameLim = 255 /* t1 */
    /* IrdsNameLim is used in 8.2.2 below */

    const short IrdsVarLim = 255 /* t2 */
    /* IrdsVarLim is used in 8.2.2 below */
}
```

```
/* Clause 8.1.2 */
```

```
const short IrdsTextLim = 30728 /* t3 */
```

```
/* Note that although no use is made of IrdsTextLim in this
   language binding, it is included so that a program may
   refer
   to the value to test the length of a string. */
```

```
/* Clause 8.1.3 - these definitions are used in 8.2.3 below */
```

```
/* The numeric values in this clause will be
   replaced by n1, n2, n3, n4 as in clause 8.1.3 in
   the final version of this Annex. Actual values
   are retained in this draft to facilitate testing
   of the text by compilation against a range of
   compilers. */
```

```
const short IrdsSessIdLim = 255; /* n1 */
/* IrdsSessIdLim used in 8.2.3 below */
```

```
const short IrdsCurIdLim = 255; /* n2 */
/* IrdsCurIdLim used in 8.2.3 below */
```

```
const short IrdsImpDicNameLen = 255; /* n3 */
/* IrdsImpDicNameLen used in 8.2.3 below */
```

```
const short IrdsKeyLen = 255; /* n4 */
/* IrdsKeyLen used in 8.2.1 below */
```

```
/* Clause 8.1.4 Data Types */
```

```
typedef enum
```

```
{
    IrdsDataTypeChar, /* SQL CHARACTER */
    IrdsDataTypeCharVar, /* SQL CHARACTER VARYING */
    IrdsDataTypeNatChar, /* SQL NATIONAL CHARACTER */
    IrdsDataTypeNatCharVar, /* SQL NATIONAL CHARACTER VARYING */
    IrdsDataTypeReal, /* SQL REAL */
    IrdsDataTypeDouble, /* SQL DOUBLE PRECISION */
    IrdsDataTypeFloat, /* SQL FLOAT */
    IrdsDataTypeInteger, /* SQL INTEGER */
    IrdsDataTypeSmallint, /* SQL SMALLINT */
    IrdsDataTypeNumeric, /* SQL NUMERIC */
    IrdsDataTypeDecimal, /* SQL DECIMAL */
    IrdsDataTypeDate, /* SQL DATE */
    IrdsDataTypeTime, /* SQL TIME */
    IrdsDataTypeTimestamp, /* SQL TIMESTAMP */
    IrdsDataTypeInterval, /* SQL INTERVAL */
    IrdsDataTypeIrdsKey /* SQL IRDS KEY */
} IrdsDataType;
```

```
/* Clause 8.1.5 IRD Content Status Classes */

typedef enum
{
    IrdsDcsClsUcntl,      /* Uncontrolled */
    IrdsDcsClsCntl,      /* Controlled */
    IrdsDcsClsArch       /* Archived */
} IrdsDcsCls;

/* Clause 8.1.6 Close Type parameter */

typedef enum
{
    RequestIrdsCommit,    /* COMMIT */
    RequestIrdsRollback   /* ROLLBACK */
} IrdsCloseType;

/* Clause 8.2.1 Column data types */

typedef struct
{
    char Year[4];
    char Sep1;
    char Month[2];
    char Sep2;
    char Day[2];
} IrdsDate;

typedef struct
{
    char Hour[2];
    char Sep1;
    char Minute[2];
    char Sep2;
    char Second[2];
    char Sep3;
    char Fraction[3];
} IrdsTime;

typedef struct
{
    IrdsDate    Date;
    char        Sep1;
    IrdsTime    Time;
} IrdsTimestamp;

typedef struct
{
    char        Days[7];
    char        Sep1;
    IrdsTime    Time;
} IrdsInterval;
```

```

typedef char IrdKey[IrdKeyLen];
/* IrdKeyLen is defined in 8.1.3 above */

/* Clause 8.2.2 Object Names */

typedef char IrdSQLName[128];
/* 128 is set by ISO/IEC 9075:1992
   database Language SQL */

typedef char IrdName[IrdNameLim];
/* IrdNameLim is defined in 8.1.1 above */

typedef char IrdVarName[IrdVarLim];
/* IrdVarLim is defined in 8.1.1 above */

typedef char UserId[IrdNameLim];
/* IrdNameLim is defined in 8.1.1 above */

/* Clause 8.2.3 Control Identifiers */

typedef char IrdSessId[IrdSessIdLim];
/* IrdSessIdLim is defined in 8.1.3 above */

typedef char IrdCurId[IrdCurIdLim];
/* IrdCurIdLim is defined in 8.1.3 above */

typedef char IrdImpDicName[IrdImpDicNameLen];
/* IrdImpDicNameLen is defined in 8.1.3
   above */

/* Clause 8.2.4 Diagnostics Area */

typedef struct
{
    char StateClass[2];
    char StateSubClass[3];
} IrdState;
/* IrdState is used in 8.2.5 below */

typedef struct
{
    short IrdStateSeq;
    IrdState IrdReturnedState;
    IrdSQLName IrdConstraintSchema;
    IrdSQLName IrdConstraintName;
    IrdSQLName IrdSchemaName;
    IrdSQLName IrdTableName;
    short IrdColumnNumber;
    IrdSQLName IrdColumnName;
} IrdStateRec;
/* IrdStateRec is used in the
   Get Diagnostics Service in
   9.1.8 below */

```

/* Clause 8.2.5 Service Return Code */

```
typedef struct
{
    short      NumStates;
    IrdsState  State;
} IrdsRetCode;
```

/* Clause 8.2.6 Column List parameters */

/* In the C binding the column list actually is a list.
In this IDL binding the list is a sequence.

*/

```
typedef union IrdsDataTypeUnion switch (IrdsDataType)
{
```

```
    case IrdsDataTypeChar:
    case IrdsDataTypeCharVar:
    case IrdsDataTypeNatChar:
    case IrdsDataTypeNatCharVar: string      ColValText;
    case IrdsDataTypeReal:      double      ColValReal;
    case IrdsDataTypeFloat:     float       ColValFloat;
    case IrdsDataTypeInteger:   long        ColValLongInteger;
    case IrdsDataTypeSmallint:  short       ColValShortInteger;
    case IrdsDataTypeNumeric:   long        ColValLongNumeric;
    case IrdsDataTypeDate:      IrdsDate    ColValDate;
    case IrdsDataTypeTime:      IrdsTime    ColValTime;
    case IrdsDataTypeTimestamp: IrdsTimestamp ColValTimestamp;
    case IrdsDataTypeInterval:  IrdsInterval ColValInterval;
    case IrdsDataTypeIrdsKey :   string      ColValIrdsKey;
};
```

*/

```
struct IrdsSingleColSpec
{
    IrdsSQLName      ColName;
    boolean          ColNull;
    IrdsDataTypeUnion IrdsColVal;
};
```

```
typedef struct
{
    short      NumCols;
    char       StateSubClass[3];
    sequence <IrdsSingleColSpec> ColSpecList;
} IrdsColList;
```

```

interface IrdsServicesInterfaceProcessor
{
    /* Clause 9.1.1 Create IRD Definition Service */

    short IrdsCreateIRDDefinition
    (
        in    UserId          IrdsUser,
        in    IrdsImpDicName  IrdDefName,
        out   IrdsSessId      CurrSessId,
        out   IrdsRetCode     RetCode
    );

    /* Clause 9.1.2 Drop IRD Definition Service */

    short IrdsDropIRDDefinition
    (
        in    UserId          IrdsUser,
        in    IrdsImpDicName  IrdDefName,
        out   IrdsRetCode     RetCode
    );

    /* Clause 9.1.3 Open IRDS Service */

    short IrdsOpen
    (
        in    UserId          IrdsUser,
        in    IrdsImpDicName  IrdDefName,
        in    IrdsName        IrdDicName,
        in    boolean         WillUpdate,
        out   IrdsSessId      CurrSessId,
        out   IrdsRetCode     RetCode
    );

};

/* End of definition of interface IrdsServicesInterfaceProcessor */

```

```

interface IrdsSession
{
    /* Clause 9.1.4    Prepare Service    */
    short IrdsPrepare
    (
        out    IrdsRetCode    RetCode
    );

    /* Clause 9.1.5    Commit Service    */
    short IrdsCommit
    (
        out    IrdsRetCode    RetCode
    );

    /* Clause 9.1.6    Rollback Service    */
    short IrdsRollback
    (
        out    IrdsRetCode    RetCode
    );

    /* Clause 9.1.7    Close IRDS Service    */
    short IrdsClose
    (
        in     IrdsCloseType    CloseType,
        out    IrdsRetCode    RetCode
    );

    /* Clause 9.1.8    GetDiagnostics Service    */
    short IrdsGetDiagnostics
    (
        in     short            StateNum,
        out    IrdsStateRec    StateRec,
        out    IrdsRetCode    RetCode
    );

    /* Clause 9.2.1    Set Context Service    */
    short IrdsSetContext
    (
        in     IrdsName        SessWkgSetName,
        in     IrdsName        SessWkgSetVerId,
        in     boolean          WillUpdate,
        out    IrdsRetCode    RetCode
    );

```

/* Clause 9.2.2 Add Object Service */

```
short IrdsAddObject
(
    in    IrdsName      ObjType,
    in    IrdsColList   NewCols,
    out   IrdsRetCode   RetCode
);
```

/* Clause 9.2.3 Open Cursor Service */

```
short IrdsOpenCursor
(
    in    boolean      UseContext,
    in    string        ObjSelExpr,
    in    IrdsName      WkgSetName,
    in    IrdsName      WkgSetVerId,
    in    boolean      FullContext,
    in    boolean      WillUpdate,
    out   IrdsCurId    ObjCurId,
    out   IrdsRetCode   RetCode
);
```

/* Clause 9.2.4 Retrieve Object Service */

```
short IrdsRetrieveObject
(
    in    IrdsCurId    ObjCurId,
    inout IrdsColList   RequestedCols,
    out   IrdsRetCode   RetCode
);
```

/* Clause 9.2.5 Modify Object Service */

```
short IrdsModifyObject
(
    in    IrdsCurId    ObjCurId,
    in    IrdsColList   ModifiedCols,
    out   IrdsRetCode   RetCode
);
```

/* Clause 9.2.6 Delete Object Service */

```
short IrdsDeleteObject
(
    in    IrdsCurId    ObjCurId,
    out   IrdsRetCode   RetCode
);
```

/* Clause 9.2.7 IrdsDeclassifyObject Service */

```
short IrdsDeclassifyObject
(
    in    IrdsCurId      ObjCurId,
    out   IrdsRetCode     RetCode
);
```

/* Clause 9.2.8 IrdsReclassifyObject Service */

```
short IrdsReclassifyObject
(
    in    IrdsCurId      ObjCurId,
    in    IrdsName        NewObjType,
    in    IrdsColList     NewCols,
    out   IrdsRetCode     RetCode
);
```

/* Clause 9.2.9 Close Cursor Service */

```
short IrdsCloseCursor
(
    in    IrdsCurId      ObjCurId,
    out   IrdsRetCode     RetCode
);
```

/* Clause 9.2.10 Create Working Set Service */

```
short IrdsCreateWorkingSet
(
    in    IrdsName        NewWkgSetName,
    in    IrdsName        NewWkgSetVerId,
    in    IrdsName        NewDcs,
    in    IrdsName        BasisWkgSetName,
    in    IrdsName        BasisWkgSetVerId,
    in    boolean          Versionable,
    out   IrdsRetCode     RetCode
);
```

/* Clause 9.2.11 Drop Working Set Service */

```
short IrdsDropWorkingSet
(
    in    IrdsName        WkgSetName,
    in    IrdsName        WkgSetVerId,
    out   IrdsRetCode     RetCode
);
```

/* Clause 9.2.12 Modify Content Status Service */

```
short IrdsModifyContentStatus
(
    in      IrdsName      WkgSetName,
    in      IrdsName      WkgSetVerId,
    in      IrdsName      NewDcs,
    out     IrdsRetCode    RetCode
);
```

/* Clause 9.2.13 Create Reference Path Service */

```
short IrdsCreateRefPath
(
    in      IrdsName      ToWkgSetName,
    in      IrdsName      ToWkgSetVerId,
    out     IrdsRetCode    RetCode
);
```

/* Clause 9.2.14 Modify Reference Path Service */

```
short IrdsModifyRefPath
(
    in      IrdsName      OldToWkgSetName,
    in      IrdsName      OldToWkgSetVerId,
    in      IrdsName      NewToWkgSetName,
    in      IrdsName      NewToWkgSetVerId,
    out     IrdsRetCode    RetCode
);
```

/* Clause 9.2.15 Drop Reference Path Service */

```
short IrdsDropRefPath
(
    in      IrdsName      ToWkgSetName,
    in      IrdsName      ToWkgSetVerId,
    out     IrdsRetCode    RetCode
);
```

/* Clause 9.3.1 Create IRD Service */

```
short IrdsCreateIRD
(
    in      IrdsImpDicName  IrdExternalName,
    in      IrdsName        IrdDicName,
    in      IrdsName        SchemaGroupName,
    out     IrdsRetCode      RetCode
);
```