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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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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."

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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:

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
IrdsSession (continued)		
	IrdsRetrieveObject	9.2.4
	IrdsModifyObject	9.2.5
	IrdsDeleteObject	9.2.6
	IrdsDeclassifyObject	9.2.7
	IrdsReclassify	9.2.8
	IrdsCloseCursor	9.2.9
	IrdsCreateWorkingSet	9.2.10
	IrdsDropWorkingSet	9.2.11
	IrdsModifyContentStatus	9.2.12
	IrdsCreateReferencePath	9.2.13
	IrdsModifyReferencePath	9.2.14
	IrdsDropReferencePath	9.2.15
	IrdsCreateIRD	9.3.1
	IrdsDropIRD	9.3.2
	IrdsDeactivateIRD	9.3.3
	IrdsReactivateIRD	9.3.4
	IrdsValidateIRDSchemaGroup	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         SepT;
        IrdsTime     Time;
}       IrdsTimestamp;

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

```
typedef char IrdsKey[IrdsKeyLen];
            /* IrdsKeyLen is defined in 8.1.3 above */

/* Clause 8.2.2  Object Names */

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

typedef char IrdsName[IrdsNameLim];
            /* IrdsNameLim is defined in 8.1.1 above   */

typedef char IrdsVarName[IrdsVarLim];
            /* IrdsVarLim is defined in 8.1.1 above    */

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


/* Clause 8.2.3  Control Identifiers */

typedef char IrdsSessId[IrdsSessIdLim];
      /*    IrdsSessIdLim is defined in 8.1.3 above    */

typedef char IrdsCurId[IrdsCurIdLim];
      /*    IrdsCurIdLim is defined in 8.1.3 above     */

typedef char IrdsImpDicName[IrdsImpDicNameLen];
      /*    IrdsImpDicNameLen is defined in 8.1.3
            above */


/* Clause 8.2.4  Diagnostics Area */

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

typedef struct
{
      short        IrdStateSeq;
      IrdsState    IrdReturnedState;
      IrdsSQLName  IrdConstraintSchema;
      IrdsSQLName  IrdConstraintName;
      IrdsSQLName  IrdSchemaName;
      IrdsSQLName  IrdTableName;
      short        IrdColumnNumber;
      IrdsSQLName  IrdColumnName;
}     IrdsStateRec;
                  /*    IrdsStateRec is used in the
                        Get Diagnostcs 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
            );
```