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Telecommunications and information exchange between systems — Recursive inter-network architecture —

Part 4: Complete enrolment procedures

Télécommunications et échange d'information entre systèmes — Architecture récursive inter-réseaux —

Partie 4: Procédures d'enrôlement complet

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Foreword

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This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6 *Telecommunications and information exchange between systems*.

A list of all parts in the ISO/IEC 4396 series can be found on the ISO and IEC websites.

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Telecommunications and information exchange between systems — Recursive inter-network architecture —

Part 4: Complete enrolment procedures

1 Scope

This document defines the procedure executed by a Member of a distributed inter-process communication (IPC) facility (DIF) or distributed application facility (DAF) to initialize a New Member as a fully functioning Member. This procedure is used when it is likely the new Member has not previously been a Member of the DIF or DAF in the near past. This document is defined for use with DIFs, but can be used equally well by a DAF that wants to assign synonyms with a scope limited to the DAF.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4396-1, *Telecommunications and information exchange between systems — Recursive Inter-Network Architecture — Part 1: Reference Model*

ISO 4396-2, *Telecommunications and information exchange between systems — Recursive inter-network architecture — Part 2: Common application connection establishment protocol*

ISO 4396-3, *Telecommunications and information exchange between systems — Recursive Inter-Network Architecture — Part 3: Common Distributed Application Protocol*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4396-1 and ISO 4396-2 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Overview of the procedures

Enrolment is the procedure by which an IPC-process joins an existing DIF/DAF. Enrolment occurs after an IPC-process establishes an application connection [using an (N-1)-DIF and the procedures and protocols defined by ISO 4396-2 and ISO 4396-3] with another IPC-process, which is a Member of a DIF/DAF. Once the common distributed application protocol (CDAP) connection is established, this enrolment procedure may proceed.

This procedure is a straightforward Enrolment. It assumes the new Member has had no previous contact with the DAF/DIF and the static and near-static information is transferred to the new Member.

5 Detailed specification of the procedures

5.1 Common elements

Resource Information Base (RIB): The DIF-allocator has access to the RIB information consistent with the access control policies. This system is a Member of, and is participating in, the directory chain associated with this DIF-allocator.

5.2 Enrolment

5.2.1 General

Once the CDAP connection is established and the authentication policy executed successfully, which is signalled by receiving a Connect_Response, enrolment may proceed. It is recognized that several sequences are possible, so other enrolment procedures are possible. This is the 'naive' enrolment procedure that assumes the new Member has no prior knowledge of the DAF/DAF it is joining. There are three types of enrolment information:

a) static, part of the definition of the DIF;

b) near static, may change but very infrequently, i.e. the address or adding a new QoS-cube;

c) dynamic information, e.g. DIF-allocator, directory, and routing information.

5.2.2 When sent

Enrolment begins when the CDAP connection is established (see CACEP specification in ISO 4396-2).

5.2.3 Action upon receipt

The following procedure is used to facilitate an existing Member becoming partitioned and re-joining. The basic idea is that if the Member is out of the DIF for less than the lifetime of an address assignment, the initialization can be shortened. If there any errors or unexpected occurrences by either process, the process should send an A_Release (with no Response requested) and invoke Deallocate.

The Member sending a positive A_Connect_Response indicates that Enrollment may start.

The Member sends

← A_Start_R Enrolment (address (potentially different), application process name, Current_Address, Address_Expiration)

The Existing Member sends

← A_Create (zero or more) to initialize the static and near static information required. When finished and the New Member has sent all necessary

→ A_Create_Response

The Existing Member sends a

← A_Stop Enrolment (Immediate:Boolean)

If the Immediate Boolean is True, the new Member is free to transition to the Operational state.

If the Boolean Immediate is False, then the new Member cannot transition to the Operational state until an A_Start Operation is received. The new Member is free to Read any information not provided by the existing Member.

Once these are completed, the existing Member sends: