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**Artificial intelligence - Agent interconnection - Part 1: General
architecture
(English Translation)**

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Foreword

This document is a standard or guiding technical document.

This document conforms to GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting is scheduled.

This document is Part 1 of GB/Z 185 "Artificial Intelligence - Interconnection of Intelligent Agents". GB/Z 185 has already published the following parts.

- Part 1: Overall Architecture;
- Part 2: Identification Code;
- Part 3: Identity Management;
- Part 4: Agent Description;
- Part 5: Agent Discovery;
- Part 6: Agent Interaction;
- Part 7: Agent tool calls.

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed and is under the jurisdiction of the National Information

Technology Standardization Technical Committee (SAC/TC 28).

Introduction

With the rapid development of artificial intelligence technology, intelligent agents, as the key carriers for transforming artificial intelligence from a concept into actual productivity, are playing a crucial role in various fields.

With increasingly widespread applications, the intelligent agent domain has played a significant role in empowering new industrialization and shaping new types of productivity. However, the current development of the intelligent agent industry faces many challenges.

The challenge lies in the interoperability and interconnectivity between different intelligent agents. In the field of protocol-based agent interconnection, internationally recognized technologies include MCP and...

While intelligent agent communication protocols such as A2A and ANP exist, no universally agreed-upon solution has been developed, necessitating the formulation of a solution suitable for the development of China's intelligent agent industry.

An industry-wide consensus solution.

To systematically address the aforementioned issues, guide and regulate the development of intelligent agent interconnection technology, and enhance the interoperability and composability of intelligent agent systems.

To improve overall industry efficiency, this guiding technical document is specifically formulated. GB/Z 185 "Artificial Intelligence - Interconnection of Intelligent Agents" aims to define the interconnection of intelligent agents.

The technical requirements and processes for interconnection are formulated following the principles of systematicity, advancement, and operability, enabling cross-platform and cross-architecture communication between intelligent agents.

GB/Z 185 is proposed to consist of seven parts, providing a unified technical framework and standard basis for interconnection, interoperability and interoperability.

--Part 1: Overall Architecture. The purpose is to provide a conceptual model and a functional model for an interconnected intelligent agent environment.

--Part 2: Identity Code. The purpose is to define and apply the identity code for intelligent agents, and to provide the code structure and allocation principles.

The suggestion is as follows.

--Part 3: Identity Management. The aim is to provide a framework and full lifecycle process for identity management in an interconnected agent environment.

Describe the technical requirements for identity management.

--Part 4: Agent Description. The purpose is to provide a method for describing agents, and to provide methods for registering, modifying, and publishing agent descriptions.

The reference process.

--Part 5: Agent Discovery. The purpose is to provide a discovery process for agent interconnection.

--Part 6: Agent Interaction. The aim is to present the interaction patterns of agents in a massive interconnected world, describing the basic elements of interaction and...

Interface definition.

--Part 7: Agent Tool Invocation. The aim is to provide a standardized architecture and flow for agents invoking tools based on large models.

The process and tools are described, supporting seamless integration of intelligent agents with external tools.

AI-powered intelligent agent interconnection Part 1: Overall Architecture

1 Scope

This document presents a conceptual model and functional reference architecture for intelligent agent interconnection.

This document serves as a reference and guide for the design of interconnected intelligent agents.

4 Abbreviations

The following abbreviations apply to this document.

FRAI. Function Reference Architecture Interface

5.1 Conceptual Model

The intelligent agent interconnection conceptual model consists of five conceptual domains. user domain, intelligent agent domain, management service domain, interconnection service domain, and resource access domain.

(See Figure 1) The lines connecting the conceptual domains represent the information interaction relationships between the domains.

5.2.1 User Domain

A user domain is the set of users who initiate tasks and receive results in intelligent agent interconnection. The task initiator and the result receiver can be a...

A person or organization.

5.2.2 Intelligent Agent Domain

The intelligent agent domain encompasses the maintenance of intelligent agent identities, descriptions, inter-agent authentication, and interaction among different types of intelligent agents.

A set of functions accessed by the tool.

5.2.3 Management Service Domain

The management service domain is a collection of functions for agent identity management, agent credential management, and agent identity authentication in agent interconnection, providing...

Management services are provided for information such as the identity of intelligent agents in intelligent agent interconnection.

5.2.4 Interconnected Service Domain

The interconnected service domain is a collection of functions for agent description management, agent discovery, and message distribution in agent interconnection, providing a framework for agent interconnection.

It provides services for interconnected collaboration.

5.2.5 Resource Access Domain

The resource access domain is a set of functions that provide resource services such as tool services to intelligent agents, and can be accessed and invoked by intelligent agents.

6.1 Overview

The intelligent agent interconnection functional reference architecture is based on a conceptual model, outlining the specific functional components of each conceptual domain and providing a functional layer.

The interface relationships are shown in Figure 2. Typical scenarios consisting of intelligent agent interconnection functions are shown in Appendix A.

6.2 Functional Description

Table 1 describes the functional descriptions of each conceptual domain in the intelligent agent interconnection function reference architecture.