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Binding of the Natural Language Interaction Protocol (NLIP) over HTTPS/REST

Standard

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Introduction

The technology of Generative AI (GAI) has the potential to be truly transformative to society. Despite some limitations such as “hallucinations,” the technology is capable of many functions, including but not limited to answering questions, translating, describing and summarizing multi-modal content, generating new content, and summarizing large volumes of information. This enables the creation of intelligent agents that can use AI to analyze data and provide new services.

A much bigger boost to the social benefits of generative AI technology can be obtained by interaction among different in-telligent agents, which may be under the control of different organizations and users. The interaction among intelligent agents can unlock new economic and social value, just like the interactions among various Internet-based services was enabled with the advent of the web browser.

For the intelligent agents to interact with each other, there is a need for a standard common protocol that is used widely among interacting agents. This Standard specifies such a protocol which would ensure interoperability among various services that use AI based technology.

ECMA-XXX defines the Natural Language Interaction Protocol (NLIP).

This Standard describes the binding of NLIP protocol to a base transfer protocol which is using HTTPS with REST.

This Ecma Standard was developed by Technical Committee 56 and was adopted by the General Assembly of <month> <year>.

Binding of the Natural Language Interaction Protocol over HTTPS/REST

1 Scope

This Standard defines how the Natural Language Interaction Protocol (NLIP) should be implemented over the base transfer protocol of HTTPS/REST.

2 Conformance

A conforming implementation must provide and support all types of messages and submessage along with the semantics defined in the NLIP specification draft, and support them using REST over HTTPS.

3 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.

IETF RFC 2119, *Key words for use in RFCs to Indicate Requirement Levels* [https://datatracker.ietf.org/doc/rfc2119]

IETF RFC 7230, *Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing* [https://datatracker.ietf.org/doc/rfc7230/]

IETF RFC 7240, *Prefer Header for HTTP*
[https://datatracker.ietf.org/doc/rfc7240/]

IETF RFC 9113, *HTTP/2*
[https://datatracker.ietf.org/doc/rfc9113/

IETF RFC 9114, *HTTP/3*
[https://datatracker.ietf.org/doc/rfc9113/]

4 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

4.1
NLIP
NLIP or Natural Language Interaction Protocol is the protocol defined in ECMA-XXX.

4.2
base transfer protocol
a transfer protocol is a communication protocol between two computer systems which supports an encrypted and authenticated transfer of data across those computer systems.

5 Notational Conventions

In this Standard, the following conventions that are consistent with IETF RFC 2119 are used:

- “Shall” indicates that the item is an absolute requirement of the specification
- “Should” indicates that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood andcarefully weighed before choosing a different course.
- “May” indicates that that an item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because the vendor feels that it enhances the product while another vendor may omit the same item. An implementation which does not include a particular option shall be prepared to interoperate with another implementation which does include the option, though perhaps with reduced functionality. In the same vein an implementation which does include a particular option shall be prepared to interoperate with another implementation which does not include the option (except, of course, for the feature the option provides.)

6 NLIP end point

A conformant implementation of NLIP over HTTPS/REST will have the Server end-point running on a TCP Server Port. This port would be accessible using a URL defined as https://<server_name>:port/nlip.

The end-point should use either HTTP/1.1 or HTTP/2 as the base transfer protocol, Implementations may use HTTP/3 in validated use cases.

6.1 Optional end points

A NLIP end point may also provide an alternate end-point for upload of large binary data. This upload will be provided at any port different than the port used by NLIP end point. The protocol and extension can be provided by an NLIP end point to its peer using a control message with structured format.