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# SCIM Agents and Agentic Applications Extension
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## Abstract

The System for Cross-domain Identity Management (SCIM) specification [RFC7643] provides schemas that represent common identity information about users and groups, as well as a protocol for communicating that information between systems.

The systems that tend to implement SCIM clients and servers are identity providers, and service providers. These are the same systems that are now need to manage agents and agentic applications across domains.

This document describes a SCIM 2.0 extension for agents and agentic applications, which includes extensions to the core User and Group objects, and new resource types and schemas for agentic constructs.

This extension is intended to provide greater interoperability between Identity providers, agentic applications, agents and their clients while reducing the responsibilities assumed by the every growing list of new protocols for agents.

## About This Document

This note is to be removed before publishing as an RFC.

The latest revision of this draft can be found at https://macyabbey.github.io/draft-abbey-scim-agent-extension/draft-abbey-scim-agent-extension.html. Status information for this document may be found at https://datatracker.ietf.org/doc/draft-abbey-scim-agent-extension/.

Source for this draft and an issue tracker can be found at https://github.com/macyabbey/draft-abbey-scim-agent-extension.

## Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

## Copyright Notice



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## 1. Introduction

The SCIM protocol was originally developed to address an *abundance* of complex standards for describing and exchanging user information.

As stated in the introduction of RFC7643#Section-1.1 (https://datatracker.ietf.org/doc/html/rfc7643#section-1.1)

> While there are existing standards for describing and exchanging user information, many of these standards can be difficult to implement and/or use...
>
> This increases both the cost and complexity associated with organizations adopting products and services from multiple cloud providers, as they must perform redundant integration development...SCIM seeks to simplify this problem through an easily implemented specification suite...

With the rise of AI, agents, and agentic applications, we see another abundance of protocols emerging, with varying levels of industry adoption, as well as implementation complexity as many brilliant and enthusiastic early adopters rush to define new standards for identity interopability.

This includes but is not limited to:

* ACP (https://agentcommunicationprotocol.dev/core-concepts/agent-discovery)

* A2A (https://a2a-protocol.org/latest/topics/agent-discovery/)

* ANS (https://genai.owasp.org/resource/agent-name-service-ans-for-secure-al-agent-discovery-v1-0/)

* AGNTCY (https://docs.agntcy.org/dir/overview/)

The intent of this SCIM extension is to offer a viable path for the industry to re-leverage the well known core SCIM specifications, as well as existing implementations of SCIM clients and SCIM servers, to solve for agent cross domain management.

In doing so, we can free the emerging standards in the agentic AI space to focus on truly novel concerns, instead of addressing the problems already solved by SCIM for user and groups.

For example, in the A2A protocol, instead of describing a very high level concept of Curated registries (https://a2a-protocol.org/latest/topics/agent-discovery/#2-curated-registries-catalog-based-discovery) we could offer more concrete guidance by stating Agent Cards may be discovered by a SCIM client accessing any SCIM server that implements this extension.

## 2. Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

## 3. Definitions

Agent: A workload with its own identifier, metadata and privileges which are independent of a particular runtime environment or containing application. An agent is distinct from a traditional software workloads (lambdas, services, etc...) due to varying degrees of unpredictable behavior caused by delegation of control flow to artificial intelligence models.

Agentic application: An application exposing one or more agents to its users. An agentic application is similar to a traditional native or web application, in that there are pre-defined ways authenticate and interact with the application; however, as soon as the application exposes agents, there are additional considerations for managing access to that application.

## 4. Core Schema Extensions

### 4.1. ServiceProviderConfig

SCIM endpoints that support Agent extensions MUST advertise this support in the ServiceProviderConfig endpoint as defined:

agentExtension
A complex type that specifies Agent Extension configuration options.

supported Boolean value specifying whether any aspect of the extension is supported.

agentsSupported Boolean value specifying whether the agent resource type is supported

agenticApplicationsSupported Boolean value specifying whether the agent resource type is supported

This is required so that:

1) Clients may know if the server supports the concept of Agents. 2) Servers discourage clients from confusing users and agents.

If the server does not support the concept of agents, a SCIM client MAY choose to create a User representation in the server for an Agent. All the reasons it may choose to do so are beyond the scope of this document. If the client does so, the client SHOULD indicate the user is linked to an agent using a LinkedObject from draft-grizzle-scim-pam-ext-01 (https://datatracker.ietf.org/doc/id/draft-grizzle-scim-pam-ext-01.txt) This would allow a SCIM server that supports that SCIM extension to add support for this extension and determine what users in the server should be mapped to agents when support is added.

## 5. Additional ResourceTypes and Schemas

This SCIM Agent extension defines additional ResourceTypes and Schemas that MAY be implemented by the service provider. If implemented, these ResourceTypes SHOULD support all SCIM operations [RFC7644]. All attributes defined in the schemas are optional unless explicitly marked as REQUIRED.

### 5.1. Agent

This extension adds a new resource type of "Agent".

Pursuant to [RFC7643] Section 3.2 Defining New Resource Types (https://datatracker.ietf.org/doc/html/rfc7643#section-3.2) this document define the ResourceType, Schema and Extensions for Agent.

#### 5.1.1. Agent Resource Type

The Agent Resource Type schema is:

```
{
   "schemas": ["urn:ietf:params:scim:schemas:core:2.0:ResourceType"],
   "id": "Agent",
   "name": "Agent",
   "endpoint": "/Agents",
   "description": "Agent identities",
   "schema": "urn:ietf:params:scim:schemas:core:2.0:Agent"
}
```

#### 5.1.2. Agent filtering

Clients MAY have a reference to the Agent name or externalId but not the ID. For this reason, it is RECOMMENDED that service providers implement filtering that allows equality matching on the "name" and "externalId" attributes.

Example (note that escaping has been removed for readability):

```
GET /scim/v2/Agents?filter=name eq ’Helpdesk bot’

GET /scim/v2/Agents?filter=externalId eq ’8ccc535b-716d-4d32-b3e9-57c8be449c82’
```

#### 5.1.3. Agent Common Attributes

The agent resource type contains the common SCIM resource type attributes defined in [RFC7643] Section 3.1 Common Attributes (https://datatracker.ietf.org/doc/html/rfc7643#section-3.1)

They are listed here for completeness:

* id
* externalId
* meta

#### 5.1.4. Agent Core Schema

The core agent schema provides the minimal representation of a resource "Agent".

It contains only those attributes that any agent may need, and only one attribute is required. It is identified using the schema URI:

"urn:ietf:params:scim:schemas:core:2.0:Agent"

The following attributes are defined in the core agent schema.

name  The name of the Agent.  REQUIRED

displayName
: The display name of the Agent.  If displayName is unassigned, the name MAY be used as the display name.

active
: A Boolean value indicating the agent's administrative status.  The definitive meaning of this attribute is determined by the service provider.  As a typical example, a value of true implies that the agent is able to authenticate, while a value of false implies that the agent's account has been suspended and the agent will be unable to authenticate.

description
: The description of the Agent.

agentType
: The type of agent. There are no canonical values defined for type, but service providers MAY choose to define the valid types.

active
: A Boolean value indicating the agent's administrative status.  The definitive meaning of this attribute is determined by the service provider.  As a typical example, a value of true implies that the agent is running, while a value of false implies that the agent has been suspended.

entitlements
: An optional complex object that indicates entitlements the agent has. Its form is precisely the same as that defined in Section 4.1.2 of {{RFC7643}}.

roles:
: An optional complex object that indicates roles the agent assumes. Its form is precisely the same as that defined in Section 4.1.2 of {{RFC7643}}.

groups:
: An optional read-only complex object that indicates group membership.  Its form is precisely the same as that defined in Section 4.1.2 of {{RFC7643}}.

applications
: A complex multi-valued attribute referencing applications this agent shares a trust boundary with. See "Agentic Application" section of this document.

subject
An optional attribute that clients may specify when provisioning an agent so that service providers implementing inbound token federation may correlate the agent with the ‘sub‘ claim in an inbound token from an OpenID connect provider.

x509Certificates
A list of certificates associated with the resource (e.g., a User). Each value contains exactly one DER-encoded X.509 certificate (see Section 4 of [RFC5280]), which MUST be base64 encoded per Section 4 of [RFC4648]. A single value MUST NOT contain multiple certificates and so does not contain the encoding "SEQUENCE OF Certificate" in any guise.

protocols
A complex multi-value attribute that informs service providers of the various communication protocols an agent may support. This information can help service providers automatically support agent to agent or human to agent communication scenarios. An agent that supports no protocols is understood to the service provider to be inaccessible. For example, when an agent can only be accessed via its containing agentic application.

The following sub-attributes are defined.

type The type of the protocol. A number of canonical values are provided based on known agent protocols. They are: A2A, OpenAPI, MCP-Server

specificationUrl The URL the service provider may retrieve the specification document describing the agent’s specific information for that protocol.

parent
A complex attribute that defines the parent Agent of this Agent if the service provider supports hierarchies of agents.

The following sub-attributes are defined.

value The ID of the agent that is the parent of this Agent in the hierarchy.

$ref A URI reference to the Agent that is the parent of this Agent in the hierarchy.

display The display name of the Agent that is the parent of

this Agent in the hierarchy.

owners
A complex multi-valued attribute that defines the User or Group objects that are owners of this Agent. OPTIONAL. The following sub-attributes are defined for each value object.

value The ID of the User that owns this Agent.

$ref A URI reference to the User that owns this Agent.

display The display name of the user that owns this Agent.

#### 5.1.4.1. JSON Representation

##### 5.1.4.1.1. Minimal Agent Representation

The following is a non-normative example of the minimal required SCIM representation in JSON format.

```
{
   "schemas": ["urn:ietf:params:scim:schemas:core:2.0:Agent"],
   "id": "2819c223-7f76-453a-919d-413861904646",
   "name": "Clippy 2.0",
   "meta": {
      "resourceType": "Agent",
      "created": "2010-01-23T04:56:22Z",
      "lastModified": "2011-05-13T04:42:34Z",
      "version": "W\/\"3694e05e9dff590\"",
      "location": "https://example.com/v2/Agents/2819c223-7f76-453a-919d-413861904646"
   }
}
```

##### 5.1.4.1.2. Full Agent Representation

The following is a non-normative example of the fully populated SCIM representation in JSON format.

```
{
   "schemas": ["urn:ietf:params:scim:schemas:core:2.0:Agent"],
   "id": "2819c223-7f76-453a-919d-413861904646",
   "externalId": "clpy2001",
   "name": "Clippy 2.0",
   "active":true,
   "agentType": "Assistant",
   "groups": [
      {
         "value": "e9e30dba-f08f-4109-8486-d5c6a331660a",
```

```
        "$ref":
    "https://example.com/v2/Groups/e9e30dba-f08f-4109-8486-d5c6a331660a",
        "display": "The next generation"
      },
      {
        "value": "fc348aa8-3835-40eb-a20b-c726e15c55b5",
        "$ref":
    "https://example.com/v2/Groups/fc348aa8-3835-40eb-a20b-c726e15c55b5",
        "display": "Animated assistants"
      },
      {
        "value": "71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
        "$ref":
    "https://example.com/v2/Groups/71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
        "display": "AI clippers"
      }
    ],
    "x509Certificates": [
    {
      "value":
       "MIIDQzCCAqygAwIBAgICEAAwDQYJKoZIhvcNAQEFBQAwTjELMAkGA1UEBhMCVVMx
        EzARBgNVBAgMCkNhbGlmb3JuaWExFDASBgNVBAoMC2V4YW1wbGUuY29tMRQwEgYD
        VQQDDAtleGFtcGxlLmNvbTAeFw0xMTEwMjIwNjI0MzFaFw0xMjEwMDQwNjI0MzFa
        MH8xCzAJBgNVBAYTAlVTMRMwEQYDVQQIDApDYWxpZm9ybmlhMRQwEgYDVQQKDAtl
        eGFtcGxlLmNvbTEhMB8GA1UEAwwYTXMuIEJhcmJhcmEgSiBKZW5zZW4gSUlJMSIw
        IAYJKoZIhvcNAQkBFhNiamVuc2VuQGV4YW1wbGUuY29tMIIBIjANBgkqhkiG9w0B
        AQEFAAOCAQ8AMIIBCgKCAQEA7Kr+Dcds/JQ5GwejJFcBIP682X3xpjis56AK02bc
        1FLgzdLI8auoR+cC9/Vrh5t66HkQIOdA4unHh0AaZ4xL5PhVbXIPMB5vAPKpzz5i
        PSi8xO8SL7I7SDhcBVJhqVqr3HgllEG6UClDdHO7nkLuwXq8HcISKkbT5WFTVfFZ
        zidPl8HZ7DhXkZIRtJwBweq4bvm3hM1Os7UQH05ZS6cVDgweKNwdLLrT51ikSQG3
        DYrl+ft781UQRIqxgwqCfXEuDiinPh0kkvIi5jivVu1Z9QiwlYEdRbLJ4zJQBmDr
        SGTMYn4lRc2HgHO4DqB/bnMVorHB0CC6AV1QoFK4GPe1LwIDAQABo3sweTAJBgNV
        HRMEAjAAMCwGCWCGSAGG+EIBDQQfFh1PcGVuU1NMIEdlbmVyYXRlZCBDZXJ0aWZp
        Y2F0ZTAdBgNVHQ4EFgQU8pD0U0vsZIsaA16lL8En8bx0F/gwHwYDVR0jBBgwFoAU
        dGeKitcaF7gnzsNwDx708kqaVt0wDQYJKoZIhvcNAQEFBQADgYEAA81SsFnOdYJt
        Ng5Tcq+/ByEDrBgnusx0jloUhByPMEVkoMZ3J7j1ZgI8rAbOkNngX8+pKfTiDz1R
        C4+dx8oU6Za+4NJXUjlL5CvV6BEYb1+QAEJwitTVvxB/A67g42/vzgAtoRUeDov1
        +GFiBZ+GNF/cAYKcMtGcrs2i97ZkJMo="
    }
    ],
    "entitlements": [{
       "value": "write",
       "display": "Write permission",
       "type: "permission",
       "primary": true
    }],
    "roles": [{
       "value": "administrator",
```

```
        "display": "Administrator",
        "type: "permission",
        "primary": true
     }],
     "applications": [{
        "value": "e9e30dba-f08f-4109-8486-d5c6a331660a",
        "$ref": "https://example.com/v2/AgenticApplications/e9e30dba-f08f-4109-8486-d5c6a
331660a",
        "display": "Clippy portal",
        "type": "Web"
     }],
     "subject": "clpy2001",
     "protocols: [{
        "type": "A2A",
        "specificationUrl": "https://example.com/v2/Agents/2819c223-7f76-453a-919d-413861
904646/.well-known/agent-card.json"
     }],
     "owners": [{
        "value": "71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
        "$ref": "../Groups/71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
        "display": "US Employees"
     }],
     "parent": {
        "value": "71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
        "$ref": "https://example.com/v2/Agents/71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
        "display": "Clippy 1.0"
     },
     "meta": {
        "resourceType": "Agent",
        "created": "2010-01-23T04:56:22Z",
        "lastModified": "2011-05-13T04:42:34Z",
        "version": "W\/\"3694e05e9dff590\"",
        "location": "https://example.com/v2/Agents/2819c223-7f76-453a-919d-413861904646"
     }
  }
```


### 5.2. Agentic application

An Agentic application represents a software application that hosts or provides access to one or more agents. It serves as a container and runtime environment for agents, managing their authentication, authorization, and access to resources.

#### 5.2.1. Resource Type

The Agentic Application Resource Type schema is:

```
{
   "schemas": ["urn:ietf:params:scim:schemas:core:2.0:ResourceType"],
   "id": "AgenticApplication",
   "name": "AgenticApplication",
   "endpoint": "/AgenticApplications",
   "description": "Applications that host or provide access to agents",
   "schema": "urn:ietf:params:scim:schemas:core:2.0:AgenticApplication",
}
```

#### 5.2.2. Filtering

Clients MAY have a reference to the Agentic Application name, URL, or externalId but not the ID. For this reason, it is RECOMMENDED that service providers implement filtering that allows equality matching on the "name", "externalId", and "applicationUrls.value" attributes.

Example (note that escaping has been removed for readability):

```
GET /scim/v2/AgenticApplications?filter=name eq ’AI Assistant Platform’

GET /scim/v2/AgenticApplications?filter=externalId eq ’app-123456’
```

#### 5.2.3. Common attributes

The agentic application resource type contains the common SCIM resource type attributes defined in [RFC7643] Section 3.1 Common Attributes (https://datatracker.ietf.org/doc/html/rfc7643#section-3.1)

They are listed here for completeness:

* id
* externalId
* meta

#### 5.2.4. Schema

The core agentic application schema provides the representation of an "AgenticApplication" resource. It is identified using the schema URI:

"urn:ietf:params:scim:schemas:core:2.0:AgenticApplication"

The following attributes are defined in the core agentic application schema.

  name
     The name of the Agentic Application. REQUIRED.

  displayName
     The display name of the Agentic Application. If displayName is unassigned,
     the name MAY be used as the display name.

  description
     The description of the Agentic Application.

  active
     A Boolean value indicating the application’s administrative status.
     The definitive meaning of this attribute is determined by the service
     provider. As a typical example, a value of true implies that the
     application is operational, while a value of false implies that the
     application has been disabled.

  applicationUrls
     A complex multi-valued attribute containing URLs associated with the application.
     The following sub-attributes are defined:

     type
        The type of URL. Canonical values are: "ssoEndpoint", "loginPage", "api", "homepa
ge".

     primary
        A Boolean value indicating whether this is the primary URL of this type.

     value
        The URL string value.

     description
        A human-readable description of the URL.

  lastAccessed
     Timestamp of when the application was last accessed by any agent or user.
     This attribute can be used for stale access detection and least privilege enforcemen
t.

  oAuthConfiguration
     A complex multi-valued attribute that describes the OAuth connections of the applica
tion.
     The following sub-attributes are defined:

     clientId
        The OAuth client identifier as described in section 2.2 of RFC6749.

     description
        A human-readable description of the client ID.

     audienceUri

The OAuth audience as defined
in the "aud" claim of section 4.1.3 of RFC7519.

issuerUri
The identity provider issuer URI as defined in the "iss" claim
of section 4.1.1 of RFC7519.

redirectUri
A multi-valued attribute containing authorized redirect URIs.

agents
A complex multi-valued attribute referencing agents associated with this application
.
The following sub-attributes are defined:

value
The ID of an agent associated with this application.

ref
A URI reference to an agent associated with this application.

display
The display name of the agent.

type
The relationship type between the agent and application.
Canonical values are: "owned", "authorized", "guest".

externalIdentifiers
A complex multi-valued attribute containing identifiers associated with this applica
tion. OPTIONAL
The following sub-attributes are defined:

type
The type of identifier. Service providers MAY define canonical values.
<!-- Todo: what kind? I’m thinking about the SSO URLs of that application in the
IDP -->

value
The identifier string value.

system
The system or domain this identifier is valid within.

### 5.2.5. Example

Example Agentic Application:

## 6.  Schema JSON Representations

This section provides the complete JSON representation for the schemas defined in this extension.

### 6.1.  Agent Schema JSON

The following is intended as an example of the SCIM schema representation in JSON format for SCIM resources.  Where permitted, individual values and schema MAY change.  This example includes schema representations for "Agent".

```
  {
    "id" : "urn:ietf:params:scim:schemas:core:2.0:Agent",
    "name" : "Agent",
    "description" : "An AI agent",
    "attributes" : [
      {
        "name" : "name",
        "type" : "string",
        "multiValued" : false,
        "description" : "Unique identifier for the Agent, typically used by the agent to
directly authenticate to the service provider. Each Agent MUST include a non-empty name v
alue.  This identifier MUST be unique across the service provider's entire set of Agents.
 REQUIRED.",
        "required" : true,
        "caseExact" : false,
        "mutability" : "readWrite",
        "returned" : "default",
        "uniqueness" : "server"
      },
      {
        "name" : "agentType",
        "type" : "string",
        "multiValued" : false,
        "description" : "Used to classify like agents.  Typical values used might be
'Assistant', 'Reseacher', 'Chat bot', and
'Unknown', but any value may be used.",
        "required" : false,
        "caseExact" : false,
        "mutability" : "readWrite",
        "returned" : "default",
        "uniqueness" : "none"
      },
      {
        "name" : "active",
        "type" : "boolean",
        "multiValued" : false,
        "description" : "A Boolean value indicating the Agent's
administrative status.",
        "required" : false,
```

```
        "mutability" : "readWrite",
        "returned" : "default"
      },
      {
        "name" : "groups",
        "type" : "complex",
        "multiValued" : true,
        "description" : "A list of groups to which the user belongs,
either through direct membership, through nested groups, or
dynamically calculated.",
        "required" : false,
        "subAttributes" : [
          {
            "name" : "value",
            "type" : "string",
            "multiValued" : false,
            "description" : "The identifier of the User’s group.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "$ref",
            "type" : "reference",
            "referenceTypes" : [
              "User",
              "Group"
            ],
            "multiValued" : false,
            "description" : "The URI of the corresponding ’Group’
resource to which the user belongs.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "display",
            "type" : "string",
            "multiValued" : false,
            "description" : "A human-readable name, primarily used
for display purposes.  READ-ONLY.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
```

```
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "type",
            "type" : "string",
            "multiValued" : false,
            "description" : "A label indicating the attribute's
function, e.g., 'direct' or 'indirect'.",
            "required" : false,
            "caseExact" : false,
            "canonicalValues" : [
              "direct",
              "indirect"
            ],
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          }
        ],
        "mutability" : "readOnly",
        "returned" : "default"
      },
      {
        "name" : "entitlements",
        "type" : "complex",
        "multiValued" : true,
        "description" : "A list of entitlements for the User that
represent a thing the User has.",
        "required" : false,
        "subAttributes" : [
          {
            "name" : "value",
            "type" : "string",
            "multiValued" : false,
            "description" : "The value of an entitlement.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readWrite",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "display",
            "type" : "string",
            "multiValued" : false,
            "description" : "A human-readable name, primarily used
for display purposes.  READ-ONLY.",
```

```
            "required" : false,
            "caseExact" : false,
            "mutability" : "readWrite",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "type",
            "type" : "string",
            "multiValued" : false,
            "description" : "A label indicating the attribute’s
function.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readWrite",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "primary",
            "type" : "boolean",
            "multiValued" : false,
            "description" : "A Boolean value indicating the ’primary’
or preferred attribute value for this attribute.  The primary
attribute value ’true’ MUST appear no more than once.",
            "required" : false,
            "mutability" : "readWrite",
            "returned" : "default"
          }
        ],
        "mutability" : "readWrite",
        "returned" : "default"
      },
      {
        "name" : "roles",
        "type" : "complex",
        "multiValued" : true,
        "description" : "A list of roles for the User that
collectively represent who the User is, e.g., ’Student’, ’Faculty’.",
        "required" : false,
        "subAttributes" : [
          {
            "name" : "value",
            "type" : "string",
            "multiValued" : false,
            "description" : "The value of a role.",
            "required" : false,
            "caseExact" : false,
```

```
            "mutability" : "readWrite",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "display",
            "type" : "string",
            "multiValued" : false,
            "description" : "A human-readable name, primarily used
for display purposes.  READ-ONLY.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readWrite",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "type",
            "type" : "string",
            "multiValued" : false,
            "description" : "A label indicating the attribute’s
function.",
            "required" : false,
            "caseExact" : false,
            "canonicalValues" : [],
            "mutability" : "readWrite",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "primary",
            "type" : "boolean",
            "multiValued" : false,
            "description" : "A Boolean value indicating the ’primary’
or preferred attribute value for this attribute.  The primary
attribute value ’true’ MUST appear no more than once.",
            "required" : false,
            "mutability" : "readWrite",
            "returned" : "default"
          }
        ],
        "mutability" : "readWrite",
        "returned" : "default"
      },
      {
        "name" : "x509Certificates",
        "type" : "complex",
        "multiValued" : true,
```

```
        "description" : "A list of certificates issued to the User.",
        "required" : false,
        "caseExact" : false,
        "subAttributes" : [
          {
            "name" : "value",
            "type" : "binary",
            "multiValued" : false,
            "description" : "The value of an X.509 certificate.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readWrite",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "display",
            "type" : "string",
            "multiValued" : false,
            "description" : "A human-readable name, primarily used
for display purposes.  READ-ONLY.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readWrite",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "type",
            "type" : "string",
            "multiValued" : false,
            "description" : "A label indicating the attribute's
function.",
            "required" : false,
            "caseExact" : false,
            "canonicalValues" : [],
            "mutability" : "readWrite",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "primary",
            "type" : "boolean",
            "multiValued" : false,
            "description" : "A Boolean value indicating the 'primary'
or preferred attribute value for this attribute.  The primary
attribute value 'true' MUST appear no more than once.",
            "required" : false,
```

```
            "mutability" : "readWrite",
            "returned" : "default"
          }
        ],
        "mutability" : "readWrite",
        "returned" : "default"
      },
      {
        "name": "applications",
        "type" : "complex",
        "multiValued" : true,
        "description" : "A list of applications to which the agent belongs.",
        "required" : false,
        "subAttributes" : [
          {
            "name" : "value",
            "type" : "string",
            "multiValued" : false,
            "description" : "The identifier of the Agent’s application.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "$ref",
            "type" : "reference",
            "referenceTypes" : [
              "AgenticApplication"
            ],
            "multiValued" : false,
            "description" : "The URI of the corresponding ’AgenticApplication’
resource to which the user belongs.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "display",
            "type" : "string",
            "multiValued" : false,
            "description" : "A human-readable name, primarily used
for display purposes.  READ-ONLY.",
            "required" : false,
            "caseExact" : false,
```

```
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          }
        ],
        "mutability" : "readOnly",
        "returned" : "default"
      },
      {
         "name": "subject",
         "type" : "string",
         "multiValued" : false,
         "description" : "The subject to use for this agent in inbound tokens READ-ONLY."
,
         "required" : false,
         "caseExact" : false,
         "mutability" : "readOnly",
         "returned" : "default",
         "uniqueness" : "none"
      },
      {
        "name": "owners",
        "type" : "complex",
        "multiValued" : true,
        "description" : "A list of users or groups that are the accountable parties for t
he agent.",
        "required" : false,
        "subAttributes" : [
          {
            "name" : "value",
            "type" : "string",
            "multiValued" : false,
            "description" : "The identifier of the Agent's application.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "$ref",
            "type" : "reference",
            "referenceTypes" : [
              "User",
              "Group"
            ],
            "multiValued" : false,
            "description" : "The URI of the corresponding 'User' or 'Group'",
            "required" : false,
            "caseExact" : false,
```

```
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "display",
            "type" : "string",
            "multiValued" : false,
            "description" : "A human-readable name, primarily used
for display purposes.  READ-ONLY.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          }
        ],
        "mutability" : "readOnly",
        "returned" : "default"
      },
      {
         "name": "protocols",
         "type" : "complex",
         "multiValued" : true,
         "description" : "A list of protocols to communicate with the Agent.",
         "required" : false,
         "subAttributes" : [
             {
               "name" : "type",
               "type" : "string",
               "multiValued" : false,
               "description" : "One of the canonical protocol types.",
               "required" : false,
               "caseExact" : false,
               "mutability" : "readOnly",
               "returned" : "default",
               "uniqueness" : "none"
             },
             {
               "name" : "specifiationUrl",
               "type" : "string",
               "multiValued" : false,
               "description" : "URL of the specification for the protocol for this agent.
",
               "required" : false,
               "caseExact" : false,
               "mutability" : "readOnly",
               "returned" : "default",
               "uniqueness" : "none"
```

```
            }
          ],
          "mutability" : "readOnly",
          "returned" : "default"
      },
      {
        "name": "parent",
        "type" : "complex",
        "multiValued" : false,
        "description" : "Parent agent.",
        "required" : false,
        "subAttributes" : [
          {
            "name" : "value",
            "type" : "string",
            "multiValued" : false,
            "description" : "The identifier of the parent Agent",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "$ref",
            "type" : "reference",
            "referenceTypes" : [
              "Agent"
            ],
            "multiValued" : false,
            "description" : "The URI of the corresponding 'Agent'",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
          },
          {
            "name" : "display",
            "type" : "string",
            "multiValued" : false,
            "description" : "A human-readable name, primarily used
for display purposes.  READ-ONLY.",
            "required" : false,
            "caseExact" : false,
            "mutability" : "readOnly",
            "returned" : "default",
            "uniqueness" : "none"
```

```
          }
        ],
        "mutability" : "readOnly",
        "returned" : "default"
      }
    ],
    "meta" : {
      "resourceType" : "Schema",
      "location" :
        "/v2/Schemas/urn:ietf:params:scim:schemas:core:2.0:Agent"
    }
  }
```

### 6.2. Agentic Application Schema JSON

## 7. Security Considerations

-> fill out

## 8. IANA Considerations

This document has no IANA actions.

## 9. Change Log

-01

* Macy finish up Agent schema description, JSON representation and schema

* Rafael contribution of agent app

-00

* Initial draft extension.

## 10. References

### 10.1. Normative References

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### 10.2. Informative References

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## Appendix A. Acknowledgments

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* Agent communication protocol (https://agentcommunicationprotocol.dev/core-concepts/agent-discovery)

* Agent 2 Agent (https://a2a-protocol.org/latest/topics/agent-discovery/)

* Agent name service (https://genai.owasp.org/resource/agent-name-service-ans-for-secure-al-agent-discovery-v1-0/)

* AGNTCY directory (https://docs.agntcy.org/dir/overview/)

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