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**System for Cross-Domain Identity Management: Core Schema**  
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**Abstract**

The System for Cross-Domain Identity Management (SCIM) specification is designed to make managing user identity in cloud based applications and services easier. The specification suite builds upon experience with existing schemas and deployments, placing specific emphasis on simplicity of development and integration, while applying existing authentication, authorization, and privacy models. Its intent is to reduce the cost and complexity of user management operations by providing a common user schema and extension model, as well as binding documents to provide patterns for exchanging this schema using standard protocols. In essence, make it fast, cheap, and easy to move identity in to, out of, and around the cloud.

This document provides a platform neutral schema and extension model for representing users and groups in JSON format. This schema is intended for exchange and use with cloud service providers. Additional binding documents provide a standard REST API, SAML binding, and use cases.

**Status of This Memo**

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## **1. Requirements Notation and Conventions**

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)] .

Throughout this document, values are quoted to indicate that they are to be taken literally. When using these values in protocol messages, the quotes MUST NOT be used as part of the value.

## **2. Overview**

While there are existing standards for describing and exchanging user information, many of these standards can be difficult to implement and/or use; e.g., their wire protocols do not easily traverse firewalls and/or are not easily layered onto existing web protocols. As a result, many cloud providers implement non-standard APIs for managing users within their services. 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. Similarly, cloud services providers seeking to interoperate with multiple application marketplaces or cloud identity providers must be redundantly integrated.

SCIM seeks to simplify this problem through a simple to implement specification suite that provides a common user schema and extension model, as well as binding documents to provide patterns for exchanging this schema via a REST API. It draws inspiration and best practice, building upon existing user APIs and schemas from a wide variety of sources including, but not limited to, existing APIs exposed by cloud providers, PortableContacts, and LDAP directory services.

This document provides a platform neutral schema and extension model for representing users and groups in JSON format. This schema is



intended for exchange and use with cloud service providers. Additional binding documents provide a standard REST API, SAML binding, and use cases.

### **2.1. Definitions**

**Service Provider:** An HTTP web application that provides identity information via the SCIM protocol.

**Client:** A website or application that uses the SCIM protocol to manage identity data maintained by the service provider. The client initiates SCIM HTTP requests to a target service provider.

**Resource:** The service provider managed artifact containing one or more attributes; e.g., "User" or "Group".

**Resource Type:** A type of a resource that is managed by a service provider. The resource type defines the resource name, endpoint URL, Schemas, and other meta-data which indicate where a resource is managed and how it is composed; e.g., "User" or "Group".

**Schema:** A collection of Attribute Definitions that describe the contents of an entire or partial resource; e.g., "urn:scim:schemas:core:2.0:User".

**Singular Attribute:** A resource attribute that contains 0..1 values; e.g., "displayName".

**Multi-valued Attribute:** A resource attribute that contains 0..n values; e.g., "emails".

**Simple Attribute:** A singular or multi-valued attribute whose value is a primitive; e.g., "String".

**Complex Attribute:** A singular or multi-valued attribute whose value is a composition of one or more simple attributes; e.g., "addresses".

**Sub-Attribute:** A simple attribute contained within a complex attribute.

### **3. SCIM Schema Structure**

SCIM schema provides a minimal core schema for representing users and groups (resources), encompassing common attributes found in many existing deployments and schemas.



A resource is a collection of attributes identified by one or more schemas. Minimally, an attribute consists of the attribute name and at least one simple or complex value either of which may be multi-valued. SCIM schema defines the data type, plurality and other distinguishing features of an attribute. Unless otherwise specified all attributes are modifiable by consumers. Attribute definitions contain a property "mutability" that determines whether an attribute is: "readOnly", "writeOnly", "immutable", or "readWrite"(the default). Additionally, service providers MAY define other properties such as returnability Resource's schema endpoint ([Section 5.2](#)).

A JSON (JavaScript Object Notation) format [[RFC4627](#)] is defined. Attribute names SHOULD be camelCased. SCIM resources represented in JSON MUST specify schema via the "schemas" attribute [Section 5.2](#).

### **[3.1](#). Attribute Data Types**

Attribute data types are derived from JSON [[RFC4627](#)] and unless otherwise specified have the following characteristics (see [Section 11](#) for attribute characteristic definitions):

- are optional ("required=false").
- are case insensitive ("caseExact=false"),
- are modifiable ("mutability=readWrite"),
- are returned in response to queries ("returned=default"),
- are not unique ("uniqueness=none"), and,
- of type String ([Section 3.1.1](#)).

The JSON format defines a limited set of data types, hence, where appropriate, alternate JSON representations derived from XML Schema [[XML-Schema](#)] are defined below. SCIM extensions SHOULD NOT introduce new data types.

#### **[3.1.1](#). String**

A sequence of zero or more Unicode characters. The JSON format is defined in [Section 2.5](#) [[RFC4627](#)]. A "String" attribute MAY specify a required data format. Additionally, when canonical values are specified service providers SHOULD conform to those values if appropriate, but MAY provide alternate "String" values to represent additional values.





### **[3.1.2.](#) Boolean**

The literal "true" or "false". The JSON format is defined in [Section 2.1 \[RFC4627\]](#) .

### **[3.1.3.](#) Decimal**

A real number with at least one digit to the left and right of the period. The JSON format is defined in [Section 2.4 \[RFC4627\]](#) .

### **[3.1.4.](#) Integer**

A decimal number with no fractional digits. The JSON format is defined in [Section 2.4 \[RFC4627\]](#) with the additional constraint that the value MUST NOT contain fractional or exponent parts.

### **[3.1.5.](#) DateTime**

A DateTime value (e.g. 2008-01-23T04:56:22Z). The attribute value MUST be encoded as a valid xsd:dateTime as specified in [Section 3.2.7 \[XML-Schema\]](#) .

Values represented in JSON MUST conform to the XML constraints above and are represented as a JSON String per [Section 2.5 \[RFC4627\]](#).

### **[3.1.6.](#) Binary**

Arbitrary binary data. The attribute value MUST be encoded as a valid xsd:base64Binary as specified in [Section 3.2.16 \[XML-Schema\]](#) .

Values represented in JSON MUST conform to the XML constraints above and are represented as a JSON String per [Section 2.5 \[RFC4627\]](#).

### **[3.1.7.](#) Reference**

A reference to a SCIM resource. The value MUST be the absolute or relative URI of the target resource. Relative URIs should be resolved as specified in [Section 5.2 \[RFC3986\]](#). The base URI for relative URI resolution MUST include all URI components and path segments up to but not including the Endpoint URI; e.g., the base URI for a request to "https://example.com/v2/Users/2819c223-7f76-453a-919d-413861904646" would be "https://example.com/v2/" and the relative URI for this resource would be "Users/2819c223-7f76-453a-919d-413861904646".

Performing a GET operation on a reference URI MUST return the target resource or an appropriate HTTP response code. The service provider



MAY optionally choose to enforce referential integrity for references.

By convention, a reference is commonly represented as a "\$ref" sub-attribute in complex or multi-valued attributes, however this is OPTIONAL.

### **3.1.8. Complex**

A singular or multi-valued attribute whose value is a composition of one or more simple Attributes. The JSON format is defined in [Section 2.2 \[RFC4627\]](#) .

### **3.2. Multi-valued Attributes**

Multi-valued attributes are unordered lists of attributes. Each attribute MAY contain Sub-Attributes and therefore multi-valued attributes may contain complex attributes. The sub-attributes below are considered normative and when specified SHOULD be used as defined.

type A label indicating the attribute's function; e.g., "work" or "home".

primary A boolean value indicating the 'primary' or preferred attribute value for this attribute, e.g. the preferred mailing address or primary e-mail address. The primary attribute value "true" MUST appear no more than once.

display A human readable name, primarily used for display purposes and has a mutability of "immutable".

operation The operation to perform on the multi-valued attribute during a PATCH request. The only valid value is "delete", which signifies that this instance should be removed from the resource.

value The attribute's significant value; e.g., the e-mail address, phone number, etc. Attributes that define a "value" sub-attribute MAY be alternately represented as a collection of primitive types. For example:

```
{
  "emails": [
    {"value":"bjensen@example.com"},
    {"value":"babs@example.com"}
  ]
}
```



May also be represented as:

```
{
  "emails": ["bjensen@example.com", "babs@example.com"]
}
```

\$ref The reference URI of the target resource, if the attribute is a reference.

When returning multi-valued attributes, service providers SHOULD canonicalize the value returned, if appropriate (e.g. for e-mail addresses and URLs). Service providers MAY return the same value more than once with different types (e.g. the same e-mail address may be used for work and home), but SHOULD NOT return the same (type, value) combination more than once per Attribute, as this complicates processing by the Consumer.

#### **[4.](#) Schema Extension Model**

SCIM schema follows an object extension model similar to ObjectClasses used in LDAP. Unlike LDAP there is no inheritance model; all extensions are additive (similar to LDAP Auxiliary Object Class [[RFC4512](#)]). Each value indicates additive schema that may exist in a SCIM representation as specified by extensions not defined in this suite. Schema extensions MUST NOT redefine any attributes defined in this specification and SHOULD follow conventions defined in this specification. Each schema extension must identify a URI used to identify the extension. The JSON format MUST use the "schemas" attribute [Section 5.2](#) to distinguish extended resources and attributes.

#### **[5.](#) SCIM Core Schema**

##### **[5.1.](#) Common Schema Attributes**

Each SCIM resource (Users, Groups, etc.) includes the below common attributes. These attributes MUST be included in all resources, including any extended resource types. It is not necessary to specify the schemas attribute if the resource is fully defined in this document as the core schema is implicitly included.

id Unique identifier for the SCIM resource as defined by the service provider. Each representation of the resource MUST include a non-empty "id" value. This identifier MUST be unique across the service provider's entire set of resources. It MUST be a stable, non-reassignable identifier that does not change when the same resource is returned in subsequent requests. The value of the "id" attribute is always issued by the service provider and MUST



never be specified by the client. `bulkId`: is a reserved keyword and MUST NOT be used in the unique identifier. REQUIRED and has a mutability of "readOnly".

`externalId` An identifier for the resource as defined by the client. The "externalId" may simplify identification of the resource between client and service provider by allowing the client to refer to the resource with its own identifier, obviating the need to store a local mapping between the local identifier of the resource and the identifier used by the service provider. Each resource MAY include a non-empty externalId value. The value of the "externalId" attribute is always issued by the client and can never be specified by the service provider. The service provider MUST always interpret the externalId as scoped to the client's tenant.

`meta` A complex attribute containing resource metadata. All sub-attributes are OPTIONAL

`resourceType` The name of the resource type of the resource. Attribute has mutability of "readOnly".

`created` The DateTime the resource was added to the service provider. The attribute MUST be a DateTime. Attribute has mutability of "readOnly".

`lastModified` The most recent DateTime the details of this resource were updated at the service provider. If this resource has never been modified since its initial creation, the value MUST be the same as the value of created. The attribute MUST be a DateTime. Attribute has mutability of "readOnly".

`location` The URI of the resource being returned. This value MUST be the same as the Location HTTP response header. Attribute has mutability of "readOnly".

`version` The version of the resource being returned. This value must be the same as the ETag HTTP response header. Attribute has mutability of "readOnly".

`attributes` The names of the attributes to remove from the resource during a PATCH operation.





## **5.2. "schemas" Attribute**

SCIM supports resources of different types, with extensible schemas. Each resource **MUST** be indicated using fully qualified URLs.

A "schemas" attribute is used to indicate the version of SCIM schema as well as any schema extensions.

**schemas** The schemas attribute is an array of strings which allows introspection of the supported schema version for a SCIM representation as well any schema extensions supported by that representation. Each String value must be a unique URI. This specification defines URIs for User, Group, and a standard enterprise-user extension. All representations of SCIM schema **MUST** include a non-zero value array with value(s) of the URIs supported by that representation. The schemas attribute for a resource **MUST** only contain values defined as "schema" and "schemaExtensions" for the resource's resource type. Duplicate values **MUST NOT** be included. Value order is not specified and **MUST** not impact behavior. **REQUIRED.**

## **6. SCIM User Schema**

SCIM provides a schema for representing Users, identified using the following URI: "urn:scim:schemas:core:2.0:User". The following attributes are defined in addition to those attributes defined in SCIM Core Schema:

### **6.1. Singular Attributes**

**userName** Unique identifier for the user, typically used by the user to directly authenticate to the service provider. Often displayed to the user as their unique identifier within the system (as opposed to id or externalId, which are generally opaque and not user-friendly identifiers). Each User **MUST** include a non-empty userName value. This identifier **MUST** be unique across the client's entire set of Users. **RECOMMENDED.**

**name** The components of the user's real name. Service providers **MAY** return just the full name as a single string in the formatted sub-attribute, or they **MAY** return just the individual component attributes using the other sub-attributes, or they **MAY** return both. If both variants are returned, they **SHOULD** be describing the same name, with the formatted name indicating how the component attributes should be combined.



**formatted** The full name, including all middle names, titles, and suffixes as appropriate, formatted for display (e.g. "Ms. Barbara Jane Jensen, III.").

**familyName** The family name of the User, or last name in most Western languages (e.g. "Jensen" given the full name "Ms. Barbara Jane Jensen, III.").

**givenName** The given name of the User, or first name in most Western languages (e.g. "Barbara" given the full name "Ms. Barbara Jane Jensen, III.").

**middleName** The middle name(s) of the User (e.g. "Jane" given the full name "Ms. Barbara Jane Jensen, III.").

**honorificPrefix** The honorific prefix(es) of the User, or title in most Western languages (e.g. "Ms." given the full name "Ms. Barbara Jane Jensen, III.").

**honorificSuffix** The honorific suffix(es) of the User, or suffix in most Western languages (e.g. "III." given the full name "Ms. Barbara Jane Jensen, III.").

**displayName** The name of the user, suitable for display to end-users. Each user returned MAY include a non-empty displayName value. The name SHOULD be the full name of the User being described if known (e.g. "Babs Jensen" or "Ms. Barbara J Jensen, III"), but MAY be a username or handle, if that is all that is available (e.g. "bjensen"). The value provided SHOULD be the primary textual label by which this User is normally displayed by the service provider when presenting it to end-users.

**nickName** The casual way to address the user in real life, e.g. "Bob" or "Bobby" instead of "Robert". This attribute SHOULD NOT be used to represent a User's username (e.g. bjensen or mpepperidge).

**profileUrl** A fully qualified URL to a page representing the user's online profile.

**title** The user's title, such as "Vice President".

**userType** Used to identify the organization to user relationship. Typical values used might be "Contractor", "Employee", "Intern", "Temp", "External", and "Unknown" but any value may be used.

**preferredLanguage** Indicates the user's preferred written or spoken language. Generally used for selecting a localized User interface. Valid values are concatenation of the ISO 639-1 two



letter language code per [[ISO639-2](#)], an underscore, and the ISO 3166-1 2 letter country code[ISO3166]; e.g., 'en\_US' specifies the language English and country US.

**locale** Used to indicate the User's default location for purposes of localizing items such as currency, date time format, numerical representations, etc. A locale value is a concatenation of the ISO 639-1 two letter language code[ISO639-2], an underscore, and the ISO 3166-1 2 letter country code[ISO3166]; e.g., 'en\_US' specifies the language English and country US.

**timezone** The User's time zone in the "Olson" timezone database format[Olson-TZ]; e.g., 'America/Los\_Angeles'.

**active** A Boolean value indicating the user's administrative status. The definitive meaning of this attribute is determined by the service provider. As a typical example, a value of true infers the user is able to login while a value of false implies the user's account has been suspended.

**password** The user's clear text password. This attribute is intended to be used as a means to specify an initial password when creating a new User or to reset an existing User's password. Password policies and the ability to update or set passwords are out of scope of this document. The mutability of this attribute is "writeOnly" indicating the value MUST NOT be returned by a service provider in any form.

## **[6.2.](#) Multi-valued Attributes**

The following multi-valued attributes are defined.

**emails** E-mail addresses for the User. The value SHOULD be canonicalized by the service provider, e.g. "bjensen@example.com" instead of "bjensen@EXAMPLE.COM". Canonical type values of "work", "home", and "other".

**phoneNumbers** Phone numbers for the user. The value SHOULD be canonicalized by the service provider according to format in [[RFC3966](#)] e.g. 'tel:+1-201-555-0123'. Canonical type values of "work", "home", "mobile", "fax", "pager", and "other".

**ims** Instant messaging address for the user. No official canonicalization rules exist for all instant messaging addresses, but service providers SHOULD, when appropriate, remove all whitespace and convert the address to lowercase. Instead of the standard canonical values for type, this attribute defines the following canonical values to represent currently popular IM



services: "aim", "gtalk", "icq", "xmpp", "msn", "skype", "qq", "yahoo", and "other".

photos URL of a photo of the User. The value SHOULD be a canonicalized URL, and MUST point to an image file (e.g. a GIF, JPEG, or PNG image file) rather than to a web page containing an image. Service providers MAY return the same image at different sizes, though it is recognized that no standard for describing images of various sizes currently exists. Note that this attribute SHOULD NOT be used to send down arbitrary photos taken by this user, but specifically profile photos of the user suitable for display when describing the user. Instead of the standard canonical values for type, this attribute defines the following canonical values to represent popular photo sizes: "photo", "thumbnail".

addresses A physical mailing address for this user. Canonical type values of "work", "home", and "other". The value attribute is a complex type with the following sub-attributes. All sub-attributes are OPTIONAL.

formatted The full mailing address, formatted for display or use with a mailing label. This attribute MAY contain newlines.

streetAddress The full street address component, which may include house number, street name, P.O. box, and multi-line extended street address information. This attribute MAY contain newlines.

locality The city or locality component.

region The state or region component.

postalCode The zipcode or postal code component.

country The country name component. When specified the value MUST be in ISO 3166-1 alpha 2 "short" code format[ISO3166]; e.g., the United States and Sweden are "US" and "SE", respectively.

groups A list of groups that the user belongs to, either thorough direct membership, nested groups, or dynamically calculated. The values are meant to enable expression of common group or role based access control models, although no explicit authorization model is defined. It is intended that the semantics of group membership and any behavior or authorization granted as a result of membership are defined by the service provider. The canonical types "direct" and "indirect" are defined to describe how the





group membership was derived. Direct group membership indicates the user is directly associated with the group and SHOULD indicate that clients may modify membership through the "Group" resource. Indirect membership indicates user membership is transitive or dynamic and implies that clients cannot modify indirect group membership through the "Group" resource but MAY modify direct group membership through the "Group" resource which MAY influence indirect memberships. If the SCIM service provider exposes a Group resource, the "value" sub-attribute MUST be the "id" and the "\$ref" sub-attribute must be the URI of the corresponding "Group" resources to which the user belongs. Since this attribute has a mutability of "readOnly", group membership changes MUST be applied via the Group Resource ([Section 8](#)). The attribute has a mutability of "readOnly".

**entitlements** A list of entitlements for the user that represent a thing the user has. An entitlement MAY be an additional right to a thing, object, or service. No vocabulary or syntax is specified and service providers and clients are expected to encode sufficient information in the value so as to accurately and without ambiguity determine what the user has access to. This value has NO canonical types though type may be useful as a means to scope entitlements.

**roles** A list of roles for the user that collectively represent who the user is; e.g., "Student, Faculty". No vocabulary or syntax is specified though it is expected that a role value is a String or label representing a collection of entitlements. This value has NO canonical types.

**x509Certificates** A list of certificates issued to the User. Values are Binary ([Section 3.1.6](#)) and DER encoded x509. This value has NO canonical types.

## **7. SCIM Enterprise User Schema Extension**

The following SCIM extension defines attributes commonly used in representing users that belong to, or act on behalf of a business or enterprise. The enterprise user extension is identified using the following schema URI:

"urn:scim:schemas:extension:enterprise:2.0:User".

The following Singular Attributes are defined:

**employeeNumber** Numeric or alphanumeric identifier assigned to a person, typically based on order of hire or association with an organization.



costCenter Identifies the name of a cost center.

organization Identifies the name of an organization.

division Identifies the name of a division.

department Identifies the name of a department.

manager The user's manager. A complex type that optionally allows service providers to represent organizational hierarchy by referencing the "id" attribute of another User.

value The "id" of the SCIM resource representing the user's manager. RECOMMENDED.

\$ref The URI of the SCIM resource representing the User's manager. RECOMMENDED.

displayName The displayName of the user's manager. This attribute is OPTIONAL and mutability is "readOnly".

## **8. SCIM Group Schema**

SCIM provides a schema for representing groups, identified using the following schema URI: "urn:scim:schemas:core:2.0:Group".

Group resources are meant to enable expression of common group or role based access control models, although no explicit authorization model is defined. It is intended that the semantics of group membership and any behavior or authorization granted as a result of membership are defined by the service provider are considered out of scope for this specification.

The following singular attribute is defined in addition to the common attributes defined in SCIM core schema:

displayName A human readable name for the Group. REQUIRED.

The following multi-valued attribute is defined in addition to the common attributes defined in SCIM Core Schema:

members A list of members of the Group. While values MAY be added or removed, sub-attributes of members are "immutable". The "value" sub-attribute must be the "id" and the "\$ref" sub-attribute must be the URI of a SCIM resource, either a "User", or a "Group". The intention of the "Group" type is to allow the service provider to support nested groups. Service providers MAY require clients to provide a non-empty members value based on the



"required" sub attribute of the "members" attribute in the "Group" resource schema.

## 9. Service Provider Configuration Schema

SCIM provides a schema for representing the service provider's configuration identified using the following schema URI:  
"urn:scim:schemas:core:2.0:ServiceProviderConfig"

The service provider configuration resource enables a service provider to discovery of SCIM specification features in a standardized form as well as provide additional implementation details to clients. All attributes are READ-ONLY (a mutability of "readOnly"). Unlike other core resources, the "id" attribute is not required for the service provider configuration resource.

The following Singular Attributes are defined in addition to the common attributes defined in Core Schema:

`documentationUrl` An HTTP addressable URL pointing to the service provider's human consumable help documentation.

`patch` A complex type that specifies PATCH configuration options. REQUIRED.

`supported` Boolean value specifying whether the operation is supported. REQUIRED.

`bulk` A complex type that specifies BULK configuration options. REQUIRED

`supported` Boolean value specifying whether the operation is supported. REQUIRED.

`maxOperations` An integer value specifying the maximum number of operations. REQUIRED.

`maxPayloadSize` An integer value specifying the maximum payload size in bytes. REQUIRED.

`filter` A complex type that specifies FILTER options. REQUIRED.

`supported` Boolean value specifying whether the operation is supported. REQUIRED.

`maxResults` Integer value specifying the maximum number of resources returned in a response. REQUIRED.



**changePassword** A complex type that specifies Change Password configuration options. REQUIRED.

**supported** Boolean value specifying whether the operation is supported. REQUIRED.

**sort** A complex type that specifies Sort configuration options. REQUIRED.

**supported** Boolean value specifying whether sorting is supported. REQUIRED.

**etag** A complex type that specifies Etag configuration options. REQUIRED.

**supported** Boolean value specifying whether the operation is supported. REQUIRED.

The following multi-valued attribute is defined in addition to the common attributes defined in core schema:

**authenticationSchemes** A complex type that specifies supported Authentication Scheme properties. This attribute defines the following canonical values to represent common schemes: "oauth", "oauth2", "oauthbearer token", "httpbasic", and "httdigest". To enable seamless discovery of configuration, the service provider SHOULD, with the appropriate security considerations, make the authenticationSchemes attribute publicly accessible without prior authentication. REQUIRED.

**name** The common authentication scheme name; e.g., HTTP Basic. REQUIRED.

**description** A description of the Authentication Scheme. REQUIRED.

**specUrl** A HTTP addressable URL pointing to the Authentication Scheme's specification. OPTIONAL.

**documentationUrl** A HTTP addressable URL pointing to the Authentication Scheme's usage documentation. OPTIONAL.

## **10. ResourceType Schema**

The "ResourceType" schema specifies the meta-data about a resource type. Resource type resources are READ-ONLY and identified using the following schema URI: "urn:scim:schemas:core:2.0:ResourceType". Unlike other core resources, all attributes are REQUIRED unless





otherwise specified. The "id" attribute is not required for the resource type resource.

The following Singular Attributes are defined:

**id** The resource type's server unique id. Often this is the same value as the "name" attribute. OPTIONAL

**name** The resource type name. When applicable service providers MUST specify the name specified in the core schema specification; e.g., "User" or "Group". This name is referenced by the "meta.resourceType" attribute in all resources.

**description** The resource type's human readable description. When applicable service providers MUST specify the description specified in the core schema specification.

**endpoint** The resource type's HTTP addressable endpoint relative to the Base URL; e.g., "/Users".

**schema** The resource type's primary schema URI; e.g., "urn:scim:schemas:core:2.0:User". This MUST be equal to the "id" attribute of the associated "Schema" resource.

**schemaExtensions** A list of URIs of the resource type's schema extensions. OPTIONAL.

**schema** The URI of an extended schema; e.g., "urn:edu:2.0:Staff". This MUST be equal to the "id" attribute of a "Schema" resource. REQUIRED.

**required** A Boolean value that specifies whether the schema extension is required for the resource type. If true, a resource of this type MUST include this schema extension and include any attributes declared as required in this schema extension. If false, a resource of this type MAY omit this schema extension. REQUIRED.

## **11. Schema Schema**

The "Schema" schema specifies the attribute(s) and meta-data that constitute a "Schema" resource. Schema resources have mutability of "readOnly" and identified using the following URI: "urn:scim:schemas:core:2.0:Schema". Unlike other core resources the "Schema" resource MAY contain a complex object within a sub-attribute and all attributes are REQUIRED unless otherwise specified.

The following Singular Attributes are defined:



**id** The unique URI of the schema. When applicable service providers MUST specify the URI specified in the core schema specification; e.g., "urn:scim:schemas:core:2.0:User". Unlike most other schemas, which use some sort of a GUID for the "id", the schema "id" is a URI so that it can be registered and is portable between different service providers and clients.

**name** The schema's human readable name. When applicable service providers MUST specify the name specified in the core schema specification; e.g., "User" or "Group". OPTIONAL.

**description** The schema's human readable description. When applicable service providers MUST specify the description specified in the core schema specification. OPTIONAL.

The following multi-valued attribute is defined:

**attributes** A complex type that specifies the set of resource attributes.

**name** The attribute's name.

**type** The attribute's data type; e.g., "String".

**multiValued** Boolean value indicating the attribute's plurality.

**description** The attribute's human readable description. When applicable service providers MUST specify the description specified in the core schema specification.

**required** A Boolean value that specifies if the attribute is required.

**caseExact** A Boolean value that specifies if the String attribute is case sensitive.

**mutability** A single keyword indicating what types of modifications an attribute MAY accept as follows:

**readOnly** The attribute MAY NOT be modified.

**readWrite** The attribute MAY be updated and read at any time. DEFAULT.

**immutable** The attribute MAY be defined at resource creation (e.g. POST) or at record replacement via request (e.g. a PUT). The attribute MAY NOT be updated.



**writeOnly** The attribute MAY be updated at any time. Attribute values MAY NOT be returned (e.g. because the value is a stored hash). Note: an attribute with mutability of "writeOnly" usually also has a returned setting of "never".

**returned** A single keyword that indicates when an attribute and associated values are returned in response to a GET request or in response to a PUT, POST, or PATCH request. Valid keywords are:

**always** The attribute is always returned regardless of the contents of the "attributes" parameter. For example, "id" is always returned to identify a SCIM resource.

**never** The attribute is never returned. This may occur because the original attribute value is not retained by the service provider (e.g. such as with a hashed value). A service provider MAY allow attributes to be used in a search filter.

**default** The attribute is returned by default in all SCIM operation responses where attribute values are returned. If the GET request "attributes" parameter is specified, attribute values are only returned if the attribute is named in the attributes parameter. DEFAULT.

**request** The attribute is returned in response to any PUT, POST, or PATCH operations if the attribute was specified by the client (for example, the attribute was modified). The attribute is returned in a SCIM query operation only if specified in the "attributes" parameter.

**uniqueness** A single keyword value that specifies how the service provider enforces uniqueness of attribute values. A server MAY reject an invalid value based on uniqueness by returning HTTP Response code 400 (Bad Request). A client MAY enforce uniqueness on the client-side to a greater degree than the service provider enforces. For example, a client could make a value unique while the server has uniqueness of "none". Valid keywords are:

**none** The values are not intended to be unique in any way. DEFAULT.

**server** The value SHOULD be unique within the context of the current SCIM endpoint (or tenancy) but MAY not be globally unique (e.g. a "username", email address, or other server generated key or counter). No two resources on the same server SHOULD possess the same value.



**global** The value SHOULD be globally unique (e.g. an email address, a GUID, or other value). No two resources on any server SHOULD possess the same value.

**referenceTypes** The names of the resource types that may be referenced; e.g., "User". This is only applicable for attributes that are of the "reference" [Section 3.1.7](#) data type.

The following multi-valued attributes are defined. There are no canonical type values defined and the primary value serves no useful purpose.

**name** The attribute's name.

**type** The attribute's data type; e.g., String.

**description** The attribute's human readable description. When applicable service providers MUST specify the description specified in the core schema specification.

**required** A Boolean value that specifies if the attribute is required.

**caseExact** A Boolean value that specifies if the String attribute is case sensitive.

**referenceTypes** The names of the resource types that may be referenced; e.g., User. This is only applicable for attributes that are of the "reference" [Section 3.1.7](#) data type.

**canonicalValues** A collection of canonical values. When applicable service providers MUST specify the canonical types specified in the core schema specification; e.g., "work", "home". OPTIONAL.

**mutability** A single keyword indicating what types of modifications an attribute MAY accept as follows:

**readOnly** The attribute MAY NOT be modified.

**readWrite** The attribute MAY be updated and read at any time. DEFAULT.

**immutable** The attribute MAY be defined at resource creation (e.g. POST) or at record replacement via request (e.g. a PUT). The attribute MAY NOT be updated.





**writeOnly** The attribute MAY be updated at any time. Attribute values MAY NOT be returned (e.g. because the value is a stored hash). Note: an attribute with mutability of "writeOnly" usually also has a returned setting of "never".

**returned** A single keyword that indicates when an attribute and associated values are returned in response to a GET request or in response to a PUT, POST, or PATCH request. Valid keywords are:

**always** The attribute is always returned regardless of the contents of the "attributes" parameter. For example, "id" is always returned to identify a SCIM resource.

**never** The attribute is never returned. This may occur because the original attribute value is not retained by the service provider (e.g. such as with a hashed value). A service provider MAY allow attributes to be used in a search filter.

**default** The attribute is returned by default in all SCIM operation responses where attribute values are returned. If the GET request "attributes" parameter is specified, attribute values are only returned if the attribute is named in the attributes parameter. DEFAULT.

**request** The attribute is returned in response to any PUT, POST, or PATCH operations if the attribute was specified by the client (for example, the attribute was modified). The attribute is returned in a SCIM query operation only if specified in the "attributes" parameter.

**uniqueness** A single keyword value that specifies how the service provider enforces uniqueness of attribute values. A server MAY reject an invalid value based on uniqueness by returning HTTP Response code 400 (Bad Request). A client MAY enforce uniqueness on the client-side to a greater degree than the service provider enforces. For example, a client could make a value unique while the server has uniqueness of "none". Valid keywords are:

**none** The values are not intended to be unique in any way. DEFAULT.

**server** The value SHOULD be unique within the context of the current SCIM endpoint (or tenancy) but MAY not be globally unique (e.g. a "username", email address, or



other server generated key or counter). No two resources on the same server SHOULD possess the same value.

global The value SHOULD be globally unique (e.g. an email address, a GUID, or other value). No two resources on any server SHOULD possess the same value.

## **[12. JSON Representation](#)**

### **[12.1. Minimal User Representation](#)**

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

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

### **[12.2. Full User Representation](#)**

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

```
{
  "schemas": ["urn:scim:schemas:core:2.0:User"],
  "id": "2819c223-7f76-453a-919d-413861904646",
  "externalId": "701984",
  "userName": "bjensen@example.com",
  "name": {
    "formatted": "Ms. Barbara J Jensen III",
    "familyName": "Jensen",
    "givenName": "Barbara",
    "middleName": "Jane",
    "honorificPrefix": "Ms.",
    "honorificSuffix": "III"
  },
  "displayName": "Babs Jensen",
  "nickName": "Babs",
  "profileUrl": "https://login.example.com/bjensen",
}
```



```
"emails": [  
  {  
    "value": "bjensen@example.com",  
    "type": "work",  
    "primary": true  
  },  
  {  
    "value": "babs@jensen.org",  
    "type": "home"  
  }  
],  
"addresses": [  
  {  
    "type": "work",  
    "streetAddress": "100 Universal City Plaza",  
    "locality": "Hollywood",  
    "region": "CA",  
    "postalCode": "91608",  
    "country": "USA",  
    "formatted": "100 Universal City Plaza\nHollywood, CA 91608 USA",  
    "primary": true  
  },  
  {  
    "type": "home",  
    "streetAddress": "456 Hollywood Blvd",  
    "locality": "Hollywood",  
    "region": "CA",  
    "postalCode": "91608",  
    "country": "USA",  
    "formatted": "456 Hollywood Blvd\nHollywood, CA 91608 USA"  
  }  
],  
"phoneNumbers": [  
  {  
    "value": "555-555-5555",  
    "type": "work"  
  },  
  {  
    "value": "555-555-4444",  
    "type": "mobile"  
  }  
],  
"ims": [  
  {  
    "value": "someaimhandle",  
    "type": "aim"  
  }  
],
```



```
"photos": [
  {
    "value": "https://photos.example.com/profilephoto/72930000000Ccne/F",
    "type": "photo"
  },
  {
    "value": "https://photos.example.com/profilephoto/72930000000Ccne/T",
    "type": "thumbnail"
  }
],
"userType": "Employee",
"title": "Tour Guide",
"preferredLanguage": "en_US",
"locale": "en_US",
"timezone": "America/Los_Angeles",
"active": true,
"password": "t1meMa$heen",
"groups": [
  {
    "value": "e9e30dba-f08f-4109-8486-d5c6a331660a",
    "$ref": "https://example.com/v2/Groups/e9e30dba-f08f-4109-8486-d5c6a331660a",
    "display": "Tour Guides"
  },
  {
    "value": "fc348aa8-3835-40eb-a20b-c726e15c55b5",
    "$ref": "https://example.com/v2/Groups/fc348aa8-3835-40eb-a20b-c726e15c55b5",
    "display": "Employees"
  },
  {
    "value": "71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
    "$ref": "https://example.com/v2/Groups/71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
    "display": "US Employees"
  }
],
"x509Certificates": [
  {
    "value":
      "MIIDQzCCAQygAwIBAgICEAAwDQYJKoZIhvcNAQEFBQAwTjELMAkGA1UEBhMCVVMx
      EzARBgNVBAgMCkNhbgG1mb3JuawExFDASBgNVBAoMC2V4YW1wbGUuY29tMRQwEgYD
      VQDDAtleGFtcGx1LmNvbTAeFw0xMTEwMjIwMzFaFw0xMjEwMDQwNjI0MzFa
      MH8xCzAJBgNVBAYTA1VTMRMwEQYDVQQIDApDYWxpZm9ybmlhMRQwEgYDVQQKDA1l
```



eGFtcGx1LmNvbTEhMB8GA1UEAwwYTXMuIEJhcmJhcmEgSiBKZW5zZW4gSU1JMSIw  
IAYJKoZIhvcNAQkBFhNiamVuc2VuQGV4YW1wbGUuY29tMIIBIjANBgkqhkiG9w0B  
AQEFAAOCQAQ8AMIIBCgKCAQEA7Kr+Dcds/  
JQ5GwejJFcBIP682X3xpjis56AK02bc  
1FLgzdLI8auoR+cC9/  
Vrh5t66HkQIOdA4unHh0AaZ4xL5PhVbXIPMB5vAPKpzz5i  
PSi8x08SL7I7SDhcBVJhqVqr3Hg1lEG6UCLDdH07nkLuwXq8HcISKkbT5WFTVfFZ  
zidPl8HZ7DhXkZIRtJwBweq4bvm3hM10s7UQH05ZS6cVDgweKNwdLLrT51ikSQG3  
DYrl+ft781UQRIqxgwqCfXEuDiinPh0kkvIi5jivVu1Z9QiwlyEdRbLJ4zJQBmDr  
SGTMYn4lRc2HgH04DqB/  
bnMVorHB0CC6AV1QoFK4GPe1LwIDAQABo3sweTAJBgNV

```

HRMEAjAAMCwGCGSAGG+EIBDQQfFh1PcGVuU1NMIEdlbnVYXRlZCBDZXJ0aWZp
Y2F0ZTAdBgNVHQ4EFgQU8pD0U0vsZIsaA16lL8En8bx0F/
gWHwYDVR0jBBgwFoAU

dGeKitcaF7gnzsNwDx708kqaVt0wDQYJKoZIhvcNAQEFBQADgYEAA81SsFn0dYJt
Ng5Tcq+/
ByEDrBgnusx0jloUhByPMEVkoMZ3J7j1ZgI8rAb0kNngX8+pKfTiDz1R
C4+dx8oU6Za+4NJXUjlL5CvV6BEYb1+QAEJwitTVvxB/A67g42/
vzgAtoRUeDov1
+GFibZ+GNF/cAYKcMtGcrs2i97ZkJMo="
  }
],
"meta": {
  "resourceType": "User",
  "created": "2010-01-23T04:56:22Z",
  "lastModified": "2011-05-13T04:42:34Z",
  "version": "W\\\\"a330bc54f0671c9\\\"",
  "location": "https://example.com/v2/Users/
2819c223-7f76-453a-919d-413861904646"
}
}

```

### **12.3. Enterprise User Extension Representation**

The following is a non-normative example of the fully populated User using the enterprise User extension in JSON format.

```

{
  "schemas": ["urn:scim:schemas:core:2.0:User",
"urn:scim:schemas:extension:enterprise:2.0:User"],
  "id": "2819c223-7f76-453a-919d-413861904646",
  "externalId": "701984",
  "userName": "bjensen@example.com",
  "name": {
    "formatted": "Ms. Barbara J Jensen III",
    "familyName": "Jensen",
    "givenName": "Barbara",
    "middleName": "Jane",
    "honorificPrefix": "Ms.",
    "honorificSuffix": "III"
  },
  "displayName": "Babs Jensen",
  "nickName": "Babs",
  "profileUrl": "https://login.example.com/bjensen",
  "emails": [
    {
      "value": "bjensen@example.com",

```

```
"type": "work",  
"primary": true  
},  
{  
  "value": "babs@jensen.org",  
  "type": "home"  
}
```

```
],
"addresses": [
  {
    "streetAddress": "100 Universal City Plaza",
    "locality": "Hollywood",
    "region": "CA",
    "postalCode": "91608",
    "country": "USA",
    "formatted": "100 Universal City Plaza\nHollywood, CA 91608 USA",
    "type": "work",
    "primary": true
  },
  {
    "streetAddress": "456 Hollywood Blvd",
    "locality": "Hollywood",
    "region": "CA",
    "postalCode": "91608",
    "country": "USA",
    "formatted": "456 Hollywood Blvd\nHollywood, CA 91608 USA",
    "type": "home"
  }
],
"phoneNumbers": [
  {
    "value": "555-555-5555",
    "type": "work"
  },
  {
    "value": "555-555-4444",
    "type": "mobile"
  }
],
"ims": [
  {
    "value": "someaimhandle",
    "type": "aim"
  }
],
"photos": [
  {
    "value": "https://photos.example.com/profilephoto/72930000000Ccne/F",
    "type": "photo"
  },
  {
    "value": "https://photos.example.com/profilephoto/72930000000Ccne/T",
    "type": "thumbnail"
  }
],
```



```
"userType": "Employee",
"title": "Tour Guide",
"preferredLanguage": "en_US",
"locale": "en_US",
"timezone": "America/Los_Angeles",
"active": true,
"password": "t1meMa$heen",
"groups": [
  {
    "value": "e9e30dba-f08f-4109-8486-d5c6a331660a",
    "$ref": "/Groups/e9e30dba-f08f-4109-8486-d5c6a331660a",
    "display": "Tour Guides"
  },
  {
    "value": "fc348aa8-3835-40eb-a20b-c726e15c55b5",
    "$ref": "/Groups/fc348aa8-3835-40eb-a20b-c726e15c55b5",
    "display": "Employees"
  },
  {
    "value": "71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
    "$ref": "/Groups/71ddacd2-a8e7-49b8-a5db-ae50d0a5bfd7",
    "display": "US Employees"
  }
],
"x509Certificates": [
  {
    "value":
      "MIIDQzCCAQygAwIBAgICEAAwDQYJKoZIhvcNAQEFBQAwTjELMAkGA1UEBhMCVVMx
      EzARBgNVBAgMCkNhbmG1mb3JuawExFDASBgNVBAoMC2V4YW1wbGUuY29tMRQwEgYD
      VQQDDAtleGFtcGx1LmNvbTAeFw0xMTEwMjIwMzFaFw0xMjEwMDQwNjI0MzFa
      MH8xCzAJBgNVBAYTA1VTMRMwEQYDVQQIDApDYWxpZm9ybmlhMRQwEgYDVQQKDA1l
      eGFtcGx1LmNvbTEhMB8GA1UEAwYTXMuIEJhcmJhcmEgSiBKZW5zZW4gSULJMSIw
      IAYJKoZIhvcNAQkBFhNiamVuc2VuQGV4YW1wbGUuY29tMIIBIjANBgkqhkiG9w0B
      AQEFAAOCAQ8AMIIBCgKCAQEA7Kr+Dcds/
      JQ5GwejJFcBIP682X3xpjis56AK02bc
      1FLgzdLI8auoR+cC9/
      Vrh5t66HkQIOdA4unHh0AaZ4xL5PhVbXIPMB5vAPKpzz5i
      PSi8x08SL7I7SDhcBVJhqVqr3Hg1lEG6UC1DdH07nkLuwXq8HcISKkbT5WFTVfFZ
      zidPl8HZ7DhXkZIRtJwBweq4bvm3hM10s7UQH05ZS6cVDgweKNwdLLrT51ikSQG3
      DYrl+ft781UQRIqxgwqCfXEuDiinPh0kkvIi5jivVu1Z9QiwlyEdRbLJ4zJQBmDr
      SGTMYn4lRc2HgH04DqB/
```

```
bnMVorHB0CC6AV1QoFK4GPe1LwIDAQABo3sweTAJBgNV
HRMEAjAAMCwGCWCGSAGG+EIBDQQfFh1PcGVuU1NMIEdlbmVyYXRlZCBDZXJ0aWZp
Y2F0ZTAdBgNVHQ4EFgQU8pD0U0vsZIsaA16lL8En8bx0F/
gwHwYDVR0jBBgwFoAU
dGeKitcaF7gnzsNwDx708kqaVt0wDQYJKoZIhvcNAQEFBQADgYEAA81SsFn0dYJt
Ng5Tcq+/
ByEDrBgnusx0jloUhByPMEVkoMZ3J7j1ZgI8rAb0kNngX8+pKfTiDz1R
C4+dx8oU6Za+4NJXUjlL5CvV6BEYb1+QAEJwitTVvxB/A67g42/
vzgAtoRUeDov1
+GFibZ+GNF/cAYKcMtGcrs2i97ZkJMo="
}
],
"urn:scim:schemas:extension:enterprise:2.0:User": {
  "employeeNumber": "701984",
```

```

    "costCenter": "4130",
    "organization": "Universal Studios",
    "division": "Theme Park",
    "department": "Tour Operations",
    "manager": {
      "managerId": "26118915-6090-4610-87e4-49d8ca9f808d",
      "$ref": "/Users/26118915-6090-4610-87e4-49d8ca9f808d",
      "displayName": "John Smith"
    }
  },
  "meta": {
    "resourceType": "User",
    "created": "2010-01-23T04:56:22Z",
    "lastModified": "2011-05-13T04:42:34Z",
    "version": "W\\"3694e05e9dff591\\",
    "location": "https://example.com/v2/Users/
2819c223-7f76-453a-919d-413861904646"
  }
}

```

#### **[12.4.](#) Group Representation**

The following is a non-normative example of SCIM Group representation in JSON format.

```

{
  "schemas": ["urn:scim:schemas:core:2.0:Group"],
  "id": "e9e30dba-f08f-4109-8486-d5c6a331660a",
  "displayName": "Tour Guides",
  "members": [
    {
      "value": "2819c223-7f76-453a-919d-413861904646",
      "$ref": "https://example.com/v2/Users/
2819c223-7f76-453a-919d-413861904646",
      "display": "Babs Jensen"
    },
    {
      "value": "902c246b-6245-4190-8e05-00816be7344a",
      "$ref": "https://example.com/v2/Users/
902c246b-6245-4190-8e05-00816be7344a",
      "display": "Mandy Pepperidge"
    }
  ],
  "meta": {
    "resourceType": "Group",
    "created": "2010-01-23T04:56:22Z",
    "lastModified": "2011-05-13T04:42:34Z",
    "version": "W\\"3694e05e9dff592\\",

```



```
"location": "https://example.com/v2/Groups/e9e30dba-f08f-4109-8486-  
d5c6a331660a"  
}  
}
```

### **12.5. Service Provider Configuration Representation**

The following is a non-normative example of the SCIM service provider configuration representation in JSON format.

```
{
  "schemas": ["urn:scim:schemas:core:2.0:ServiceProviderConfig"],
  "documentationUrl": "http://example.com/help/scim.html",
  "patch": {
    "supported": true
  },
  "bulk": {
    "supported": true,
    "maxOperations": 1000,
    "maxPayloadSize": 1048576
  },
  "filter": {
    "supported": true,
    "maxResults": 200
  },
  "changePassword" : {
    "supported": true
  },
  "sort": {
    "supported": true
  },
  "etag": {
    "supported": true
  },
  "authenticationSchemes": [
    {
      "name": "OAuth Bearer Token",
      "description": "Authentication Scheme using the OAuth Bearer Token
Standard",
      "specUrl": "http://tools.ietf.org/html/draft-ietf-oauth-v2-bearer-01",
      "documentationUrl": "http://example.com/help/oauth.html",
      "type": "oauthbearertoken",
      "primary": true
    },
    {
      "name": "HTTP Basic",
      "description": "Authentication Scheme using the Http Basic Standard",
      "specUrl": "http://www.ietf.org/rfc/rfc2617.txt",
      "documentationUrl": "http://example.com/help/httpBasic.html",
      "type": "httpbasic"
    }
  ],
  "meta": {
```

```
"location":"https://example.com/v2/ServiceProviderConfig",
```

```
    "resourceType": "ServiceProviderConfig",
    "created": "2010-01-23T04:56:22Z",
    "lastModified": "2011-05-13T04:42:34Z",
    "version": "W\ /\ "3694e05e9dff594\ ""
  }
}
```

### [12.6.](#) Resource Type Representation

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

```
{
  "schemas": ["urn:scim:schemas:core:2.0:ResourceType"],
  "id": "User",
  "name": "User",
  "endpoint": "/Users",
  "description": "Core User",
  "schema": "urn:scim:schemas:core:2.0:User",
  "schemaExtensions": [
    {
      "schema": "urn:scim:schemas:extension:enterprise:2.0:EnterpriseUser",
      "required": true
    }
  ],
  "meta": {
    "location": "https://example.com/v2/ResourceTypes/User",
    "resourceType": "ResourceType",
    "created": "2010-01-23T04:56:22Z",
    "lastModified": "2011-05-13T04:42:34Z",
    "version": "W\ /\ "3694e05e9dff595\ ""
  }
}
```

### [12.7.](#) Schema Representation

The following is intended as normative example of the SCIM Schema representation in JSON format. Where permitted individual values and schema MAY change. Included but not limited to, are schemas for User, Group, and enterprise user.

```
{[
  {
    "id" : "urn:scim:schemas:core:2.0:User",
    "name" : "User",
    "description" : "Core User",
    "attributes" : [
      {
```



```
    "name" : "id",
    "type" : "string",
    "multiValued" : false,
    "description" : "Unique identifier for the SCIM resource as defined by
the Service Provider. Each representation of the resource MUST include a non-
empty id value. This identifier MUST be unique across the Service Provider's
entire set of resources. It MUST be a stable, non-reassignable identifier that
does not change when the same resource is returned in subsequent requests. The
value of the id attribute is always issued by the Service Provider and MUST
never be specified by the Service Consumer. REQUIRED.",
    "required" : true,
    "caseExact" : false,
    "mutability" : "readOnly",
    "returned" : "always",
    "uniqueness" : "server"
  },
  {
    "name" : "externalId",
    "type" : "string",
    "multiValued" : false,
    "description" : "An identifier for the Resource as defined by the
Service Consumer.",
    "required" : true,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "userName",
    "type" : "string",
    "multiValued" : false,
    "description" : "Unique identifier for the User typically used by the
user to directly authenticate to the service provider. Each User MUST include a
non-empty userName value. This identifier MUST be unique across the Service
Consumer's entire set of Users. REQUIRED",
    "required" : true,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "server"
  },
  {
    "name" : "name",
    "type" : "complex",
    "multiValued" : false,
    "description" : "The components of the user's real name. Providers MAY
return just the full name as a single string in the formatted sub-attribute, or
```

they MAY return just the individual component attributes using the other sub-attributes, or they MAY return both. If both variants are returned, they SHOULD be describing the same name, with the formatted name indicating how the component attributes should be combined.",

```
    "required" : false,
    "caseExact" : false,
    "subAttributes" : [
      {
        "name" : "formatted",
        "type" : "string",
        "multiValued" : false,
        "description" : "The full name, including all middle names, titles,
and suffixes as appropriate, formatted for display (e.g. Ms. Barbara J Jensen,
III.).",
        "required" : false,
        "caseExact" : false,
        "mutability" : "readWrite",
```

```
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "familyName",
    "type" : "string",
    "multiValued" : false,
    "description" : "The family name of the User, or Last Name in most
Western languages (e.g. Jensen given the full name Ms. Barbara J Jensen,
III.).",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "givenName",
    "type" : "string",
    "multiValued" : false,
    "description" : "The given name of the User, or First Name in most
Western languages (e.g. Barbara given the full name Ms. Barbara J Jensen,
III.).",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "middleName",
    "type" : "string",
    "multiValued" : false,
    "description" : "The middle name(s) of the User (e.g. Robert given
the full name Ms. Barbara J Jensen, III.).",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "honorificPrefix",
    "type" : "string",
    "multiValued" : false,
    "description" : "The honorific prefix(es) of the User, or Title in
most Western languages (e.g. Ms. given the full name Ms. Barbara J Jensen,
III.).",
```



```
"required" : false,  
"caseExact" : false,  
"mutability" : "readWrite",  
"returned" : "default",  
"uniqueness" : "none"  
},  
{
```

```
        "name" : "honorificSuffix",
        "type" : "string",
        "multiValued" : false,
        "description" : "The honorific suffix(es) of the User, or Suffix in
most Western languages (e.g. III. given the full name Ms. Barbara J Jensen,
III.).",
        "required" : false,
        "caseExact" : false,
        "mutability" : "readWrite",
        "returned" : "default",
        "uniqueness" : "none"
    }
],
"mutability" : "readWrite",
"returned" : "default",
"uniqueness" : "none"
},
{
    "name" : "displayName",
    "type" : "string",
    "multiValued" : false,
    "description" : "The name of the User, suitable for display to end-
users. The name SHOULD be the full name of the User being described if known",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
},
{
    "name" : "nickName",
    "type" : "string",
    "multiValued" : false,
    "description" : "The casual way to address the user in real life, e.g.
\"Bob\" or \"Bobby\" instead of \"Robert\". This attribute SHOULD NOT be used
to represent a User's username (e.g. bjensen or mpepperidge)",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
},
{
    "name" : "profileUrl",
    "type" : "string",
    "multiValued" : false,
    "description" : "A fully qualified URL to a page representing the
User's online profile",
```

```
"required" : false,  
"caseExact" : false,  
"mutability" : "readWrite",  
"returned" : "default",  
"uniqueness" : "none"  
},
```

```
{
  "name" : "title",
  "type" : "string",
  "multiValued" : false,
  "description" : "The user's title, such as \"Vice President.\",",
  "required" : false,
  "caseExact" : false,
  "mutability" : "readWrite",
  "returned" : "default",
  "uniqueness" : "none"
},
{
  "name" : "userType",
  "type" : "string",
  "multiValued" : false,
  "description" : "Used to identify the organization to user
relationship. Typical values used might be \"Contractor\", \"Employee\",
\"Intern\", \"Temp\", \"External\", and \"Unknown\" but any value may be used",
  "required" : false,
  "caseExact" : false,
  "mutability" : "readWrite",
  "returned" : "default",
  "uniqueness" : "none"
},
{
  "name" : "preferredLanguage",
  "type" : "string",
  "multiValued" : false,
  "description" : "Indicates the User's preferred written or spoken
language. Generally used for selecting a localized User interface. e.g.,
'en_US' specifies the language English and country US.",
  "required" : false,
  "caseExact" : false,
  "mutability" : "readWrite",
  "returned" : "default",
  "uniqueness" : "none"
},
{
  "name" : "locale",
  "type" : "string",
  "multiValued" : false,
  "description" : "Used to indicate the User's default location for
purposes of localizing items such as currency, date time format, numerical
representations, etc.",
  "required" : false,
  "caseExact" : false,
  "mutability" : "readWrite",
```

```
    "returned" : "default",  
    "uniqueness" : "none"  
  },  
  {  
    "name" : "timezone",  
    "type" : "string",  
    "multiValued" : false,
```

```
    "description" : "The User's time zone in the \"Olson\" timezone
database format [19]; e.g., 'America/Los_Angeles'",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "active",
    "type" : "boolean",
    "multiValued" : false,
    "description" : "A Boolean value indicating the User's administrative
status.",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "password",
    "type" : "string",
    "multiValued" : false,
    "description" : "The User's clear text password.  This attribute is
intended to be used as a means to specify an initial password when creating a
new User or to reset an existing User's password.",
    "required" : false,
    "caseExact" : false,
    "mutability" : "writeOnly",
    "returned" : "never",
    "uniqueness" : "none"
  },
  {
    "name" : "emails",
    "type" : "complex",
    "multiValued" : true,
    "description" : "E-mail addresses for the user. The value SHOULD be
canonicalized by the Service Provider, e.g. bjensen@example.com instead of
bjensen@EXAMPLE.COM. Canonical Type values of work, home, and other.",
    "required" : false,
    "caseExact" : false,
    "subAttributes" : [
      {
        "name" : "value",
        "type" : "string",
        "multiValued" : false,
        "description" : "E-mail addresses for the user. The value SHOULD be
```

canonicalized by the Service Provider, e.g. bjensen@example.com instead of bjensen@EXAMPLE.COM. Canonical Type values of work, home, and other.",

```
    "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; e.g.,
'work' or 'home'.",
  "required" : false,
  "caseExact" : false,
  "canonicalValues" : [
    "work",
    "home",
    "other"
  ],
  "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, e.g. the preferred mailing
address or primary e-mail address. The primary attribute value 'true' MUST
appear no more than once.",
  "required" : false,
  "caseExact" : false,
  "mutability" : "readWrite",
  "returned" : "default",
  "uniqueness" : "none"
}
],
"mutability" : "readWrite",
"returned" : "default",
"uniqueness" : "none"
},
```



```
{
  "name" : "phoneNumbers",
  "type" : "complex",
  "multiValued" : true,
  "description" : "Phone numbers for the User. The value SHOULD be
canonicalized by the Service Provider according to format in RFC3966 [20] e.g.
'tel:+1-201-555-0123'. Canonical Type values of work, home, mobile, fax, pager
and other.",
```

```
"required" : false,
"caseExact" : false,
"subAttributes" : [
  {
    "name" : "value",
    "type" : "string",
    "multiValued" : false,
    "description" : "Phone number of the User",
    "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; e.g.,
'work' or 'home' or 'mobile' etc.",
    "required" : false,
    "caseExact" : false,
    "canonicalValues" : [
      "work",
      "home",
      "mobile",
      "fax",
      "pager",
      "other"
    ],
    "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, e.g. the preferred phone number or primary phone number. The primary attribute value 'true' MUST appear no more than once.",

"required" : false,  
"caseExact" : false,  
"mutability" : "readWrite",  
"returned" : "default",  
"uniqueness" : "none"

}

],

"mutability" : "readWrite",  
"returned" : "default",  
"uniqueness" : "none"

},

{

"name" : "ims",  
"type" : "complex",  
"multiValued" : true,  
"description" : "Instant messaging addresses for the User.",  
"required" : false,  
"caseExact" : false,  
"subAttributes" : [  
 {

{

"name" : "value",  
"type" : "string",  
"multiValued" : false,  
"description" : "Instant messaging address for the User.",  
"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; e.g.,  
'aim', 'gtalk', 'mobile' etc.",  
    "required" : false,
```

```
    "caseExact" : false,
    "canonicalValues" : [
      "aim",
      "gtalk",
      "icq",
      "xmpp",
      "msn",
      "skype",
      "qq",
      "yahoo"
    ],
    "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, e.g. the preferred messenger or
primary messenger. The primary attribute value 'true' MUST appear no more than
once.",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  }
],
"mutability" : "readWrite",
"returned" : "default",
"uniqueness" : "none"
},
{
  "name" : "photos",
  "type" : "complex",
  "multiValued" : true,
  "description" : "URLs of photos of the User.",
  "required" : false,
  "caseExact" : false,
  "subAttributes" : [
    {
      "name" : "value",
      "type" : "string",
      "multiValued" : false,
      "description" : "URL of a photo of the User.",
      "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; e.g.,
'photo' or 'thumbnail'.",
      "required" : false,
      "caseExact" : false,
      "canonicalValues" : [
        "photo",
        "thumbnail"
      ],
      "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, e.g. the preferred photo or
thumbnail. The primary attribute value 'true' MUST appear no more than once.",
      "required" : false,
      "caseExact" : false,
      "mutability" : "readWrite",
      "returned" : "default",
      "uniqueness" : "none"
    }
  ],
  "mutability" : "readWrite",
  "returned" : "default",
  "uniqueness" : "none"
},
```



```
{  
  "name" : "addresses",  
  "type" : "complex",  
  "multiValued" : true,
```

"description" : "A physical mailing address for this User, as described in (address Element). Canonical Type Values of work, home, and other. The value attribute is a complex type with the following sub-attributes.",

```
"required" : false,
"caseExact" : false,
"subAttributes" : [
  {
    "name" : "formatted",
    "type" : "string",
    "multiValued" : false,
    "description" : "The full mailing address, formatted for display or
use with a mailing label. This attribute MAY contain newlines.",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "streetAddress",
    "type" : "string",
    "multiValued" : false,
    "description" : "The full street address component, which may
include house number, street name, PO BOX, and multi-line extended street
address information. This attribute MAY contain newlines.",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "locality",
    "type" : "string",
    "multiValued" : false,
    "description" : "The city or locality component.",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "region",
    "type" : "string",
    "multiValued" : false,
    "description" : "The state or region component.",
    "required" : false,
```

```
    "caseExact" : false,  
    "mutability" : "readWrite",  
    "returned" : "default",  
    "uniqueness" : "none"  
  },
```

```
{
  "name" : "postalCode",
  "type" : "string",
  "multiValued" : false,
  "description" : "The zipcode or postal code component.",
  "required" : false,
  "caseExact" : false,
  "mutability" : "readWrite",
  "returned" : "default",
  "uniqueness" : "none"
},
{
  "name" : "country",
  "type" : "string",
  "multiValued" : false,
  "description" : "The country name component.",
  "required" : false,
  "caseExact" : false,
  "mutability" : "readWrite",
  "returned" : "default",
  "uniqueness" : "none"
},
{
  "name" : "type",
  "type" : "string",
  "multiValued" : false,
  "description" : "A label indicating the attribute's function; e.g.,
'work' or 'home'.",
  "required" : false,
  "caseExact" : false,
  "canonicalValues" : [
    "work",
    "home",
    "other"
  ],
  "mutability" : "readWrite",
  "returned" : "default",
  "uniqueness" : "none"
}
],
"mutability" : "readWrite",
"returned" : "default",
"uniqueness" : "none"
},
{
  "name" : "groups",
  "type" : "complex",
  "multiValued" : true,
```

"description" : "A list of groups that the user belongs to, either thorough direct membership, nested groups, or dynamically calculated",

```
"required" : false,
"caseExact" : false,
"subAttributes" : [
  {
    "name" : "value",
    "type" : "string",
    "multiValued" : false,
    "description" : "The identifier of the User's group.",
    "readOnly" : false,
    "required" : false,
    "caseExact" : false,
    "mutability" : "readOnly",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "$ref",
    "type" : "string",
    "multiValued" : false,
    "description" : "The URI of the corresponding Group resource to
which the user belongs",
    "readOnly" : false,
    "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.",
    "readOnly" : true,
    "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'.",
    "readOnly" : false,
```

```
"required" : false,  
"caseExact" : false,  
"canonicalValues" : [
```

```
        "direct",
        "indirect"
      ],
      "mutability" : "readOnly",
      "returned" : "default",
      "uniqueness" : "none"
    }
  ],
  "mutability" : "readOnly",
  "returned" : "default",
  "uniqueness" : "none"
},
{
  "name" : "entitlements",
  "type" : "complex",
  "multiValued" : true,
  "description" : "A list of entitlements for the User that represent a
thing the User has.",
  "required" : false,
  "caseExact" : 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,
    "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,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  }
],
"mutability" : "readWrite",
"returned" : "default",
"uniqueness" : "none"
},
{
  "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,
  "caseExact" : 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,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  }
],
"mutability" : "readWrite",
"returned" : "default",
"uniqueness" : "none"
},
{
  "name" : "x509Certificates",
  "type" : "complex",
  "multiValued" : true,
  "description" : "A list of certificates issued to the User.",
  "required" : false,
  "caseExact" : false,
  "subAttributes" : [
    {
      "name" : "value",
      "type" : "string",
      "multiValued" : false,
      "description" : "The value of a X509 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,
        "caseExact" : false,
        "mutability" : "readWrite",
        "returned" : "default",
        "uniqueness" : "none"
    }
],
"mutability" : "readWrite",
"returned" : "default",
"uniqueness" : "none"
}
],
"meta" : {
    "resourceType" : "Schema",
```

```
"created" : "2010-01-23T04:56:22Z",  
"lastModified" : "2014-02-04T00:00:00Z",  
"version" : "W/"3694e05e9dff596\""
```

```
    "location" : "https://example.com/v2/Schemas/urn:scim:schemas:core:
2.0:User"
  }
},
{
  "id" : "urn:scim:schemas:core:2.0:Group",
  "name" : "Group",
  "description" : "Core Group",
  "attributes" : [
    {
      "name" : "id",
      "type" : "string",
      "multiValued" : false,
      "description" : "Unique identifier for the SCIM resource as defined by
the Service Provider. Each representation of the resource MUST include a non-
empty id value. This identifier MUST be unique across the Service Provider's
entire set of resources. It MUST be a stable, non-reassignable identifier that
does not change when the same resource is returned in subsequent requests. The
value of the id attribute is always issued by the Service Provider and MUST
never be specified by the Service Consumer. REQUIRED.",
      "required" : true,
      "caseExact" : false,
      "mutability" : "readWrite",
      "returned" : "always",
      "uniqueness" : "server"
    },
    {
      "name" : "externalId",
      "type" : "string",
      "multiValued" : false,
      "description" : "An identifier for the Resource as defined by the
Service Consumer.",
      "required" : true,
      "caseExact" : false,
      "mutability" : "readWrite",
      "returned" : "default",
      "uniqueness" : "none"
    },
    {
      "name" : "displayName",
      "type" : "string",
      "multiValued" : false,
      "description" : "A human readable name for the Group.  REQUIRED.",
      "required" : false,
      "caseExact" : false,
      "mutability" : "readWrite",
      "returned" : "default",
      "uniqueness" : "none"
    }
  ]
}
```



```
},  
{  
  "name" : "members",  
  "type" : "complex",  
  "multiValued" : false,  
  "description" : "A list of members of the Group.",  
  "required" : false,  
  "caseExact" : false,
```

```
"subAttributes" : [
  {
    "name" : "value",
    "type" : "string",
    "multiValued" : false,
    "description" : "The identifier of the member of this Group.",
    "required" : false,
    "caseExact" : false,
    "mutability" : "immutable",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "$ref",
    "type" : "string",
    "multiValued" : false,
    "description" : "The URI of the corresponding to the member
resource of this Group.",
    "required" : false,
    "caseExact" : false,
    "mutability" : "immutable",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "type",
    "type" : "string",
    "multiValued" : false,
    "description" : "A label indicating the type of resource; e.g.,
'User' or 'Group'.",
    "required" : false,
    "caseExact" : false,
    "canonicalValues" : [
      "User",
      "Group"
    ],
    "mutability" : "immutable",
    "returned" : "default",
    "uniqueness" : "none"
  }
],
"mutability" : "readWrite",
"returned" : "default",
"uniqueness" : "none"
}
],
"meta" : {
  "resourceType" : "Schema",
```

```
"created" : "2010-01-23T04:56:22Z",  
"lastModified" : "2014-02-04T00:00:00Z",
```

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```
    "version" : "W/\\"3694e05e9dff596\\",
    "location" : "https://example.com/v2/Schemas/urn:scim:schemas:core:
2.0:Group"
  }
},
{
  "id" : "urn:scim:schemas:extension:enterprise:2.0:User",
  "name" : "EnterpriseUser",
  "description" : "Enterprise User",
  "attributes" : [
    {
      "name" : "employeeNumber",
      "type" : "string",
      "multiValued" : false,
      "description" : "Numeric or alphanumeric identifier assigned to a
person, typically based on order of hire or association with an organization.",
      "required" : false,
      "caseExact" : false,
      "mutability" : "readWrite",
      "returned" : "default",
      "uniqueness" : "none"
    },
    {
      "name" : "costCenter",
      "type" : "string",
      "multiValued" : false,
      "description" : "Identifies the name of a cost center.",
      "required" : false,
      "caseExact" : false,
      "mutability" : "readWrite",
      "returned" : "default",
      "uniqueness" : "none"
    },
    {
      "name" : "organization",
      "type" : "string",
      "multiValued" : false,
      "description" : "Identifies the name of an organization.",
      "required" : false,
      "caseExact" : false,
      "mutability" : "readWrite",
      "returned" : "default",
      "uniqueness" : "none"
    },
    {
      "name" : "division",
      "type" : "string",
      "multiValued" : false,
```

```
"description" : "Identifies the name of a division.",  
"required" : false,
```

```
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "department",
    "type" : "string",
    "multiValued" : false,
    "description" : "Identifies the name of a department.",
    "required" : false,
    "caseExact" : false,
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
  },
  {
    "name" : "manager",
    "type" : "complex",
    "multiValued" : false,
    "description" : "The User's manager. A complex type that optionally
allows Service Providers to represent organizational hierarchy by referencing
the \"id\" attribute of another User.",
    "required" : false,
    "caseExact" : false,
    "subAttributes" : [
      {
        "name" : "managerId",
        "type" : "string",
        "multiValued" : false,
        "description" : "The id of the SCIM resource representing the
User's manager. REQUIRED.",
        "required" : false,
        "caseExact" : false,
        "mutability" : "readWrite",
        "returned" : "default",
        "uniqueness" : "none"
      },
      {
        "name" : "$ref",
        "type" : "string",
        "multiValued" : false,
        "description" : "The URI of the SCIM resource representing the
User's manager. REQUIRED.",
        "required" : false,
        "caseExact" : false,
        "mutability" : "readWrite",
        "returned" : "default",
```

```
    "uniqueness" : "none"  
  },  
  {  
    "name" : "displayName",
```

```
        "type" : "string",
        "multiValued" : false,
        "description" : "The displayName of the User's manager.  OPTIONAL
and READ-ONLY.",
        "required" : false,
        "caseExact" : false,
        "mutability" : "readOnly",
        "returned" : "default",
        "uniqueness" : "none"
    }
],
    "mutability" : "readWrite",
    "returned" : "default",
    "uniqueness" : "none"
}
],
"meta" : {
    "resourceType" : "Schema",
    "created" : "2010-01-23T04:56:22Z",
    "lastModified" : "2014-02-04T00:00:00Z",
    "version" : "W/\\"3694e05e9dff596\\\"",
    "location" : "https://example.com/v2/Schemas/
urn:scim:schemas:extension:enterprise:2.0:User"
}
}
}}
```

### **13. Security Considerations**

The SCIM Core schema contains personally identifiable information as well as other sensitive data. Aside from prohibiting password values in a SCIM response this specification does not provide any means or guarantee of confidentiality.

### **14. References**

#### **14.1. Normative References**

- [ISO3166] "ISO 3166:1988 (E/F) - Codes for the representation of names of countries - The International Organization for Standardization, 3rd edition", 08 1988.
- [ISO639-2]  
ISO 639.2 Registration Authority, "ISO639-2: Codes for the Representation of Names of Languages", July 2013.
- [Olson-TZ]  
"Sources for Time Zone and Daylight Saving Time Data", .





- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC3966] Schulzrinne, H., "The tel URI for Telephone Numbers", [RFC 3966](#), December 2004.
- [RFC3986] Berners-Lee, T., Fielding, R., and L. Masinter, "Uniform Resource Identifier (URI): Generic Syntax", STD 66, [RFC 3986](#), January 2005.
- [RFC4627] Crockford, D., "The application/json Media Type for JavaScript Object Notation (JSON)", [RFC 4627](#), July 2006.
- [XML-Schema]  
Biron, P. and A. Malhotra, "XML Schema Part 2: Datatypes Second Edition", October 2004.

#### **[14.2.](#) Informative References**

- [PortableContacts]  
Smarr, J., "Portable Contacts 1.0 Draft C - Schema Only", August 2008.
- [RFC4512] Zeilenga, K., "Lightweight Directory Access Protocol (LDAP): Directory Information Models", [RFC 4512](#), June 2006.

#### **[Appendix A.](#) Acknowledgements**

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## [Appendix B](#). Change Log

[[This section to be removed prior to publication as an RFC]]

Draft 02 - KG - Addition of schema extensibility

Draft 03 - PH - Revisions based on following tickets:

09 - Attribute uniqueness

10 - Returnability of attributes

35 - Attribute mutability (replaces readOnly)

52 - Minor textual changes

53 - Standard use of term client (some was consumer)

56 - Make manager attribute consistent with other \$ref attrs

58 - Add optional id to ResourceType objects for consistency

59 - Fix capitalization per IETF editor practices

60 - Changed <eref> tags to normal <xref> and <reference> tags

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