JSContact: A JSON representation of contact data
draft-ietf-jmap-jscontact-01

Abstract

   This specification defines a data model and JSON representation of
   contact card information that can be used for data storage and
   exchange in address book or directory applications. It aims to be an
   alternative to the vCard data format and to be unambiguous,
   extendable and simple to process. In contrast to the JSON-based
   jCard format, it is not a direct mapping from the vCard data model
   and expands semantics where appropriate.

Status of This Memo

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

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   time. It is inappropriate to use Internet-Drafts as reference
   material or to cite them other than as "work in progress."

   This Internet-Draft will expire on August 13, 2020.

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1. Introduction

   This document defines a data model for contact card data normally
   used in address book or directory applications and services. It aims
   to be an alternative to the vCard data format [RFC6350] and to
   provide a JSON-based standard representation of contact card data.

   The key design considerations for this data model are as follows:

   o Most of the initial set of attributes should be taken from the
      vCard data format [RFC6350] and extensions ([RFC6473], [RFC6474],
      [RFC6715], [RFC6869], [RFC8605]). The specification should add
      new attributes or value types, or not support existing ones, where
      appropriate. Conversion between the data formats need not fully
      preserve semantic meaning.

   o The attributes of the cards data represented must be described as
      a simple key-value pair, reducing complexity of its
      representation.

   o The data model should avoid all ambiguities and make it difficult
      to make mistakes during implementation.

   o Extensions, such as new properties and components, MUST NOT lead
      to requiring an update to this document.

   The representation of this data model is defined in the I-JSON format
   [RFC7493], which is a strict subset of the JavaScript Object Notation
   (JSON) Data Interchange Format [RFC8259]. Using JSON is mostly a
   pragmatic choice: its widespread use makes JSCard easier to adopt,
   and the availability of production-ready JSON implementations
   eliminates a whole category of parser-related interoperability
   issues.

1.1. Relation to the xCard and jCard formats

   The xCard [RFC6351] and jCard [RFC7095] specifications define
   alternative representations for vCard data, in XML and JSON format
   respectively. Both explicitly aim to not change the underlying data
   model. Accordingly, they are regarded as equal to vCard in the
   context of this document.

1.2. Terminology

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.

1.3. Vendor-specific Property Extensions and Values

Vendors MAY add additional properties to JSContact objects to support
their custom features. The names of these properties MUST be
prefixed with a domain name controlled by the vendor to avoid
conflict, e.g. "example.com/customprop".

Some JSContact properties allow vendor-specific value extensions. If
so, vendor-specific values MUST be prefixed with a domain name
controlled by the vendor, e.g. "example.com/customrel".

Vendors are strongly encouraged to register any new property values
or extensions that are useful to other systems as well, rather than
using a vendor-specific prefix.

2. JSCard

MIME type: "application/jscontact+json;type=jscard"

A JSCard object stores information about a person, organization or
company.

2.1. Metadata properties

2.1.1. uid

Type: "String" (mandatory).

An identifier, used to associate the object as the same across
different systems, addressbooks and views. [RFC4122] describes a
range of established algorithms to generate universally unique
identifiers (UUID), and the random or pseudo-random version is
recommended. For compatibility with [RFC6350] UIDs, implementations
MUST accept both URI and free-form text.

2.1.2. prodId

Type: "String" (optional).

The identifier for the product that created the JSCard object.

2.1.3. updated

   Type: "String" (optional).

   The date and time when the data in this JSCard object was last
   modified. The timestamp MUST be formatted as specified in [RFC3339].

2.1.4. kind

   Type: "String" (optional). The kind of the entity the Card
   represents.

   The value MUST be either one of the following values, registered in a
   future RFC, or a vendor-specific value:

   o "individual": a single person

   o "org": an organization

   o "location": a named location

   o "device": a device, such as appliances, computers, or network
      elements

   o "application": a software application

2.1.5. relatedTo

   Type: "String[Relation]" (optional).

   Relates the object to other JSCard objects. This is represented as a
   map of the URI (or single text value) of the related objects to a
   possibly empty set of relation types. The Relation object has the
   following properties:

   o relation: "String[Boolean]" (optional, default: empty Object)
      Describes how the linked object is related to the linking object.
      The relation is defined as a set of relation types. If empty, the
      relationship between the two objects is unspecified. Keys in the
      set MUST be one of the RELATED property [RFC6350] type parameter
      values, or an IANA-registered value, or a vendor-specific value.
      The value for each key in the set MUST be true.

   Note, the Relation object only has one property; it is specified as
   an object with a single property to allow for extension in the
   future.

2.2. Name and Organization properties

2.2.1. fullName

   Type: "LocalizedString" (optional).

   The full name (e.g. the personal name and surname of an individual,
   the name of an organization) of the entity represented by this card.

2.2.2. name

   Type: "NameComponent[]" (optional).

   The name components of the name of the entity represented by this
   JSCard. Name components SHOULD be ordered such that their values
   joined by whitespace produce a valid full name of this entity.

   A NameComponent has the following properties:

   o value: "String" (mandatory). The value of this name component.

   o type: "String" (mandatory). The type of this name component.
      Valid name component types are:

      * "prefix". The value is a honorific title(s), e.g. "Mr", "Ms",
         "Dr".

      * "personal". The value is a personal name(s), also known as
         "first name", "given name".

      * "surname". The value is a surname, also known as "last name",
         "family name".

      * "additional". The value is an additional name, also known as
         "middle name".

      * "suffix". The value is a honorific suffix, e.g. "B.A.",
         "Esq.".

      * "nickname". The value is a nickname.

2.2.3. organization

   Type: "LocalizedString[]" (optional).

   The company or organization name and units associated with this card.
   The first entry in the list names the organization, and any following
   entries name organizational units.

[2.2.4](). **jobTitle**

   Type : "LocalizedString[]" (optional).

   The job title(s) or functional position(s) of the entity represented
   by this card.

[2.2.5](). **role**

   Type : "LocalizedString[]" (optional).

   The role(s), function(s) or part(s) played in a particular situation
   by the entity represented by this card. In contrast to a job title,
   the roles might differ for example in project contexts.

[2.3](). **Contact and Resource properties**

[2.3.1](). **emails**

   Type: "Resource[]" (optional).

   An array of Resource objects where the values are URLs in the
   "mailto" scheme [[RFC6068]()] or free-text email addresses. The default
   value of the "type" property is "email". If set, the type MUST be
   "email" or "other".

[2.3.2](). **phones**

   Type: "Resource[]" (optional).

   An array of Resource objects where the values are URIs scheme or
   free-text phone numbers. Typical URI schemes are the [[RFC3966]()] "tel"
   or [[RFC3261]()] "sip" schemes, but any URI scheme is allowed. Types
   are:

   o "voice" The number is for calling by voice.

   o "fax" The number is for sending faxes.

   o "pager" The number is for a pager or beeper.

   o "other" The number is for some other purpose. A label property
      MAY be included to display next to the number to help the user
      identify its purpose.

2.3.3. online

   Type: "Resource[]" (optional).

   An array of Resource objects where the values are URIs or usernames
   associated with the card for online services. Types are:

   o "uri" The value is a URI, e.g. a website link.

   o "username" The value is a username associated with the entity
      represented by this card (e.g. for social media, or an IM client).
      A label property SHOULD be included to identify what service this
      is for. For compatibility between clients, this label SHOULD be
      the canonical service name, including capitalisation. e.g.
      "Twitter", "Facebook", "Skype", "GitHub", "XMPP".

   o "other" The value is something else not covered by the above
      categories. A label property MAY be included to display next to
      the number to help the user identify its purpose.

2.3.4. preferredContactMethod

   Type : "String" (optional)

   Defines the preferred contact method or resource with additional
   information about this card. The value MUST be the property name of
   one of the Resource lists: "emails", "phones", "online", "other".

2.3.5. preferredContactLanguages

   Type : "String[ContactLanguage[]]" (optional)

   Defines the preferred languages for contacting the entity associated
   with this card. The keys in the object MUST be [RFC5646] language
   tags. The values are a (possibly empty) list of contact language
   preferences for this language. Also see the definition of the VCARD
   LANG property (Section 6.4.4., [RFC6350]).

   A ContactLanguage object has the following properties:

   o type: "String" (optional). Defines the context of this
      preference. This could be "work", "home" or another value.

   o preference: "Number" (optional). Defines the preference order of
      this language for the context defined in the type property. If
      set, the property value MUST be between 1 and 100 (inclusive).
      Lower values correspond to a higher level of preference, with 1
      being most preferred. If not set, the default MUST be to

interpret the language as the least preferred in its context.
Preference orders SHOULD be unique across language for a specific
type.

A valid ContactLanguage object MUST have at least one of its
properties set.

2.4. Address and Location properties

2.4.1. addresses

Type: Address[] (optional).

An array of Address objects, containing physical locations. An
Address object has the following properties:

o context: "String" (optional, default "other"). Specifies the
   context of the address information. The value MUST be either one
   of the following values, registered in a future RFC, or a vendor-
   specific value:

   * "private" An address of a residence.

   * "work" An address of a workplace.

   * "billing" An address to be used for billing.

   * "postal" An address to be used for delivering physical items.

   * "other" An address not covered by the above categories.

o label: "String" (optional). A label describing the value in more
   detail.

o fullAddress: "LocalizedString" (optional). The complete address,
   excluding type and label. This property is mainly useful to
   represent addresses of which the individual address components are
   unknown, or to provide localized representations.

o street: "String" (optional). The street address. This MAY be
   multiple lines; newlines MUST be preserved.

o extension: "String" (optional) The extended address, such as an
   apartment or suite number, or care-of address.

o locality: "String" (optional). The city, town, village, post
   town, or other locality within which the street address may be
   found.

   o region: "String" (optional). The province, such as a state,
      county, or canton within which the locality may be found.

   o country: "String" (optional). The country name.

   o postOfficeBox: "String" (optional) The post office box.

   o postcode: "String" (optional). The postal code, post code, ZIP
      code or other short code associated with the address by the
      relevant country's postal system.

   o countryCode: "String" (optional). The ISO-3166-1 country code.

   o coordinates: "String" (optional) A [RFC5870] "geo:" URI for the
      address.

   o timeZone: "String" (optional) Identifies the time zone this
      address is located in. This SHOULD be a time zone name registered
      in the IANA Time Zone Database [1]. Unknown time zone identifiers
      MAY be ignored by implementations.

   o isPreferred: Boolean (optional, default: false). Whether this
      Address is the preferred for its type. This SHOULD only be one
      per type.

2.5. Additional properties

2.5.1. anniversaries

   Type : Anniversary[] (optional).

   Memorable dates and events for the entity represented by this card.
   An Anniversary object has the following properties:

   o type: "String" (mandatory). Specifies the type of the
      anniversary. This RFC predefines the following types, but
      implementations MAY use additional values:

      * "birth": a birth day anniversary

      * "death": a death day anniversary

      * "other": an anniversary not covered by any of the known types.

   o label: "String" (optional). A label describing the value in more
      detail, especially if the type property has value "other" (but MAY
      be included with any type).

   o date: "String" (mandatory). The date of this anniversary, in the
      form "YYYY-MM-DD" (any part may be all 0s for unknown) or a
      [RFC3339] timestamp.

   o place: Address (optional). An address associated with this
      anniversary, e.g. the place of birth or death.

2.5.2. personalInfo

   Type: PersonalInformation[] (optional).

   A list of personal information about the entity represented by this
   card. A PersonalInformation object has the following properties:

   o type: "String" (mandatory). Specifies the type for this personal
      information. Allowed values are:

      * "expertise": a field of expertise or credential

      * "hobby": a hobby

      * "interest": an interest

      * "other": an information not covered by the above categories

   o value: "String" (mandatory). The actual information. This
      generally is free-text, but future specifications MAY restrict
      allowed values depending on the type of this PersonalInformation.

   o level: "String" (optional) Indicates the level of expertise, or
      engagement in hobby or interest. Allowed values are: "high",
      "medium" and "low".

2.5.3. notes

   Type: "LocalizedString[]" (optional).

   Arbitrary notes about the entity represented by this card.

2.5.4. categories

   Type: "String[]" (optional). A list of free-text or URI categories
   that relate to the card.

2.6. Common JSCard types

2.6.1. LocalizedString

A LocalizedString object has the following properties:

o value: "String" (mandatory). The property value.

o language: "String" (optional). The [RFC5646] language tag of this
   value, if any.

o localizations: "String[String]" (optional). A map from [RFC5646]
   language tags to the value localized in that language.

2.6.2. Resource

A Resource object has the following properties:

o context: "String" (optional) Specifies the context in which to use
   this resource. Pre-defined values are:

   * "private": The resource may be used to contact the card holder
      in a private context.

   * "work": The resource may be used to contact the card holder in
      a professional context.

   * "other": The resource may be used to contact the card holder in
      some other context. A label property MAY be help to identify
      its purpose.

o type: "String" (optional). Specifies the property-specific
   variant of the resource. This MUST be taken from the set of
   allowed types specified in the respective contact method property.

o labels: "String[Boolean]" (optional). A set of labels that
   describe the value in more detail, especially if the type property
   has value "other" (but MAY be included with any type). The keys
   in the map define the label, the values MUST be "true".

o value: "String" (mandatory). The actual resource value, e.g. an
   email address or phone number.

o mediaType: "String" (optional). Used for properties with URI
   values. Provides the media type [RFC2046] of the resource
   identified by the URI.

   o isPreferred: Boolean (optional, default: false). Whether this
      resource is the preferred for its type. This SHOULD only be one
      per type.

3. JSCardGroup

   MIME type: "application/jscontact+json;type=jscardgroup"

   A JSCardGroup object represents a named set of JSCards.

3.1. Properties

3.1.1. uid

   Type : "String" (mandatory).

   A globally unique identifier. The same requirements as for the
   JSCard uid property apply.

3.1.2. name

   Type: "String" (optional).

   The user-visible name for the group, e.g. "Friends". This may be
   any UTF-8 string of at least 1 character in length and maximum 255
   octets in size. The same name may be used by two different groups.

3.1.3. cards

   Type : "JSCard[]" (mandatory). The cards in the group.
   Implementations MUST preserve the order of list entries.

4. Implementation Status

   NOTE: Please remove this section and the reference to [RFC7942] prior
   to publication as an RFC. This section records the status of known
   implementations of the protocol defined by this specification at the
   time of posting of this Internet-Draft, and is based on a proposal
   described in [RFC7942]. The description of implementations in this
   section is intended to assist the IETF in its decision processes in
   progressing drafts to RFCs. Please note that the listing of any
   individual implementation here does not imply endorsement by the
   IETF. Furthermore, no effort has been spent to verify the
   information presented here that was supplied by IETF contributors.
   This is not intended as, and must not be construed to be, a catalog
   of available implementations or their features. Readers are advised
   to note that other implementations may exist. According to
   [RFC7942], "this will allow reviewers and working groups to assign

due consideration to documents that have the benefit of running code,
which may serve as evidence of valuable experimentation and feedback
that have made the implemented protocols more mature. It is up to
the individual working groups to use this information as they see
fit".

4.1. IIT-CNR/Registro.it

o Responsible Organization: Institute of Informatics and Telematics
   of National Research Council (IIT-CNR)/Registro.it

o Location: https://rdap.pubtest.nic.it/ [2]

o Description: This implementation includes support for RDAP queries
   using data from the public test environment of .it ccTLD. The
   RDAP server does not implement any security policy because data
   returned by this server are only for experimental testing
   purposes. The RDAP server returns responses including JSCard in
   place of jCard when queries contain the parameter jscard=1.

o Level of Maturity: This is a "proof of concept" research
   implementation.

o Coverage: This implementation includes all of the features
   described in this specification.

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5. IANA Considerations

TBD

6. Security Considerations

TBD

7. References

7.1. Normative References

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7.3. **URIs**

[1] https://www.iana.org/time-zones

[2] https://rdap.pubtest.nic.it/

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