

[MS-OXVCARD]: vCard to Contact Object Conversion Protocol Specification

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Preliminary

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1 Introduction

The **vCard** format, as specified in [RFC2426], specifies a directory object for a person or resource that is capable of representing and exchanging a variety of information about an individual, such as formatted and structured name and delivery addresses, e-mail addresses, multiple telephone numbers, photographs, audio clips, and more. The schema for the directory object is based on the attributes for the person object that are defined in [X520].

This document specifies how the vCard format can be used by a **Contact object** application, as specified in [MS-OXCMAIL], to communicate with other contact systems over non-**Message object** transports such as **SMTP**.

1.1 Glossary

The following terms are defined in [MS-OXGLOS]:

Appointment object
Attachment object
common name
Contact object
free/busy
Message object
MIME
Simple Mail Transfer Protocol (SMTP)
Unicode
Uniform Resource Identifier (URI)
vCard

MAY, SHOULD, MUST, SHOULD NOT, MUST NOT: These terms (in all caps) are used as described in [RFC2119]. All statements of optional behavior use either **MAY**, **SHOULD**, or **SHOULD NOT**.

1.2 References

1.2.1 Normative References

[MS-OXCICAL] Microsoft Corporation, "iCalendar to Appointment Object Conversion Protocol Specification", June 2008.

[MS-OXCMAIL] Microsoft Corporation, "RFC2822 and MIME to E-Mail Object Conversion Protocol Specification", June 2008.

[MS-OXCMSG] Microsoft Corporation, "Message and Attachment Object Protocol Specification", June 2008.

[MS-OXGLOS] Microsoft Corporation, "Exchange Server Protocols Master Glossary", June 2008.

[MS-OXOCNTC] Microsoft Corporation, "Contact Object Protocol Specification", June 2008.

[MS-OXOMSG] Microsoft Corporation, "E-Mail Object Protocol Specification", June 2008.

[RFC2045] Freed, N., et al., "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies", RFC 2045, November 1996, <http://www.ietf.org/rfc/rfc2045.txt>.

[RFC2047] Moore, K., "MIME (Multipurpose Internet Mail Extensions) Part Three: Message Header Extensions for Non-ASCII Text", RFC 2047, November 1996, <http://www.ietf.org/rfc/rfc2047.txt>.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.ietf.org/rfc/rfc2119.txt>.

[RFC2425] Howes, T., Smith, M., Dawson, F., "A MIME Content-Type for Directory Information", RFC 2425, September, 1998, <http://www.ietf.org/rfc/rfc2425.txt>.

[RFC2426] Dawson, F. Howes, T., "vCard MIME Directory Profile", RFC 2426, September 1998, <http://www.ietf.org/rfc/rfc2426.txt>.

[X520] ITU-T, "Information technology – Open Systems Interconnection – The Directory: Selected attribute types", Recommendation X.520, August, 2005, <http://www.itu.int/rec/T-REC/X.520/en>.

1.2.2 Informative References

None.

1.3 Structure Overview

This document specifies how the **vCard** format can be used by a **Contact object** application, as specified in [MS-OXOCNTC], to communicate with other contact applications over non-**Message object** transports. More specifically, this document specifies how to import vCard data into a Contact object and how to export Contact objects as vCard data.

1.4 Relationship to Protocols and Other Structures

This document specifies a mapping between the **vCard** format [RFC2426] and a **Contact object** (specified in [MS-OXOCNTC]), which can be updated and sent by using the protocols specified in [MS-OXCMSG] and [MS-OXOMSG].

When used as a contact, the vCard format can be embedded as a **MIME** part in an e-mail message, as specified in [RFC2425] and [MS-OXCMAIL].

1.5 Applicability Statement

This format is applicable to scenarios in which **Contact object** data needs to be transported between a Contact object source and a non-Contact object or indeterminate destination.

This format is best avoided if 100 percent fidelity is required when transporting contact data between a Contact object source and a Contact object destination.

1.6 Versioning and Localization

This document covers versioning issues in the following areas:

- **Structure version:** The vCard format defines a **VERSION** type, as specified in section 2.7.9.
- **Localization:** The vCard format defines a **SORT-STRING** type to define language-specific sorting rules, as specified in section 2.7.5.

1.7 Vendor-Extensible Fields

[RFC2426] section 3.8 permits the insertion of non-standard private values by using the extension mechanism defined in [RFC2045]. The primary requirement of these private values is that the name begins with "x-", and as such they are often termed x-components, x-props, and x-parameters. This document specifies several x-props that provide additional contact information.

2 Structures

The types listed in the following sections are defined in [RFC246].

2.1 General Types

This type signifies that the information contained within is **vCard** data.

2.1.1 Profile: vCard

RFC Reference: [RFC2426] section 3.

Description: The **vCard MIME Directory Profile Type** contains directory information, typically about a single directory entry. The information is captured in an attribute schema that is designed for personal contact information.

2.2 Identification Types

These types are used in the **vCard** profile to capture identification and name information about the person or resource identified by the vCard.

2.2.1 Type: FN

RFC Reference: [RFC2426] section 3.1.1.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.1.8.

vCard Data Format: Name in [X520] **common name** semantics.

Brief Description: Formatted text that corresponds to the name that the vCard represents.

Importing To Contact Objects

The FN type is imported to **PidTagDisplayName**, **PidTagNormalizedSubject**, and **PidTagConversationTopic**.

Exporting From Contact Objects

The FN type is generated from **PidTagDisplayName** or **PidTagNormalizedSubject**. If both are set, **PidTagDisplayName** is used.

2.2.2 Type: N

RFC Reference: [RFC2426] section 3.1.2.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.1.

vCard Data Format: N:<Family Name>; <Given Name>; <Middle Name>, <Honorific Prefixes>; <Honorific Postfixes>

Brief Description: Structured name of the object that the vCard represents.

Importing To Contact Objects

Individual text components are separated by the semi-colon (;) character. Text components can contain multiple values that are separated by the comma (,) character. The entire text component should be assigned to the corresponding property.

vCard property	Contact object property
<FamilyName>	PidTagSurname
<GivenName>	PidTagGivenName
<MiddleName>	PidTagMiddleName
<Honorific Prefixes>	PidTagDisplayNamePrefix
<Honorific Postfixes>	PidTagGeneration

Exporting From Contact Objects

PidTagSurname, **PidTagGivenName**, **PidTagMiddleName**, **PidTagDisplayNamePrefix**, and **PidTagGeneration** should be exported as a semi-colon delimited string.

2.2.3 Type: NICKNAME

RFC Reference: [RFC2426] section 3.1.3.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.1.1.

vCard Data Format: NICKNAME: <nickname>

Brief Description: The nickname of the object that the **vCard** represents.

Importing To and Exporting From Contact Objects

The **NICKNAME** property is imported to and exported from **PidTagNickname**.

2.2.4 Type: PHOTO

RFC Reference: [RFC2426] section 3.1.4.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.8.

vCard Data Format: PHOTO; ENCODING=b; TYPE=<type>:<data>

Brief Description: An image or photograph that illustrates some aspect of the object that the **vCard** represents.

Importing To Contact Objects

The binary data for the associated photo is stored as an attachment. For more details about **Message object** attachments, see [MS-OXCMSG] section 2.2.2. The properties listed in the following table **MUST** be set on the **Attachment object**, as specified in [MS-OXCMSG].

Attachment object property	Value
PidTagAttachmentContactPhoto	True.
PidTagAttachDataBinary	Photo stream in binary format.
PidTagAttachExtension	".jpg", ".bmp", ".gif", or ".png", according to the TYPE parameter.
PidTagDisplayName , PidTagAttachFilename	"ContactPhoto.<ext>", The extension is the value of the TYPE parameter.

Only binary data types (ENCODING=b) are supported. The TYPE parameter must be one of the following values:

- .bmp

- .gif
- .jpeg
- .png

Exporting From Contact Objects

The PHOTO type should be exported from the Attachment object with ENCODING=b and the TYPE parameter set to the image type (BMP, GIF, JPEG, or PNG). The image is exported in binary format, as specified in [RFC2047].

2.2.5 Type: BDAY

RFC Reference: [RFC2426] section 3.1.5.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.5.1.

vCard Data Format: BDAY:<date or date-time value>

Brief Description: The birth date of the object that the vCard represents.

Importing To and Exporting From Contact Objects

The BDAY type is imported to and exported from **PidTagBirthday**. The time that is associated with the birthday event is 0:00 in the client's local time zone.

2.3 Deliverable Addressing Types

These types are used in the vCard profile to capture information that is related to the delivery addressing or label for the person or resource identified by the vCard.

2.3.1 Type: ADR

RFC Reference: [RFC2426] section 3.2.1.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.3.

vCard Data Format: ADR;TYPE=[Type];[PO Box];[Extended Address];[Street Address];[Locality];[Region];[Postal Code];[Country Name]

Brief Description: Physical addresses that are associated with the object that the vCard represents.

Importing To Contact Objects

The **Contact object** provides built-in support for three physical addresses: Home Address, Work Address, and Other Address. The vCard TYPE parameter can be set to one or more of the following values:

- dom
- intl

- postal
- parcel
- home
- work
- pref

The default TYPE parameter value is "intl, postal, parcel, work".

Addresses in the vCard map to the **Contact object** addresses, as shown in the following table.

ADR TYPE parameter	Contact object address
work	Work Address
home	Home Address
postal, dom, intl, parcel	Other Address

If the TYPE parameter contains "pref", the **PidLidPostalAddressId** property is set to indicate that that address is the contact's mailing address.

The fields in the vCard address are mapped to the fields of the Contact object, as shown in the following table.

vCard property	Contact object properties
PO Box	PidTagPostOfficeBox PidTagHomeAddressPostOfficeBox PidTagOtherAddressPostOfficeBox
Extended Address, Street Address	PidTagStreetAddress PidTagHomeAddressStreet PidTagOtherAddressStreet
Locality	PidTagLocality PidTagHomeAddressCity PidTagOtherAddressCity
Region	PidTagStateOrProvince PidTagHomeAddressStateOrProvince

	PidTagOtherAddressStateOrProvince
Postal Code	PidTagPostalCode PidTagHomeAddressPostalCode PidTagOtherAddressPostalCode
Country Name	PidTagCountry PidTagHomeAddressCountry PidTagOtherAddressCountry

Exporting From Contact Objects

Each address is exported as a structured ADR type with the TYPE parameter set to the values listed in the following table.

TYPE parameter value	Contact object properties
work	PidTagPostOfficeBox PidTagStreetAddress PidTagLocality PidTagStateOrProvince PidTagPostalCode PidTagCountry
home	PidTagHomeAddressPostOfficeBox PidTagHomeAddressStreet PidTagHomeAddressCity PidTagHomeAddressStateOrProvince PidTagHomeAddressPostalCode PidTagHomeAddressCountry
postal	PidTagOtherAddressPostOfficeBox PidTagOtherAddressStreet PidTagOtherAddressCity PidTagOtherAddressStateOrProvince PidTagOtherAddressPostalCode PidTagOtherAddressCountry

The address that is selected as the mailing address by the **PidLidPostalAddressId** property also gets the value "pref" assigned to the TYPE parameter.

2.3.2 Type: LABEL

RFC Reference: [RFC2426] section 3.2.2.

Contact Object Reference: N/A.

vCard Data Format: LABEL;TYPE=[Type]:[Formatted Address]

Brief description: Structured mailing label for the object that the vCard represents.

Importing To Contact Objects

The LABEL type is ignored on import.

Exporting From Contact Objects

The physical address objects are exported as a formatted string that represents a mailing label. Labels are constructed from the **Contact object** fields that are listed in the following table.

Address label	Contact object properties
Work	PidTagPostOfficeBox PidTagStreetAddress PidTagLocality PidTagStateOrProvince PidTagPostalCode PidTagCountry
Home	PidTagHomeAddressPostOfficeBox PidTagHomeAddressStreet PidTagHomeAddressCity PidTagHomeAddressStateOrProvince PidTagHomeAddressPostalCode PidTagHomeAddressCountry
Postal	PidTagOtherAddressPostOfficeBox PidTagOtherAddressStreet PidTagOtherAddressCity PidTagOtherAddressStateOrProvince PidTagOtherAddressPostalCode PidTagOtherAddressCountry

2.4 Telecommunications Addressing Types

These types are used in the vCard profile to capture telecommunications information, such as telephone numbers and e-mail addresses for the person or resource identified by the vCard.

2.4.1 Type: TEL

RFC Reference: [RFC2426] section 3.3.1.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.4.

vCard Data Format: TEL; TYPE=[Type]:[Phone Number]

Brief Description: A telephone number that is associated with the object that the vCard represents.

Importing To Contact Objects

The telephone number is imported to the **Contact object** based on the TYPE parameter, as shown in the following table. If the TYPE parameter is not specified in the vCard, the default value is "voice".

TEL TYPE parameter	Contact object properties
home	PidTagHomeTelephoneNumber PidTagHome2TelephoneNumber
msg	PidTagOtherTelephoneNumber
work	PidTagBusinessTelephoneNumber PidTagBusiness2TelephoneNumber
voice	PidTagOtherTelephoneNumber
cell	PidTagMobileTelephoneNumber
video	PidTagOtherTelephoneNumber
pager	PidTagPagerTelephoneNumber
bbs	PidTagOtherTelephoneNumber
modem	PidTagOtherTelephoneNumber
car	PidTagCarTelephoneNumber
isdn	PidTagIsdnNumber
home;fax	PidTagHomeFaxNumber
work;fax	PidTagBusinessFaxNumber
pcs	Dropped

pref	PidTagPrimaryTelephoneNumber
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Exporting From Contact Objects

Each telephone number is exported as a formatted TEL type.

2.4.2 Type: EMAIL

RFC Reference: [RFC2426] section 3.3.2.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.2.

vCard Data Format: EMAIL;TYPE=[Type]:[Email]

Brief Description: E-mail address of the object described by this vCard in SMTP or X.400 format.

Importing To Contact Objects

The contents of one to three EMAIL types are imported into **Contact object** properties depending on the TYPE parameter that is specified. The EMAIL type is imported as shown in the following table.

TYPE parameter value	Contact object properties
internet or none	PidLidEmail1AddressType PidLidEmail1EmailAddress PidLidEmail2AddressType PidLidEmail2EmailAddress PidLidEmail3AddressType PidLidEmail3EmailAddress Any additional EMAIL types are ignored.
im	PidLidInstantMessagingAddress PidNameInstantMessagingAddress2 PidNameInstantMessagingAddress3 Exported as X-MS-IMADDRESS.
telex	PidTagTelexNumber Exported as the X-MS-TEL;TYPE=telex type.

If multiple TYPE parameter values are set on an EMAIL type, the first recognized TYPE parameter value is used. If no TYPE parameter value is recognized, "internet" is used.

Exporting From Contact Objects

The **PidLidEmail1AddressType**, **PidLidEmail1EmailAddress**, **PidLidEmail2AddressType**, **PidLidEmail2EmailAddress**, **PidLidEmail3AddressType**, and **PidLidEmail3EmailAddress** properties are exported to the vCard. The **PidLidEmail1DisplayName**, **PidLidEmail2DisplayName**, and **PidLidEmail3DisplayName** properties are not exported.

The instant messaging properties (**PidLidInstantMessagingAddress**) are exported as X-MS-IMADDRESS types; the **PidTagTelexNumber** property is exported as an X-MS-TEL;TYPE=telex type.

2.4.3 Type: MAILER

RFC Reference: [RFC2426] section 3.3.3.

Contact Object Reference: N/A.

vCard Data Format: MAILER:[Mailer]

Brief Description: The name of the program that generated the vCard.

Importing To Contact Objects

The MAILER type is not imported.

Exporting From Contact Objects

The MAILER type is set to "Microsoft Exchange".

2.5 Geographical Types

These types capture geographical locations that are associated with the object that the vCard represents.

2.5.1 Type: TZ

RFC Reference: [RFC2426] section 3.4.1.

Contact Object Reference: N/A.

vCard Data Format: TZ:[UTC-Offset]

Brief description: The time zone where the object that is represented by the vCard is located.

Importing To and Exporting From Contact Objects

The TZ type is neither imported to the **Contact object** nor is it exported when a vCard is created.

2.5.2 Type: GEO

RFC Reference: [RFC2426] section 3.4.2.

Contact Object Reference: N/A.

vCard Data Format: GEO:[Decimal latitude]; [Decimal longitude]

Brief Description: The decimal latitude and longitude of the location of the object that the vCard represents.

Importing To and Exporting From Contact Objects

The GEO type is neither imported to the **Contact object** nor is it exported when a vCard is created.

2.6 Organizational Types

These types capture information about the organization or organizational units of the object that the vCard represents.

2.6.1 Type: TITLE

RFC Reference: [RFC2426] section 3.5.1.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.6.1.

vCard Data Format: TITLE:[Formatted title]

Brief Description: Job title, functional position, or function of the object that the vCard represents.

Importing To and Exporting From Contact Objects

The TITLE type is imported to and exported from **PidTagTitle**.

2.6.2 Type: ROLE

RFC Reference: [RFC2426] section 3.5.2.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.6.9.

vCard Data Format: ROLE:[Formatted title]

Brief Description: The role, occupation, or business category of the object that is represented by the vCard.

Importing To and Exporting From Contact Objects

The ROLE type is imported to and exported from **PidTagProfession**.

2.6.3 Type: LOGO

RFC Reference: [RFC2426] section 3.5.3.

Contact Object Reference: N/A.

vCard Data Format:

LOGO;Encoding=b;TYPE=[Type]:[Data]

LOGO;VALUE=uri:[URI]

Brief Description: A graphic image of a logo that is associated with the object that is represented by the **vCard**.

Importing To and Exporting From Contact Objects

The LOGO type is neither imported to the **Contact object** nor is it exported when a vCard is created.

2.6.4 Type: AGENT

RFC Reference: [RFC2426] section 3.5.4.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.6.7.

vCard Data Format:

AGENT;VALUE=uri:[Unique identifier]

AGENT:BEGIN:VCARD\n[vCard data]\nEND:VCARD\n

Brief Description: Information about another person who will act on behalf of the object that is represented by the **vCard**.

Importing To Contact Objects

Only the second (vCard) form of the AGENT type is imported. All values in the AGENT type vCard are dropped except for the FN and TEL types. **Contact object** properties are assigned as shown in the following table.

AGENT vCard type	Contact object property
FN	PidTagAssistant
TEL	PidTagAssistantTelephoneNumber

The last TEL type in the AGENT type vCard is used as the assistant's telephone number.

Exporting From Contact Objects

The **PidTagAssistant** and **PidTagAssistantTelephoneNumber** properties are exported as the X-MS-ASSISTANT and X-MS-TEL;TYPE=ASSISTANT types.

2.6.5 Type: ORG

RFC Reference: [RFC2426] section 3.5.5.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.6.2 and 2.2.1.6.3.

vCard Data Format: ORG:[Organization];[SubUnit1];[SubUnit2]; <repeats>

Brief Description: The organizational name and units that are associated with the object that is represented by the **vCard**.

Importing To and Exporting From Contact Objects

The fields of the ORG type are imported to and exported from **Contact object** properties as shown in the following table.

ORG type field	Contact object property
Organization	PidTagCompanyName
SubUnit1 SubUnit2 ...	PidTagDepartmentName

2.7 Explanatory Types

These types capture additional information about the person or resource that is identified by the **vCard**.

2.7.1 Type: CATEGORIES

RFC Reference: [RFC2426] section 3.6.1.

Contact Object Reference: N/A.

vCard Data Format: CATEGORIES:[value1],[value2],<repeats>

Brief Description: Comma-separated category information that is associated with the object that is represented by the **vCard**.

Importing To and Exporting From Contact Objects

The CATEGORIES type is imported to and exported from **PidLidCategories**.

2.7.2 Type: NOTE

RFC Reference: [RFC2426] section 3.6.2.

Contact Object Reference: N/A.

vCard data format: NOTE:[Note]

Brief Description: Supplemental information or comment that is associated with the object that is represented by the **vCard**.

Importing To and Exporting From Contact Objects

The NOTE type is imported to and exported from **PidTagBody**

2.7.3 Type: PRODID

RFC Reference: [RFC2426] section 3.6.3.

Contact Object Reference: N/A.

vCard Data Format: PRODID:[Product]

Brief Description: Identifier of the product that created the **vCard**.

Importing To Contact Objects

The PRODID type is not imported.

Exporting From Contact Objects

The PRODID type is set to "Microsoft Exchange" when the vCard is created.

2.7.4 Type: REV

RFC Reference: [RFC2426] section 3.6.4.

Contact Object Reference: [MS-OXPROPS] section 2.835.

vCard Data Format: REV:[Revision]

Brief Description: Distinguishes the current revision of the information in the vCard from other renditions of the information.

Importing To and Exporting From Contact Objects

The REV type is imported to and exported from **PidTagLastModificationTime**.

2.7.5 Type: SORT-STRING

RFC Reference: [RFC2426] section 3.6.5.

Contact Object Reference: N/A.

vCard Data Format: SORT-STRING:[Sort text]

Brief Description: Text to be used for national-language-specific sorting of the FN and N types.

Importing To and Exporting From Contact Objects

The SORT-STRING type is neither imported from nor exported to the vCard.

2.7.6 Type: SOUND

RFC Reference: [RFC2426] section 3.6.6.

Contact Object Reference: N/A.

vCard Data Format:

SOUND:TYPE=[Format];VALUE=uri:cid:[Uri]

SOUND:TYPE=[Format];ENCODING=b:[data]

Brief Description: Digital sound content associated with the object that is represented by the vCard.

Importing To and Exporting From Contact Objects

The SOUND type is neither imported to the **Contact object** nor exported from the vCard.

2.7.7 Type: UID

RFC Reference: [RFC2426] section 3.6.7.

Contact Object Reference: N/A.

vCard Data Format: UID:[Unique identifier]

Brief Description: Globally unique identifier that corresponds to the object that is represented by the **vCard**.

Importing To and Exporting From Contact Objects

The UID type is neither imported to the **Contact object** nor exported from the vCard.

2.7.8 Type: URL

RFC Reference: [RFC2426] section 3.6.8.

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.9.13 and 2.2.1.9.14.

vCard Data Format: URL:[Uri]

Brief Description: **Uniform resource identifier (URI)** that is associated with the object that is represented by the **vCard**.

Importing To Contact Objects

The URL type is imported to the **Contact object** based on the TYPE parameter.

TYPE parameter	Contact object property
home	PidTagPersonalHomePage
work	PidTagBusinessHomePage

If the TYPE parameter is not specified, the URL type is imported first to the **PidTagBusinessHomePage** property. One additional URL type is imported to the **PidTagPersonalHomePage** property; any other instances are ignored.

Exporting From Contact Objects

One URL type is exported from the **PidTagBusinessHomePage** property with the TYPE parameter set to "work" and one from the **PidTagPersonalHomePage** property with the TYPE parameter set to "home".

2.7.9 Type: VERSION

RFC Reference: [RFC2426] section 3.6.9.

Contact Object Reference: N/A.

vCard Data Format: VERSION:[Version]

Brief Description: The version of the **vCard** specification that is used to format the vCard.

Importing To Contact Objects

The VERSION type is not imported to the **Contact object**.

Exporting From Contact Objects

The VERSION type is set to "3.0".

2.8 Security Types

These types capture security information for the **vCard**.

2.8.1 Type: CLASS

RFC Reference: [RFC2426] section 3.7.1.

Contact Object Reference: [MS-OXPROPS] section 2.1084.

vCard Data Format: CLASS:[Access classification]

Brief Description: Specifies the access classification for a **vCard**.

Importing To and Exporting From Contact Objects

The CLASS type is imported to and exported from the **PidTagSensitivity** property as shown in the following table.

CLASS type value	PidTagSensitivity value
Public	0
Private	2
Confidential	3

If the CLASS type value is not one of the values shown in the previous table, the **PidTagSensitivity** value is not set.

2.8.2 Type: KEY

RFC Reference: [RFC2426] section 3.7.2.

Contact Object Reference: [MS-OXPROPS] section 2.1131.

vCard Data Format: KEY;ENCODING=b:[data]

Brief Description: A public key or authentication certificate that is associated with the object that the **vCard** represents.

Importing To and Exporting From Contact Objects

If the KEY type represents an X.509 certificate, the KEY type is imported to and exported from **PidTagUserX509Certificate**. Other certificate types are not imported.

2.9 Custom Types

The following types are extended types that use the non-standard mechanism that is defined in [RFC2045].

2.9.1 EBC Design

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.7.1.

vCard Header: X-MS-OL-DESIGN:

vCard Data Format: X-MS-OL-DESIGN:[data]

Brief Description: Electronic business card that is associated with the object that the vCard represents.

Importing To and Exporting From Contact Objects

The X-MS-OL-DESIGN type is imported to and exported from **PidLidBusinessCardDisplayDefinition**.

2.9.2 Children

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.9.17.

vCard Header: X-MS-CHILD:, X-CHILD:

vCard Data Format: X-MS-CHILD:[Children's names]

Brief Description: The names of children's that are associated with the object that the vCard represents.

Importing To and Exporting From Contact Objects

The X-MS-CHILD or X-CHILD types are imported to and exported from **PidTagChildrensNames**.

2.9.3 User Text

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.7.3.

vCard Header: X-MS-TEXT:, X-CUSTOM:

vCard Data Format: X-MS-TEXT:[Text]

Brief Description: Custom text that is associated with the object that the vCard represents.

Importing To Contact Objects

The X-MS-TEXT type is saved to the **PidLidContactUserField1**, **PidLidContactUserField2**, **PidLidContactUserField3**, and **PidLidContactUserField4** **Contact object** properties in the order in which they are received. A maximum of four X-MS-TEXT types can be saved; additional instances are discarded.

Exporting From Contact Objects

The contents of **PidLidContactUserField1**, **PidLidContactUserField2**, **PidLidContactUserField3**, and **PidLidContactUserField4** are exported as X-MS-TEXT types.

2.9.4 Instant Messaging Address

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.9.6.

vCard Header: X-MS-IMADDRESS:, X-MS-RM-IMACCOUNT:, EMAIL;IM:

vCard Data Format: X-MS-IMADDRESS:[IM Address]

Brief Description: Instant messaging address that is associated with the object that the vCard represents.

Importing To and Exporting From Contact Objects

The X-MS-IMADDRESS type is imported to and exported from **PidLidInstantMessagingAddress**, **PidNameInstantMessagingAddress2**, and **PidNameInstantMessagingAddress3**. Any additional X-MS-IMADDRESS types are ignored.

2.9.5 Telephone Numbers

vCard Header: X-MS-TEL;TYPE=<telephone type>

Brief Description: The following telephone numbers are imported to and exported from **Contact object** properties as X-MS-TEL types.

TYPE property	Contact object property	Contact object reference [MS-OXOCNTC]
TYPE=ASSISTANT	PidTagAssistantTelephoneNumber	2.2.1.4.11
TYPE=CALLBACK	PidTagCallbackTelephoneNumber	2.2.1.4.2
TYPE=COMPANY	PidTagCompanyMainTelephoneNumber	2.2.1.4.14
TYPE=RADIO	PidTagRadioTelephoneNumber	2.2.1.4.8
TYPE=TTY/TDD	PidTagTtyTddPhoneNumber	2.2.1.4.13

2.9.6 Anniversary

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.5.3.

vCard Header: X-MS-ANNIVERSARY:, X-ANNIVERSARY:

vCard Data Format: X-MS-ANNIVERSARY:[date or date/time value]

Required: No.

Brief Description: The wedding anniversary that is associated with the object that is represented by the **vCard**.

Importing To and Exporting From Contact Objects

The X-MS-ANNIVERSARY type is imported to and exported from **PidTagWeddingAnniversary**.

2.9.7 Spouse's Name

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.9.3.

vCard Header: X-MS-SPOUSE;N:

vCard data format: X-MS-SPOUSE;N:[Formatted name]

Brief Description: The name of the spouse that is associated with the object that is represented by the **vCard**.

Importing To and Exporting From Contact Objects

The X-MS-SPOUSE;N type is imported to and exported from **PidTagSpouseName**.

2.9.8 Manager's Name

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.6.6.

vCard Header: X-MS-MANAGER;N:

vCard data format: X-MS-MANAGER;N:[Formatted name]

Brief Description: The name of the manager that is associated with the object that the **vCard** represents.

Importing To and Exporting From Contact Objects

The X-MS-MANAGER;N type is imported to and exported from **PidTagManagerName**.

2.9.9 Assistant's Name

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.6.7.

vCard Header: X-MS-ASSISTANT;N;, X-ASSISTANT

vCard data format: X-MS-ASSISTANT;N:[Formatted name]

Brief Description: The name of a person who is authorized to act on behalf of the object that is represented by the **vCard**.

Importing To and Exporting From Contact Objects

The X-MS-ASSISTANT;N type is imported to and exported from **PidTagAssistant**. The X-MS-TEL;ASSISTANT and X-MS-ASSISTANT;N: types are used instead of the vCard AGENT type.

2.9.10 Free/Busy URL

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.9.10.

vCard Header: X-MS-FBURL

vCard Data Format: X-MS-FBURL:[Uri]

Brief Description: A **URI** from which a client can retrieve **free/busy** information for the object that is represented by the **vCard** as an iCal file, as specified in [MS-OXICAL].

Importing To and Exporting From Contact Objects

The X-MS-FBURL type is imported to and exported from **PidLidFreeBusyLocation**.

2.9.11 Interests

Contact Object Reference: [MS-OXOCNTC] section 2.2.1.9.2.

vCard Header: X-MS-INTERESTS:, X-INTERESTS:

vCard Data Format: X-MS-INTERESTS:[List of interests]

Brief Description: The hobbies or other interests that are associated with the object that is represented by the **vCard**.

Importing To and Exporting From Contact Objects

The X-MS-INTERESTS type is imported to and exported from **PidTagHobbies**.

3 Structure Examples

The following examples show how a **vCard** is imported to and exported from a **Contact object**.

3.1 Importing a vCard

The following is a text representation of a **vCard**.

```
BEGIN:vCard
VERSION:3.0
FN:Dan Fennell
ORG:Contoso, Ltd.
ADR;TYPE=WORK,POSTAL,PARCEL:;;7890 Elm
Street;Boulder;CO;33041;U.S.
TEL;TYPE=VOICE,MSG,WORK:+1-206-555-0102
TEL;TYPE=FAX,WORK:+1-206-555-0162
EMAIL;TYPE=INTERNET,PREF:dan.fennell@contoso.com
EMAIL;TYPE=INTERNET:dfennell@fabrikam.com
URL:http://www.contoso.com/
END:vCard
```

The information in the vCard is imported to a **Contact object** as shown in the following table.

vCard type	Contact object property	Value
------------	-------------------------	-------

FN:	PidTagDisplayName	Dan Fennell
ORG:	PidTagCompanyName	Contoso, Ltd.
ADR; TYPE=WORK, postal,parcel:	PidTagStreetAddress PidTagOtherAddressStreet	7890 Elm St.
ADR; TYPE=WORK, postal,parcel:	PidTagLocality PidTagOtherAddressCity	Boulder
ADR; TYPE=WORK, postal,parcel:	PidTagStateOrProvince PidTagOtherAddressStateOrProvince	CO
ADR; TYPE=WORK, postal,parcel:	PidTagPostalCode PidTagOtherAddressPostalCode	33041
ADR; TYPE=WORK, postal,parcel:	PidTagCountry PidTagOtherAddressCountry	U.S.
TEL; TYPE= VOICE, MSG, WORK:	PidTagBusinessTelephoneNumber PidTagOtherTelephoneNumber	+1-206-555-0102
TEL; TYPE= FAX, WORK:	PidTagBusinessFaxNumber	+1-206-555-0162
EMAIL; TYPE=INTERNET , PREF:	PidLidEmail1EmailAddress	dan.fennell@contoso.com
EMAIL; TYPE=INTERNET :	PidLidEmail2EmailAddress	dfennell@fabrikam.com
URL:	PidTagBusinessHomePage	http://www.contoso.com/

3.2 Exporting a Contact object

The following table contains the values stored in a **Contact object**.

Contact object property	Value
PidLidEmail1EmailAddress	dan.fennell@contoso.com
PidLidEmail2EmailAddress	dfennell@fabrikam.com
PidTagAssistant	Julian Price
PidTagAssistantTelephoneNumber	+1-206-555-0188
PidTagBusinessTelephoneNumber	+1-206-555-0102
PidTagCompanyMainTelephoneNumber	+1-206-555-0100
PidTagCompanyName	Contoso, Ltd.
PidTagCountry	USA
PidTagGivenName	Dan
PidTagHomeAddressCountry	USA
PidTagHomeAddressCity	Boulder
PidTagHomeAddressPostalCode	33041
PidTagHomeAddressStateOrProvince	CO
PidTagHomeAddressStreet	345 Aspen Street
PidTagLocality	Boulder
PidTagMobileTelephoneNumber	+1-425-555-0199
PidTagPostalCode	33041
PidTagStateOrProvince	CO
PidTagStreetAddress	7890 Elm Street
PidTagSurname	Fennell

The following vCard is generated from the previous table.

```
BEGIN:vCard
VERSION:3.0
PROPID:Microsoft Exchange
FN:Dan Fennell
N:Fennell;Dan;;;
ORG:Contoso, Ltd
ADR;TYPE=work,pref;;;7890 Elm Street;Boulder;CO;33041;U.S.
ADR;TYPE=home;;;345 Aspen Street;Boulder;CO;33041;U.S.
EMAIL:TYPE=internet,pref:dan.fennell@contoso.com
EMAIL:TYPE=internet:dfennell@fabrikam.com
TEL;TYPE=work,pref:+1-206-555-0102
TEL;TYPE=cell:+1-425-555-0199
X-MS-TEL;TYPE=COMPANY:+1-206-555-0100
X-MS-ASSISTANT;TYPE=N: Julian Price
X-MS-TEL;TYPE=ASSISTANT:+1-206-555-0188
```

4 Security Considerations

The vCard format can carry cryptographic keys or certificates, as specified in section 2.8.2.

Section 2.8.1 specifies a desired security classification policy for a vCard. The security policy is not enforced in any way.

vCards have no inherent authentication or privacy, but can be carried by any security mechanism that transfers MIME objects with security or privacy. Where the threat exists of invalid vCard information, it is recommended that you transport the vCard by one of these methods.

The information of the vCard may become out of date. In cases where the data is important to the originator of the vCard, it is recommended that you specify the URL type specified in section 2.7.8. In addition, the REV type specified in section 2.7.4 can be specified to indicate the last time that the vCard data was updated.

5 Appendix A: Office/Exchange Behavior

The information in this specification is applicable to the following versions of Office/Exchange:

- Microsoft Exchange Server 2010

Exceptions, if any, are noted below. Unless otherwise specified, any statement of optional behavior in this specification prescribed using the terms SHOULD or SHOULD NOT implies Office/Exchange behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies Office/Exchange does not follow the

prescription.

Preliminary

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