

# [MS-CPSP]: Connection Point Services: Phonebook Data Structure

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## Revision Summary

Date	Revision History	Revision Class	Comments
07/20/2007	0.1	Major	MCPP Milestone 5 Initial Availability
09/28/2007	0.1.1	Editorial	Revised and edited the technical content.
10/23/2007	0.2	Minor	Updated a glossary entry.
11/30/2007	0.2.1	Editorial	Revised and edited the technical content.

Date	Revision History	Revision Class	Comments
01/25/2008	0.2.2	Editorial	Revised and edited the technical content.

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# 1 Introduction

Users often use a dial-up connection, such as a modem or Integrated Services Digital Network (ISDN), to access the Internet or a corporate network in order to use resources on these networks. So that users need not pay long-distance charges, the Internet service providers (ISPs) that provide Internet access or the administrators of a corporate network may provide several local access numbers in the geographic areas where they provide service. These geographic locations with their local access numbers are called points of presence or **POPs**.

The POPs of an ISP or corporate network may change over time and when they change, the most current POP information must be published to users in a reliable and cost-effective manner. The Connection Point Services (CPS) phonebook file specifies a format for documenting **POP entry** information.

Because there may be multiple POP entries in a geographic location or area, in order to supply multiple connection options to users (for example, an ISDN number that provides higher bandwidth for users who have an ISDN connection), the **CPS phonebook file** also provides a logical grouping of POPs information based on the geographic location or area. (In this document, geographic locations or areas are called **regions**.) Each POP has the information about the region it serves, and the list of regions is stored in a separate file known as a **region file**.

The dial-up networking (DUN) client allows the user to select the POP entry of their choice and connect to the network. For example, users may select one local POP entry when they are in India and use another local POP entry if they visit the United States.

## 1.1 Glossary

The following terms are defined in [\[MS-GLOS\]](#):

### ASCII

The following terms are specific to this document:

**Connection Point Services (CPS) Phonebook File:** A file that contains **POP** entries.

**Dial-up Networking (DUN) Client:** The software on a user's client machine that makes the dial-up connection by using a modem or an ISDN line.

**Point of Presence (POP):** The geographic location for which the Internet service provider (ISP) or the administrator of a corporate network provides a local access number.

**POP Entry:** A **CPS phonebook file** entry that contains a local access number for a specific **region** in a country. A POP entry also contains other parameters that are useful for end users, enterprise administrators, and Internet service providers (ISPs).

**POP Entry Field:** A field in the **POP entry**.

**Region:** The geographic location or area information. The region names are stored in a region file.

**Region File:** An **ASCII** text file that is used to store the **region** names.

**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

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact [dochelp@microsoft.com](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[ITU-E.164] ITU-T, International Telecommunication Union, "List of ITU-T Recommendation E.164 Assigned Country Codes", May 2005, [http://www.itu.int/itudoc/itu-t/ob-lists/icc/e164\\_763.pdf](http://www.itu.int/itudoc/itu-t/ob-lists/icc/e164_763.pdf)

[MS-GLOS] Microsoft Corporation, "[Windows Protocols Master Glossary](#)", March 2007.

[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>

### 1.2.2 Informative References

This protocol currently cites no informative references.

## 1.3 Relationship to Protocols and Other Structures

A user may use any suitable transfer mechanism—including copying to a floppy disk or using a protocol such as FTP or HTTP—to retrieve and store, or update, the CPS phonebook file and region file on their computer.

## 1.4 Applicability Statement

A dial-up networking (DUN) client can use the CPS phonebook file and region file to connect to the Internet or to a corporate network.

## 1.5 Versioning and Localization

Versioning or localization information is not applicable.

## 1.6 Vendor-Extensible Fields

The Connection Point Services: Phonebook Data Structure does not have any vendor-extensible fields.

## 2 Structures

### 2.1 CPS Phonebook File

The CPS phonebook file is stored as an **ASCII** text file. It contains zero or more POP entries that are separated by a carriage return/line feed.

Each POP entry consists of a sequence of POP entry fields that are separated by a comma ",". Each POP entry **MUST** have 10 or 11 commas (the eleventh comma is optional). If the number of commas in a POP entry is less than 10, all subsequent POP entries **MUST** be ignored. If the number of commas in a POP entry is more than 11, all the POP entries in the CPS phonebook file **MUST** be ignored.

A POP entry contains the following fields in the order in which they are listed below. All the following entries are represented as string values in the ASCII CPS phonebook file.

**POP Index:** This field **MUST** be an integer value that is represented as an ASCII string. The POP Index field is optional. If the POP Index is a negative number or contains characters other than numbers (0-9), this POP entry and all the subsequent POP entries **MUST** be ignored.

**Country Code:** This field **MUST** be an integer value that is represented as an ASCII string, as specified in [\[ITU-E.164\]](#). This field is the code for the country to which the user wants to make a dial-up connection. For example, the country code would be "1" for United States or "91" for India. This field **MUST** be present. This POP entry **MUST** be ignored if the country code is not present. All POP entries in the CPS phonebook file **MUST** be ignored if the Country Code is a negative number or has a non-numeric character.

**Region Id:** An index of the region name in the region file. This field **MUST** be an integer value that is represented as an ASCII string. This field is optional. A value of zero identifies all regions. All POP entries in the CPS phonebook file **MUST** be ignored if the Region Id is a negative number or has a non-numeric character.

**POP Name:** The name of the POP entry. All ASCII characters are allowed in the POP Name except the comma ",". This field is optional and if present, **MUST** have a maximum length of 31 characters. If the length of the POP Name exceeds 31 characters, the first 31 characters **MUST** be read as the POP Name and the remaining characters of the POP Name **MUST** be treated as the next field. However, in this case all the subsequent POP entries **MUST** be ignored.

**Area Code:** This field denotes the telephonic area code within the designated country code for the access number. This field **MUST** be an integer value that is represented as an ASCII string. This field is optional and if present, **MUST** have a maximum length of 11 characters and **MUST** contain zero or more numbers (0-9), hyphens "-", and spaces " ". If the length exceeds 11 characters, the first 11 characters **MUST** be read as the Area Code and the remaining characters **MUST** be treated as the next field. However, in this case all the subsequent POP entries **MUST** be ignored.

**Access Number:** This field denotes the phone number that is used to dial the connection. This field **MUST** be present and **MUST** include one or more numbers (0-9), and zero or more number signs "#", asterisks "\*", hyphens "-", or spaces " ". This field **MUST** have a maximum length of 41 characters. If the length exceeds 41 characters, the first 41 characters **MUST** be read as the Access Number and the remaining characters **MUST** be treated as the next field. However, in this case all the subsequent POP entries **MUST** be ignored.

**Minimum Analog Speed:** This field denotes the minimum analog speed, in kilobits per second, of the modem or ISDN line. This field is optional and if present, **MUST** be an integer value that is represented as an ASCII string. All the POP entries in the CPS phonebook file **MUST** be ignored if the Minimum Analog Speed is a negative number or has a non-numeric character.

**Maximum Analog Speed:** This field denotes the maximum analog speed, in kilobits per second, of the modem or ISDN line. This field is optional and if present, MUST be an integer value that is represented as an ASCII string. All the POP entries in the CPS phonebook file MUST be ignored if the Maximum Analog Speed is a negative number or has a non-numeric character.

**Reserved Flag:** This optional field is reserved. If present, this field MUST be zero or a positive number that is represented as an ASCII string. If the Reserved Flag is a negative number or has a non-numeric character, all the POP entries in the CPS phonebook file MUST be ignored.

**POP Flag:** This field is a set of flags that are used to specify the properties of the POP entry. If the POP Flag is a negative number or has a non-numeric character, all the POP entries in the CPS phonebook file MUST be ignored. This field is optional and if not present, it MUST default to zero.

The POP Flag is the decimal representation of the bit sequence that consists of the following flags:

- **Sign on:** This POP Flag denotes that the user MUST authenticate each time the user dials the connection. This POP Flag MUST be zero. Otherwise, this POP entry MUST be ignored.
- **Sign up:** This POP Flag denotes that the POP allows the user to sign up for an account with the service provider.
- **Modem:** This POP Flag denotes that the user can make the connection by using a modem.
- **ISDN:** This POP Flag denotes that the user can dial the connection by using an ISDN line.
- **Custom 1:** This reserved flag MUST be zero and ignored by the **DUN client**.
- **Multicast:** This POP Flag denotes that POP supports transport of IP multicast datagrams over the dial-up connection.
- **Surcharge:** This POP Flag denotes that the service provider may charge the user a surcharge for connecting to this POP.
- **Custom 2:** This reserved flag MUST be zero and ignored on receipt.

The bit representation of the POP Flag is as follows:

Bit number	POP Flag name	Bit value and description
0 (LSB)	Sign On	0 - Sign On 1 - Not Sign On
1	Sign Up	0 - Not Sign Up 1 - Sign Up
2	Modem	0 - Modem 1 - Not Modem
3	ISDN	0 - ISDN 1 - Not ISDN
4	Custom 1	0 - Not Custom 1 1 - Custom 1
5	Multicast	0 - Multicast 1 - Not Multicast

Bit number	POP Flag name	Bit value and description
6	Surcharge	0 - Not Surcharge 1 - Surcharge
7	Custom 2	0 - Not Custom 2 1 - Custom 2

Dialup Networking Name: The display name of the POP entry that can be used by the dial-up networking client to correlate any additional information with that POP entry. This optional field has a maximum length of 50 characters. All ASCII characters MUST be allowed in the Dialup Networking Name except the following:

- Comma " , "
- Ampersand " & "
- Percent " % "
- Apostrophe " ' "
- Open single quote " ` "
- Close single quote " ' "
- Double quotation mark " " " "

If the length exceeds 50 characters, the first 50 characters MUST be read as the Dialup Networking Name and the remaining characters MUST be ignored.

## 2.2 Region File

The region file is an ASCII text file that is used to store the region names. It contains one or more region names that are separated by a carriage return/line feed.

The first line in the file MUST be an integer that is represented as an ASCII string and that denotes the number of region names in the region file. All the following lines in the file MUST contain the region name, one region per line.

The maximum length of a region name MUST be 31 characters. If the length exceeds 31 characters, the first 31 characters MUST be read as the region name and the remaining characters MUST be ignored.



### 3 Structure Examples

Example of a POP entry:

The following is an example of a POP entry that is stored in the CPS phonebook file:

```
23,1,2,Redmond,425,8729553,9600,56000,0,96,\LF\CR
```

In the previous example, the POP entry fields are interpreted as follows:

```
POP Index = 23
Country Code = 1
Region Id = 2
POP Name = Redmond
Area Code = 425
Access Number = 8729553
Minimum Analog Speed = 9600
Maximum Analog Speed = 56000
Reserved Flag = 0
POP Flag = 96 (Selected Options: Sign On, Modem, ISDN, Surcharge)
Dialup Networking Name = ""
```

Another example of a POP entry in a CPS phonebook file (with all the optional fields omitted) is:

```
,91,,,,,66458723,,,,,\LF\CR
```

In the previous example, the POP entry fields are interpreted as follows:

```
POP Index = 0
Country Code = 91
Region Id = 0
POP Name = ""
Area Code = ""
Access Number = 66458723
Minimum Analog Speed = 0
Maximum Analog Speed = 0
Reserved Flag = 0
POP Flag = 0
Dialup Networking Name = ""
```

Example of a region file:

```
2\LF\CR
Hyderabad\LF\CR
Seattle\LF\CR
```

The "2" in the first line denotes the number of region entries in the region file. The entries that follow this line are the region names "Hyderabad" and "Seattle".

## 4 Security Considerations

The CPS phonebook file inherits the access control lists (ACLs) of the parent folder.

## 5 Appendix A: Windows Behavior

The information in this specification is applicable to the following versions of Windows:

- Windows Vista
- Windows Server 2003
- Windows XP
- Windows 2000

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 Windows behavior in accordance with the SHOULD or SHOULD NOT prescription. Unless otherwise specified, the term MAY implies that Windows does not follow the prescription.

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