The Internet and the Millennium Problem (Year 2000)

Status of this Memo

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Abstract

The Year 2000 Working Group (WG) has conducted an investigation into the millennium problem as it regards Internet related protocols. This investigation only targeted the protocols as documented in the Request For Comments Series (RFCs). This investigation discovered little reason for concern with regards to the functionality of the protocols. A few minor cases of older implementations still using two digit years (ala RFC 850) were discovered, but almost all Internet protocols were given a clean bill of health. Several cases of "period" problems were discovered, where a time field would "roll over" as the size of field was reached. In particular, there are several protocols, which have 32 bit, signed integer representations of the number of seconds since January 1, 1970 which will turn negative at Tue Jan 19 03:14:07 GMT 2038. Areas whose protocols will be effected by such problems have been notified so that new revisions will remove this limitation.

1. Introduction

According to the trade press billions of dollars will be spend the upcoming years on the year 2000 problem, also called the millennium problem (though the third millennium will really start in 2001). This problem consists of the fact that many software packages and some protocols use a two-digit field for the year in a date field. Most of the problems seem to be in administrative and financial programs, or in the hardcoded microcomputers found in electronic equipment. A lot of organizations are now starting to make an inventory of which software and tools they use will suffer from the millennium problem.
With the increasing popularity of the Internet, more and more organizations use the Internet as a serious business tool. This means that most organizations will want to analyze the millennium problems due to the use of Internet protocols and popular Internet software. In the trade press the first articles suggest that the Internet will collapse at midnight the 31st of December 1999.

To counter these suggestions, and to avoid having countless companies redo the same investigation, this effort was undertaken by the IETF. The Year 2000 WG has made an inventory of all-important Internet protocols that have been documented in the Request for Comments (RFC) series. Only protocols directly related to the Internet will be considered.

This document is divided into a number of sections. Section 1 is the Introduction which you are now reading. Section 2 is a disclaimer about the completeness of this effort. Section 3 describes areas in which millennium problems have been found, while Section 4 describes a few other "period" problems. Section 5 describes potential fixes to problems that have been identified. Section 6 describes the methodology used in the investigation. Sections 7 through 22 are devoted to the 15 different groupings of protocols and RFCs. Section 23 discusses security considerations, Section 24 is devoted to references, and Section 25 is the author contact information. Appendix A is the list of RFCs examined broken down by category. Appendix B is a PERL program used to make a first cut identification of problems, and Appendix C is the output of that PERL program.

The editor of this document would like to acknowledge the critical contributions of the follow for direct performance of research and the provision of text: Alex Latzko, Robert Elz, Erik Huizer, Gillian Greenwood, Barbara Jennings, R.E. (Robert) Moore, David Mills, Lynn Kubinec, Michael Patton, Chris Newman, Erik-Jan Bos, Paul Hoffman, and Rick H. Wesson. The pace with which this group has operated has only been achievable by the intimate familiarity of the contributors with the protocols and ready access to the collective knowledge of the IETF.

2. Disclaimer

This RFC is not complete. It is an effort to analyze the Y2K impact on hundreds of protocols but is likely to have missed some protocols and misunderstood others. Organizations should not attempt to claim any legitimacy or approval for any particular protocol based on this document. The efforts have concentrated on the identification of potential problems, rather than solutions to any of the problems that have been identified. Any proposed solutions are only that: proposed. A formal engineering review should take place before any solution is
adopted.

It should also be noted that the research was performed on RFCs 1 through 2128. At that time the IESG was charted with not allowing any new RFCs to be published that had any Year 2000 issues. Since that cutoff time there has been work to correct issues discovered by this Working Group. In particular, RWhois as documented by RFC 1714 has been updated to fix the problems found. RFC 2167 now documents a fixed version of the RWhois protocol. The work of this group was to look backwards, and hence new RFC’s which supplant the old are expected to make the information in this RFC obsolete. The work of this group will truly be complete when this document is completely obsolete.

A number of people have suggested looking into other "special" dates. For example, the first leap year, the first "double digit" day (January 10, 2000), January 1, 2001, etc. There is not one place where days have been used in the protocols defined by the RFC series so there is little reason to believe that any of these special dates will have any impact.

3. Summary of Year 2000 Problems

Here is a brief description of all the Millennium issues discovered in the course of this research. Note that many of the RFCs are unclear on the issue. They mandate the use of UTC time but do not specify whether the two-digit or four-digit year representation should be used.

3.1 "Directory Services"

- rfc1274.txt - References UTC date/time
- rfc1276.txt - References UTC date/time for version control.
- rfc1488.txt - References UTC Time as printable strings.
- rfc1608.txt - Refers to uTCTimeSyntax
- rfc1609.txt - Refers to uTCTimeSyntax
- rfc1778.txt - Refers to uTCTimeSyntax

3.2 "Information Services and File Transfer"

HTTP 1.1, as defined in RFC 2068, requires all newly generated date stamps to conform to RFC 1123 date formats which are Year 2000 compliant, but it also requires acceptance of the older non-compliant RFC850 formats. Some specific recommendations have been passed to the HTTP WG.
HTML 2.0, as defined in RFC 1866, could allow a very subtle Year 2000 problem, but once again this recommendation has been passed on the HTML WG.

RFC 1778 on String Representations of Standard Attribute Syntax’s define UTC Time in Section 2.21 and uses that definition in Section 2.25 on User Certificates. Since UTC Time is being used, there is a potential millennium issue.

RFC 1440 on SIFT/UFT: Sender-Initiated/Unsolicited File Transfer defines an optional DATE command in Section 5 of the form mm/dd/yy which is subject to millennium issues.

3.3 "Electronic Mail"

After reviewing all mail-related RFCs, it was discovered that while some obsolete standards required two-digit years, all currently used standards require four-digit years and are thus not prone to typical Year 2000 problems.

RFCs 821 and 822, the main basis for SMTP mail exchange and message format, originally required two-digit years. However, both of these RFCs were later modified by RFC 1123 in 1989, which strongly recommended 4-digit years.

3.4 "Name Serving"

While not a protocol issue, there is a common habit of writing serial numbers for DNS zone files in the form YYXXXXXX. The only real requirement on the serial numbers is that they be increasing (see RFC 1982 for a complete description) and a change from 99XXXXXX to 00XXXXXX cause a failure. See the section on "Name Serving" for a complete description of the issues.

3.5 "Network Management"

Version 2 of SNMP’s MIB definition language (SMIv2) specifies the use of UCTTimes for time stamping MIB modules. Even though these time stamps do not flow in any network protocols, there could be as issue with management applications, depending on implementations.

3.6 "Network News"

There does exist a problem in both NNTP, RFC 977, and the Usenet News Message Format, RFC 10336. They both specify two-digit year format. A working group has been formed to update the network news protocols in general, and addressing this problem is on their list of work items.
3.7 "Real-Time Services"

A Year 2000 problem does occur in the Simple Network Paging Protocol, versions 2 & 3. Both define a HOLDuntil option which uses a YYMMDDHHMMSS+/-GMT field. Version 3 also defines a MSTATus command, which is required to store,dates and times as YYMMDDHHMMSS+/-GMT.

There is a small Year 2000 issue in RFC 1786 on the Representation of IP Routing Policies in the ripe-81++ Routing Registry. In Appendices C the "changed" object parameter defines a format of <email-address> YYMMD,D, and similarly in Appendix D "withdrawn" object identifier has the format of YYMMDD. Since these are only identifiers there should be little operational impact. Some application software may need to be modified.

3.8 "Security"

RFC 1507 on Distributed Authentication Security Services (DASS) use UTCTime. Because of the imprecision of the UTC time definition there could be problems with this protocol.

RFCs 1421-1424 specifies that PEM uses UTC time formats which could have a Millennium issue.

4. Summary of Other "Periodicity" Problems

By far, the largest area of "period" problems occurs in the year 2038. Many protocols use a 32-bit field to record the number of seconds since January 1, 1970.

4.1 "Name Services"

DNS Security uses 32-bit timestamps which will roll over in 2038. This issue has been referred to the appropriate Working Group so that the details of rollover can be established.

4.2 "Routing"

IDPR suffers from the classic Year 2038 problem, by having a timestamp counter which rolls over at that time.

5. Suggested Solutions

The real solution to the problem is to use 4 digit year fields for applications and hardware systems. For counters that key off of a certain time (January 1, 1970 for example) need to either: define a wrapping solution, or to define a larger number space (greater than 32-bits), or to make more efficient use of the 32-bit space. However,
it will be impossible to completely replace currently deployed systems, so solutions for handling problems are in order.

5.1 Fixed Solution

A number of organizations and groups have suggested a fixed solution to the problem of two digit years. Given a two-digit year YY, if YY is greater than or equal to 50, the year shall be interpreted as 19YY; and where YY is less than 50, the year shall be interpreted as 20YY.

While a simple and straightforward solution, it only pushes the problem off 40 to 50 years, until the artificially generated Year 2050 problem needs to be addressed. However, it is easy to implement and deploy, so it might be the most commonly adopted solution.

5.2 Sliding Window

Another solution is the "sliding window" approach. In this approach, some value N is selected, and any two digit year that is less than or equal to the current two digit year plus N is considered the future, while any other two digit year is considered in the past.

For example, choosing N equal to 10, if the current year is 2012, and I get a two digit year that is any of 12, 13, 14, 15, 16, 17, 18, 19, 20, 21 or 22, assume it is 20YY (i.e. the future), otherwise consider it to be in the past (1923-1999, 2000-2011).

This solution has two advantages. First, no new fixed year problems are introduced. Second, different applications and protocols could choose different values of N. The drawback is that this solution is harder to implement, and to work well the value of N will need to be constant across different implementations.

6. Methodology

The first task was dividing the types of RFC’s into logical groups rather than the strict numeric publishing order. Sixteen specific areas were identified. They are: "Autoconfiguration", "Directory Services", "Disk Sharing", "Games and Chat", "Information Services & File Transfer", "Network & Transport Layer", "Electronic Mail", "NTP", Name Serving", "Network Management", "News", "Real Time Services", "Routing", "Security", "Virtual Terminal", and "Other". In addition to these categories, many hundreds of RFC’s were immediately eliminated based on content. That is not to say that all Informational RFC’s were not considered, many did contain some technical content or overview which demanded scrutiny.
Each area was assigned to a team for investigation. Although each team used whatever additional investigation techniques which seemed appropriate (including completely reading each RFC, and in some cases the source code for the reference implementation) at minimum each team used an automatic scanning system to search for the following items (case insensitively) in each RFC:

- date
- GMT
- UTCTime
- year
- yy (that is not part of yyyy)
- two-digit, 2-digit, 2digit
- century
- 1900 & 2000

Note that all of these strings except "UTCTime" may occur in conjunction with a date format that accommodates the Year 2000 crossing, as well as with one that does not. So "hits" on these string do not necessarily indicate Year 2000 problems: they simply identify elements that need to be examined.

After the documents were scanned, therefore, each "hit" was examined individually. Those that cause no Year 2000 problems (e.g., those that encode the year as a two-byte integer, or as a four-character display string) are not discussed here. Those that do cause Year 2000 problems are identified in this document, and the nature and impact of the problems they cause are described.

7. Autoconfiguration

7.1 Summary

The RFC’s which were categorized into this group were primarily the BOOT Protocol (BOOTP) and the Dynamic Host Configuration Protocol (DHCP) for both IP version four and six.

Examination of the BOOTP protocols and most popular implementations show no year 2000 problems. All times are references as 32 bit integers in seconds of UTC time. An investigation of all DHCP and the IPv6 Autoconfiguration mechanisms produced no year 2000 problems. All references to time, in particular lease lengths, are 32 bit integers in seconds, allowing lease times of well over 100 years.
7.2 Specifics

The following RFCs were examined for possible millennium problems: 906, 951, 1048, 1084, 1395, 1497, 1531, 1532, 1533, 1534, 1541, 1542, 1970, & 1971. RFC 951’s only reference to time or dates is a two-byte field in the packet, which is number of second since the hosts, was booted. RFC’s 1048, 1084, 1395, 1497, 1531, & 1532 have either no references to dates and time, or they are the same as the RFCs, which obsoleted them, discussed in the next paragraph.

RFC 1533 enumerates all the known DHCP field types and a number of these have to do with time. Section 3.4 defines a "Time Offset" field which specifies the offset of the clients subnet in seconds from UTC. This 4 byte field has no millennium issues. Section 9.2 defines the IP Address Lease Time field which is used by clients to request a specific lease time. This four byte field is an unsigned integer containing a number of seconds. Section 9.9 defines a Renewal Time Value field, Section 9.10 defines a Rebinding Time Value, both of which are similarly 32 bit fields, which have no millennium issues.

RFC 1534 has no references to times or dates.

RFC 1541 has two mentions of times/dates. The first is the "secs" field which, similarly to RFC 951, is a 16-bit field for the number of seconds since the host has booted. There is also a discussion in section 3.3 about "Interpretation and Representation of Time Values" which while clearly states that there is no millennium or period problems.

RFC 1542 also references the "secs" field mentioned previously.

RFC 1970 mentions a number of variables, which are time related. In section 4.2 "Router Advertisement Message Format" the following fields are defined: Router Lifetime, Reachable Time, & Retrans Timer. In section 4.6.2 "Prefix Information" the following are defined: Valid Lifetime, & Preferred Lifetime. In section 6.2.1 "Router Configuration Variables" the following are defined: MaxRtrAdvInterval, MinRtrAdvInterval, AdvReachableTime, AdvRetransTimer, AdvDefaultLifetime, AdvValidLifetime, & AdvPreferredLifetime. All of these fields specify counters of some sort which have no millennium or periodicity problems.

RFC 1971 has some discussion of preferred lifetimes, depreciated lifetimes and valid lifetimes of leases, but only discusses them in an expository way.
8. Directory Services

8.1 Summary

The RFC’s which were categorized into this group were primarily X.500 related RFC’s, Whois, Rwhois, Whois++, and the Lightweight Directory Access Protocol (LDAP).

Upon review of the Directory Services related RFC’s, no serious year 2000 problems were discovered. Some minor issues were noted and explained below in the specific portion of this section.

8.2 Specifics

RFCs that mentioned UTC Time or made reference to uTCTimeSyntax could fail to be Y2K compliant. These should be updated to specify the four year version of uTCTimeSyntax rather than giving the option of using a two-year date representation. The following RFCs fall into this category:

- rfc1274.txt - References UTC date/time
- rfc1276.txt - References UTC date/time for version control.
- rfc1488.txt - References UTC Time as printable strings.
- rfc1608.txt - Refers to uTCTimeSyntax
- rfc1609.txt - Refers to uTCTimeSyntax
- rfc1778.txt - Refers to uTCTimeSyntax

Two RFC’s have unusual date specifications and specify their own date format. Both of these support Y2K compliant dates.

- RFC1714 (RWhois) specifies date formats that are not Y2K compliant, but it also supports dates that are. Implementers of the RWhois protocol should only use the %MY4 format

- RFC1834 (Whois++) requires the use of dates, but it didn’t specify the format, syntax, or representation of the date string to be used.

9. Disk Sharing

9.1 Summary

The RFC’s which were categorized into this group were those related to the Network File System (NFS). Other popular disk sharing protocols like SMB and AFS were referred to their respective trustee’s for review.

After careful review, NFS has no year 2000 problems.
9.2 Specifics

The references to time in this protocol are the times of file data modification, file access, and file metadata change (mtime, atime, and time, respectively). These times are kept as 32 bit unsigned quantities in seconds since 1970-01-01, and so the NFS protocol will not experience an Epoch event until the year 2106.

10. Games and Chat

10.1 Summary

The RFC's which were categorized into this group were related to the Internet Relay Chat Protocol (IRC). No millennium problems exist in the IRC protocol.

10.2 Specifics

There is only a single instance of time or date related information in the IRC protocol as specified by RFC 1459. Section 4.3.4 defines a TIME message type which queries a server for its local time. No mention is made of the format of the reply or how it is parsed, the assumption being specific implementations will handle the reply and parse it appropriately.

11. Information Services & File Transfer

11.1 Summary

The RFC's which were categorized into this group were divided among World Wide Web (WWW) protocols and File Transfer Protocols (FTP). WWW protocols include the Hypertext Transfer Protocol (HTTP), a variety of Uniform Resource formats (URL, URAs, etc.) and the HyperText Markup Language (HTML). FTP protocols include the well known FTP protocol, the Trivial File Transfer Protocol (TFTP) and a variety of extensions to these protocols. Other information services includes the Finger Protocol and the LPD protocol.

HTTP 1.1, as defined in RFC 2068, requires all newly generated date stamps to conform to RFC 1123 date formats which are Year 2000 compliant, but it also requires acceptance of the older non-compliant RFC850 formats. Some specific recommendations are listed below and have been passed to the HTTP WG.

HTML 2.0, as defined in RFC 1866, could allow a very subtle Year 2000 problem, but once again this recommendation has been passed on the HTML WG.
RFC 2626  The Internet and the Millennium Problem (Year 2000)  June 1999

RFC 1778 on String Representations of Standard Attribute Syntax’s define UTC Time in Section 2.21 and uses that definition in Section 2.25 on User Certificates. Since UTC Time is being used, there is a potential millennium issue.

RFC 1440 on SIFT/UFT: Sender-Initiated/Unsolicited File Transfer defines an optional DATE command in Section 5 of the form mm/dd/yy which is subject to millennium issues.

11.2 Specifics

The main IETF standards-track document on the HTTP protocol is RFC2068 on HTTP 1.1. It notes that historically three different date formats have been used, and that one of them uses a two-digit year field. In section 3.3.1 it requires HTTP 1.1 implementations to generate this RFC1123 format:

    Sun, 06 Nov 1994 08:49:37 GMT ; RFC 822, updated by RFC 1123

instead of this RFC850 format:

    Sunday, 06-Nov-94 08:49:37 GMT ; RFC 850, obsoleted by RFC 1036

Unfortunately, many existing servers, serving on the order of one fifth of the current HTTP traffic, send dates in the ambiguous RFC850 format.

Section 19.3 of the RFC2068 says this:

  o  HTTP/1.1 clients and caches should assume that an RFC-850 date which appears to be more than 50 years in the future is in fact in the past (this helps solve the "year 2000" problem).

This avoids a "stale cache" problem, which would cause the user to see out-of-date data.

RFC 1986 documents experiments with a simple file transfer program over radio links using Enhanced Trivial FTP (ETFTP). There are a number of timers defined which are all in seconds and have no year 2000 issues.

In RFC 1866, on HTML 2.0, the <META> tag allows the embedding of recommended values for some HTTP headers, including Expires. E.g.

    <META HTTP-EQUIV="Expires"
          CONTENT="Tue, 04 Dec 1993 21:29:02 GMT">

Servers should rewrite these dates into RFC1123 format if necessary.
RFC 1807 defines a format for bibliographic records and it specifies a DATE format, which requires 4 digit year fields.

RFC 1788 defines ICMP Domain Name messages. Section 3 defines a Domain Name Reply Packet, which contains a signed 32-bit integer. This timer is not Year 2000 reliant and is certainly large enough for its purposes.

RFC 1784 on TFTP Timeout Intervals and Transfer Size Options uses a field for the number of seconds for the timeout. It is an ASCII value from 1 to 255 octets in length. There is no Y2K issue.

RFC 1778 on String Representations of Standard Attribute Syntax’s define UTC Time in Section 2.21 and uses that definition in Section 2.25 on User Certificates. Since UTC Time is being used, there is a potential millennium issue.

RFC 1777 on LDAP defines a timelimit in Section 4.3 which is expressed in seconds, but does not define any limits.

RFC 1440 on SIFT/UFT: Sender-Initiated/Unsolicited File Transfer defines an optional DATE command in Section 5 of the form mm/dd/yy, which is subject to millennium issues.

RFC 1068 on the Background File Transfer Protocol (BFTP) defines two commands in Sections B.2.12 and B.2.13, the Submit and Time commands. >From the example usage’s given in Appendix C it is clear that this protocol will function correctly though the year 9999.

RFC 1037 on NFILE (a file access protocol) discusses the a Date representation in Section 7.1 as the number of seconds since January 1, 1900, but does not limit the field size. There should be no Y2K issues.

RFC 998 on NETBLT defines a Death time in Section 8, which is the sender’s death time in seconds.

RFC 978 on the Voice File Interchange Protocol defines the Total Time of a message to be a 32-bit number of deci-seconds. This limits the size of a message but has no millennium issues.

RFC 969 was obsoleted by RFC 998.

RFC 916 defines the Reliable Asynchronous Transfer Protocol (RATP). Three timers are discussed in an expository manner in Section 5.4 and its subsections. There are no relevant issues.
RFC 2626  The Internet and the Millennium Problem (Year 2000)  June 1999

RFCs 2122, 2056, 2055, 2054, 2044, 2016, 1960, 1959, 1874, 1865, 1862, 1843, 1842, 1823, 1815, 1808, 1798, 1785, 1783, 1782, 1779, 1766, 1738, 1737, 1736, 1729, 1728, 1727, 1639, 1633, 1630, 1625, 1554, 1545, 1530, 1529, 1528, 1489, 1486, 1436, 1415, 1413, 1350, 1345, 1312, 1302, 1288, 1278, 1241, 1235, 1196, 1194, 1179, 1123, 1003, 971, 965, 959, 949, 913, 887, 866, 865, 864, 863, 862, 797, 795, 783, 775, 765, 751, 743, 742, 740, 737, 725, 722, 707, 691, 683, 662, 640, 624, 614, 607, 599, 412, 411, 410, 407, and 406 were found to have no references to dates or times, and hence no millennium issues.


RFCs below 400 were considered too obsolete to even consider.

12. Network & Transport Layer

12.1 Summary

The RFC’s which were categorized into this group were the Internet Protocol (IP) versions four and six, the Transmission Control Protocol (TCP), the User Datagram Protocol (UDP), the Point-to-Point Protocol (PPP) and its extensions, Internet Control Message Protocol (ICMP), the Address Resolution Protocol (ARP) and Remote Procedure Call (RPC) protocol. A variety of less known protocols were also examined.

After careful review of the nearly 400 RFC’s in this category, no millennium or year 2000 problems were found.

12.2 Specifics

RFC 2125 on the PPP Bandwidth Allocation Protocol (BAP) in section 5.3 discusses the use of mandatory timers, but gives no mention as to how they are implemented.

RFC 2114 on a Data Link Switching Client Access Protocol defines a retry timer of five seconds in Section 3.4.1.

RFC 2097 on the PPP NetBIOS Frame Control Protocol discusses several timer and timeouts in Section 2.1, none of which suffers from a year 2000 problem.

RFC 2075 on the IP Echo Host Service discusses timestamps and has no millennium issues.
RFC 2005 on the Applicability for Mobile IP discusses using timestamps as a security measure to avoid replay attacks (Section 3.), but does not quantify them. There are no expected issues.

RFC 2002 on IP Mobility Support uses a 16-bit field for the lifetime of a connection and notes the 18.2 hour limitation that this imposes. Section 5.6.1 on replay protection requires the use of 64-bit time fields, of a similar format to NTP packets.

RFC 1981 on Path MTU Discovery for IPv6 discusses timestamps and their potential use to purge stale information in section 5.3. There is no millennium issues in this use.

RFC 1963 on the PPP Serial Data Transport Protocol defines a flow expiration time in section 4.9 which has no year 2000 issues.

RFC 1833 on Binding Protocols for ONC RPC Version 2 defines a variable in Section 2.2.1 called RPCBPROC_GETTIME which returns the local time in seconds since 1/1/1970. Since this value is not fields width dependent, it may or may not wrap around the 32-bit value depending on the operating system parameters.

RFC 1762 on the PPP DECnet Phase IV Control Protocol discusses a number of timers in Section 5 (General Considerations). None of these timers experience any millennium issues.

RFC 1761 on Snoop Version 2 Packet Capture File Format discusses two 32-bit timestamp values on Section 4 on Packet Record Formats. The first of these may wrap in the year 2038, but should not effect anything of any import.

RFC 1755 on ATM Signalling Support for IP Over ATM discusses timing issues in Section 3.4 on VC Teardown. These limited timers have no year 2000 issues.

RFC 1692 on the Transport Multiplexing Protocol (TMux) defines a TTL in Section 2.3 and a timer in Section 3.3. Neither of these suffer from any millennium or year 2000 issues.

RFC 1661 on PPP defines three timers in Section 4.6, none of which have any year 2000 issues.

RFC 1644 on T/TCP (TCP Extensions for Transactions) mentions RFC 1323 and the extended timers recommended in it.

RFC 1575 defines an echo function for CNLP discusses in the narrative the use of the Lifetime Field in Section 5.3. There is nothing to suggest that there is any year 2000 issues.
RFC 1329 on Dual MAC FDDI Networks discusses ARP cache administration in Section 9.3 and 9.4 and various timers to expire entries.

RFC 1256 on ICMP Router Discovery Messages talks about lifetime fields in Section 2 and defines three router configuration variables in Section 4.1. None of these have any millennium issues.

RFC 792 on ICMP discusses Timestamps and Timestamp Reply messages which define a 32-bit timestamp which contains the number of milliseconds since midnight UT.

RFC 791 on the Internet Protocol defines a packet type 68 which is an Internet Timestamp, which defines a 32-bit field which contains the number of milliseconds since midnight UT.

RFC 781 was defines the same option which is codified in RFC 791 as a packet type 68.
13. Electronic Mail

13.1 Summary

The RFC’s which were categorized into this group were the Simple Mail Transfer Protocol (SMTP), Internet Mail Access Protocol (IMAP), Post Office Protocol (POP), Multipurpose Internet Mail Exchange (MIME), and X.400 to SMTP interaction.

After reviewing all mail-related RFCs, it was discovered that while some obsolete standards required two-digit years, all currently used standards require four-digit years and are thus not prone to typical Year 2000 problems.

13.2 Specifics

RFCs 821 and 822, the main basis for SMTP mail exchange and message format, originally required two-digit years. However, both of these RFCs were later modified by RFC 1123 in 1989, which strongly recommended 4-digit years. Although there might be a few very old SMTP systems using two-digit years, it is believed that almost all mail sent over the Internet today uses four-digit years. Mail that contains two-digit years in its SMTP headers will not "fail", but might be mis-sorted in message stores and mail user agents. This problem is avoided entirely by taking the RFC 1123 change as a requirement, rather than merely as a recommendation.

IMAP versions 1, 2, and 3 used two-digit years, but IMAP version 4 (defined in RFCs 1730 and 1732 in 1994) requires four-digit years. There are still a few IMAP 2 servers and clients in use on the Internet today, but IMAP version 4 has already taken over almost all of the IMAP market. Mail stored on an IMAP server or client with two-digit years will not "fail", but could possibly be mis-sorted or prematurely expired.

RFC 1153 describes a format for digests of mailing lists, and uses two-digit dates. This format is not widely used. The use of two-digit dates could possibly cause missorting of stored messages.
RFC 1327, which describes mapping between X.400 mail and SMTP mail, uses the UTCTime format.

RFC 1422 describes the structure of certificates that were used in PEM (and are expected to be used in many other mail and non-mail services). Those certificates use dates in UTCTime format. Poorly written software might prematurely expire or validate a certificate based on comparisons of the date with the current date, although no current software is known to do this.

14. Network Time Protocols

14.1 Summary

The RFC’s which were categorized into this group were the Network Time Protocol (NTP), and the Time Protocol.

NTP has been certified year 2000 compliant, while the Time Protocol will "roll over" at Thu Feb 07 00:54:54 2036 GMT. Since NTP is the current defacto standard for network time this does not seem to be an issue.

14.2 Specifics

There is no reference anywhere in the NTP specification or implementation to any reference epoch other than 1 January 1900. In short, NTP doesn’t know anything about the millennium.

>From the Time Protocol RFC (868):

    S: Send the time as a 32 bit binary number.

    ...

    The time is the number of seconds since 00:00 (midnight) 1 January 1900 GMT, such that the time 1 is 12:00:01 am on 1 January 1900 GMT; this base will serve until the year 2036.

15. Name Services

15.1 Summary

The RFC’s which were categorized into this group were the Domain Name System (DNS), it’s advanced add on features (Incremental Zone Transfer, etc.).

There have been no year 2000 relayed problems found with the DNS protocols, or common implementations of them.
15.2 Specifics

One is a common practice of writing serial numbers in zone files as if they represent a date, and using only two digits of the year. That practice cannot survive into the year 2000. This is not a protocol problem, the serial number is simply an integer, and any value is OK, provided it always increases (see rfc1982 for a definition of what that means). In any case, a change from 97abcd (or similar) to 00abcd would be a decrease and so is not permitted. Zone file maintainers have two choices, one easy (though irrational) one would be to continue from 99 to 100 and so on. The other, is simply to switch, at any time between now and when the serial number first needs updating after the year 2000, to use 4 digits to represent the year instead of 2. As long as there are no more than 6 digits in the "abcd" part, and this is done sometime before the year 2100, this is always an increase, and therefore always safe. Should any zone files be of the form yyabcdefg (with 7 digits after a 2-digit year) then the procedures of section 7 of rfc2182 should be adopted to convert the serial number to some other value.

The other item of note is related to timestamps in DNS security. Those are represented as 32 bit counts of seconds, based in 1970, and hence have no year 2000 problems. However, they do obviously have a natural end of life, and sometime before that time is reached, the definitions of those fields need to be corrected, perhaps to allow them to represent the number of seconds elapsed since the base, modulo $2^{32}$, which is likely to be adequate for the purposes of DNS security (signatures and keys are unlikely to need to be valid for more than 70 years). In any case, more work is needed in this area in the not too far distant future.

16 Network Management

16.1 Summary

The RFC’s which were categorized into this group were the Simple Network Management Protocol (SNMP), a large number of Management Information Bases (MIBs) and the Common Management Information Protocol over TCP/IP (CMOT).

Although a few discrepancies have been found and outlined below, none of them should have an impact on interoperability.

16.2 Specifics

16.2.1 Use of GeneralizedTime in CMOT as defined in RFCs 1095 and 1189.
The standards for CMOT specify an unusual use for the GeneralizedTime type. (GeneralizedTime has a four-digit representation of the year.)

If the system generating the PDU does not have the current time, yet does have the time since last boot, then GeneralizedTime can be used to encode this information. The time since last boot will be added to the base time "0001 Jan 1 00:00:00.00" using the Gregorian calendar algorithm.

This is really a "Year 0" problem rather than a Year 2000 problem, and in any case, CMOT is not currently deployed.

16.2.2 UTCTime in SNMP Definitions

UTCTime is an ASN.1 type that includes a two-digit representation of the year. There are several options for UTCTime in ASN.1, that vary in precision and in local versus GMT, but these options all have two-digit years. The standards for SNMP definitions specify one particular format:

YYMMDDHHMMZ

The first usage of UTCTime in the standards for SNMP definitions goes all the way back to RFC 1303. It has persisted unchanged up through the current specifications in RFC 1902. The role of UTCTime in SNMP definitions is to record the history of an SNMP MIB module in the module itself, via two ASN.1 macros:

- LAST-UPDATED
- REVISION

Management applications that store and use MIB modules need to be smart about interpreting these UTCTimes, by prepending a "19" or a "20" as appropriate.

16.2.3 Objects in the Printer MIB (RFC 1559)

There are two objects in the Printer MIB that allow use of a date as an object value with no explicit guidance for formatting the value. The objects are prtInterpreterLangVersion and prtInterpreterVersion. Both are defined with a syntax of OCTET STRING. The descriptions for the objects allow the object value to contain a date, version code or other product specific information to identify the interpreter or language. The descriptions do not include an explicit statement recommending use of a four-digit year when a date is used as the object value.
16.2.4 Dates in Mobile Network Tracing Records (RFC 2041)

The RFC specifies trace headers and footers with date fields that are character arrays of size 32. While 32 characters certainly provide enough room for a four-digit year, there’s no explicit statement that these years must be represented with four digits.

17 Network News

17.1 Summary

The RFC’s which were categorized into this group were related to the Network News Protocol (NNTP).

There does exist a problem in both NNTP, RFC 977, and the Usenet News Message Format, RFC 10336. They both specify two-digit year format. A working group has been formed to update the network news protocols in general, and addressing this problem is on their list of work items.

17.2 Specifics

The NNTP transfer protocols defined in RFC 977. Sections 3.7.1, the definition of the NEWGROUPS command, and 3.8.1, the NEWNEWS command, that dates must be specified in YYMMDD format.

The format for USENET news messages is defined in RFC 1036. The Date line is defined in section 2.1.2 and it is specified in RFC-822 format. It specifically disallows the standard UNIX ctime(3) format, which would allow for four digit years. Section 2.2.4 on Expires also mandates the same two-digit year format.

18. Real Time Services

18.1 Summary

The RFC’s which were categorized into this group were related to IP Multicast, RTP, and Internet Stream Protocol. A Year 2000 problem does occur in the Simple Network Paging Protocol, versions 2 & 3. Both define a HOLDuntil option which uses a YYMMDDHHMMSS+-GMT field. Version 3 also defines a MSTAtus command, which is required to store, dates and times as YYMMDDHHMMSS+-GMT.

18.2 Specifics

RFC 2102 discusses Multicast support for NIMROD and has no mention of dates or time. RFC 2090 on TFTP Multicast options is also free from any date/time references.
RFC 2038 on RTP MPEG formats has three references to time: a Presentation Time Stamp (PTS), a Decoding Time Stamp (DTS), and a System Clock (SC) reference time. Each RTP packet contains a timestamp derived from the sender 90 kHz clock reference. Each of the header fields are defined in section 2.1, 3, and 3.3 are 32 bit fields. No mention is made of a "zero" start time, so it is presumed that this format will be valid until at least 2038.

Similarly RFC 2035 on the RTP JPEG format defines the same timestamp in section 3. RFC 2032 on RTP H.261 video streams uses a calculated time based on the original frame so once again there is no millennium issue. RFC 2029 on the RTP format for Sun’s CellB video encoding mentions the RTP timestamp in section 2.1.

RFC 2022 defines support for multicast over UNI 3.0/3.1 based ATM networks. Section 5. defines a timeout value for connections between one and twenty minutes. Section 5.1.1 discusses several timers that are bound between five and ten seconds, while 5.1.3 requires an inactivity timer, which should also run between one and twenty minutes. Sections 5.1.5, 5.1.5.1, 5.1.5.2, 5.2.2, 5.4, 5.4.1, 5.4.2, 5.4.3, 6.1.3 and Appendix E all defines numerous timers, none of which have any millennium issues.

RFC 1890 on RTP profiles for audio and video conferences discusses a sampling frequency which has no issues. RFC 1889 on RTP discusses time formats in section 4, as the same 64 bit unsigned integer format that NTP uses. There is a "period" problem, which will occur in the year 2106. Section 5.1 is a more formalized discussion of the timestamp properties, while Section 6.3.1 discusses a variety of different timers all using the 64 bit field format, or a compressed 32-bit version of the inner octet of bytes. Section 8.2 discusses loop detection and how the various timers are used to determine if looping occurs.

RFC 1861 on Version 3 of the Simple Network Paging Protocol does have a Year 2000 problem. The protocol defines a HOLDuntil command in section 4.5.6 and a MSTatus command in section 4.6.10, both of which require dates/times to be stored as YYMMDDHHMMSS+-GMT. Clearly this format will be invalid after the end of 1999.

RFC 1821 has no date/time references. RFC 1819 on Version 2 of the Internet Stream Protocol defines a HELLO message format in section 6.1.2, which does contain a timer which is updated every millisecond. No year 2000 problems exist with this protocol.

RFC 1645 on Version 2 of the Simple Network Paging Protocol contains the same HOLDuntil field problem as version 3. The definition is contained section 4.4.6.
The Internet and the Millennium Problem (Year 2000)  June 1999

RFC 1458 on the Requirements of Multicast Protocols discusses a retransmission timer in section 4.23, and a general discussion of timer expiration in section 5, neither of which have any millennium concerns. RFC 1301 on the Multicast Transport Protocol defines a heartbeat interval of time in section 2.1, as well as retention and windows. Formal definitions for each are contained in sections 2.2.7, 2.2.8 and 2.2.9. The heartbeat is a 32 bit unsigned field, while the Window and Retention are both 16 bit unsigned fields. Section 3.4.2 gives examples values for these fields, which indicate no millennium issues.

RFC 1193 on Client Requirements for Real Time Services talks about time in section 4.4, but there are no Year 2000 issues. RFC 1190 have been obsoleted by RFC 1819, but the hello timer issues are similar.

RFCs 1789, 1768, 1703, 1614, 1569, 1568, 1546, 1469, 1453, 1313, 1257, 1197, 1112, 1054, 988, 966, 947, 809, 804, 803, 798, 769, 741, 511, 508, 420, 408 and 251 contain no date or time references.

19. Routing

19.1 Summary

The RFC’s which were categorized into this group were Routing Information Protocol (RIP), the Open Shortest Path First (OSPF) protocol, Classless InterDomain Routing (CIDR), the Border Gateway Protocol (BGP), and the InterDomain Routing Protocol (IDRP).

After careful examination both BGP and RIP have been found Year 2000 compliant.

There is a small Year 2000 issue in RFC 1786 on the Representation of IP Routing Policies in the ripe-81++ Routing Registry. In Appendices C the "changed" object parameter defines a format of <email-address> YYMMDD, and similarly in Appendix D "withdrawn" object identifier has the format of YYMMDD. Since these are only identifiers there should be little operational impact. Some application software may need to be modified.

IDRP suffers from the classic Year 2038 problem, by having a timestamp counter which rolls over at that time.

19.2 Specifics

RFC 2091 on Extensions to RIP to Support Demand Circuits defines three required and one optional timers in section 6. The Database Timer (6.1), the Hold down Timer (6.2), the Retransmission Time (6.3)
and the Over-Subscription Timer (6.4) are all counters, which have no millennium, issues. RFC 2081 on the applicability of RIPng discusses deletion of routes for a variety of issues, one of which is the garbage-collection timer exceeds 120 seconds. There are no Year 2000 issues. RFC 2080 on RIPng for IPv6, discusses various times in section 2.6, none of which have any millennium problems.

RFC 1987 on Ipsilon's General Switch Management protocol there is a Duration field defined in section 4, which has no relevant problems. Section 8.2 defines the procedure for dealing with timers. RFC 1953 on Ipsilon's Flow Management Specification for IPv4 defines the same procedure in section 3.2, as well as a lifetime field in the Redirect Message (Section 4.1). There are no millennium issues in either case.

There is a small Year 2000 issue in RFC 1786 on the Representation of IP Routing Policies in the ripe-81++ Routing Registry. In Appendices C the "changed" object parameter defines a format of <email-address> YYMMDD, and similarly in Appendix D "withdrawn" object identifier has the format of YYMMDD. Since these are only identifiers there should be little operational impact. Some application software may need to be modified.

RFC 1771 defines the Border Gateway Protocol (BGP). BGP does not have knowledge of absolute time, only relative time. There are five timers defined: Hold Timer, ConnectRetry Timer, KeepAlive Timer, MinRoueAdvertisementInterval and MinASOriginiationInterval. There are no known issues regarding BGP and the millennium.

In RFC 1584, which defines Multicast Extensions to OSPF, three timers are defined in section 8.2: IGMPPollingInterval, IGMPTimeout, and IGMP polling timer. Section 8.4 defines an age parameter for the local groups database and section 9.3 outlines how to implement that age parameter. It is not expected that any connections lifetime will be long enough to cause any issues with these timers.

RFC 1583, OSPF, there are two types of timers defined in section 4.4, single-shot timers and interval timers. There are a number of timers defined in Section 9 including: HelloInterval, RouterDeadInterval, InfTransDelay, Hello Timer, Wait Timer and RxmtInterval. Section 10 also defines the Inactivity Timer. No millennium problem exists for any of these timers.

RFC 1582 is an earlier version of RFC 2091. Section 7 documents the same timers as noted above, with the same lack of a millennium issue.

RFC 1504 on Appletalk Update-Based Routing Protocol defines a 10-second period in Section 3, and hence has no relevant issues.
RFC 1479 which specifies IDPR Version 1, defines a timestamp field in section 1.5.1, which is a 32 bit unsigned integer number of seconds since January 1, 1970. The authors recognize the problem of timestamp exhaustion in 2038, but feel that the protocol will not be in use for that period. Sections 1.7, 2.1, and 4.3.1 also discuss the timestamp field. RFC 1478 on the IDPR Architecture, also discusses the same timestamp field in section 3.3.4. RFC 1477 again refers to the IDPR timestamp in section 4.2. Thus IDPR has no Year 2000 issue, but does have a period problem in the year 2038.

RFC 1075 on Distance Vector Multicast Routing Protocol devotes section 7 to time values. None of the timers have any millennium issues. RFC 1074, on the NFSNET backbone SPF IGP defines several hardcoded timers values in section 5.

RFC 1058 on RIP discusses the 30-second timers in section 3.3. There is no millennium issues related to RIP.

RFC 995 on the Requirements for Internet Gateways has extensive discussions of timers in section 7.1 and throughout A.1 and A.2. None of these timers suffer from the millennium problem.

RFC 911 on EGP on Berkeley Unix recommend timer values of 30 and 120 seconds.

RFC 904 which defines the Exterior Gateway Protocol (EGP). There are a number of timers discussed in sections 4.1.1 and 4.1.4. None of these timers suffer from any relevant problems.


20. Security

20.1 Summary

The RFC’s which were categorized into this group were kerberos authentication protocol, Remote Authentication Dial In User Service (RADIUS), One Time Password System (OTP), Privacy Enhanced Mail (PEM), security extensions to a variety of protocols including (but not limited to) RIPv2, HTTP, MIME, PPP, IP, Telnet and FTP.
Encryption and authentication algorithms are also examined.

RFC 1507 on Distributed Authentication Security Services (DASS) discusses time and secure time in an expository manner in Sections 1.2.2, 1.4.4 and 2.1. Section 3.6 defines absolute time as an UTC time with a precision of 1 second, and Section 4.1 discusses ANSI encoding of time values. Because of the imprecision of the UTC time definition there could be problems with this protocol.

RFCs 1421-1424 specifies that PEM uses UTC time formats which could have a Millennium issue since the year specification only provides the last two digits of the year.

20.2 Specifics

RFC 2082 on RIP-2 MD5 Authentication requires storage of security keys for a specified lifetime in sections 4.1 and 4.2. There are no millennium issues in this protocol.

RFC 2078 on the GSSAPI Version 2 defines numerous calls that use timers for inputs and outputs. Sections 2.1.1, 2.1.3, 2.1.4, 2.1.5, 2.2.1, 2.2.2, 2.2.5 and 2.2.6 all use the lifetime_rec field, which is defined as an integer counter in seconds. There should be no relevant problems with this protocol.

RFC 2069 on Digest Authentication for HTTP, defines a ‘date’ and a 1123 formats which is not subject to millennium issues. Section 3.2 discusses dates and times in the context of thwarting replay attacks, but have no relevant issues.

RFC 2065 on DNS Security extensions first discusses time in section 2.3.3. The SIG RDATA format is defined in Section 4.1 discusses "time signed" field and defines it to be a 32 bit unsigned integer number of seconds since January 1, 1970. There will be a period problem in 2038 because of rollover. Section 4.5 on the file representations of SIG RRs specifies the time field is expressed as YYYYMMDDHHMMSS which is clearly Year 2000 compliant.

RFC 2059 on RADIUS account formats defines a "time" attribute, which is optional which is a 32 bit unsigned integer number of seconds since January 1, 1970. Likewise RFC 2058 on RADIUS also defines this optional attribute in the same way. There will be a potential period problem that occurs on 2038.

RFC 2035 on the Simple Public Key GSSAPI Mechanism talks about secure timestamps in the background and overview sections only in an expository manner.
RFC 1969 on the PPP DES Encryption Protocol uses time as an example in Section 4 when discussing how to encrypt the first packet of a stream. It is suggested that the first 32 bits be used for the number of seconds since January 1, 1970. There could thus be a potential operations problem in 2038.

RFC 1898 on the CyberCash Credit Card Protocol provides an example message in Section 2.7 which uses a date field of the form YYYYMMDDHHMM that is clearly Y2K compliant.

RFC 1510, which defines Kerberos Version 5, makes extensive use of times in the security model. There are discussions in the Introduction, as well as Sections 1.2, and 3.1.3. Kerberos uses ASN.1 definitions to abstract values, and hence defines a base definition for KerberosTime which is a generalized time format in Section 5.2. >From the text: "Example: The only valid format for UTC time 6 minutes, 27 seconds after 9 p.m. on 6 November 1985 is 19851106210627Z." A side note is that the MIT reference implementation of the Kerberos, by default set the expiration of tickets to December 31, 1999. This is not protocol related but could have some operational impacts.

RFC 1509 on GSSAPI C-bindings makes a single reference that all counters are in seconds and assigned as 32 bit unsigned integers. Hence GSSAPI mechanisms may have problems in 2038.

RFC 1507 on Distributed Authentication Security Services (DASS) discusses time and secure time in an expository manner in Sections 1.2.2, 1.4.4 and 2.1. Section 3.6 defines absolute time as an UTC time with a precision of 1 second, and Section 4.1 discusses ANS.1 encoding of time values. Because of the imprecision of the UTC time definition there could be problems with this protocol.

RFC 1424 on PEM Part IV defines a self-signed certificate request in Section 3.1. The validity period start and end times are both suggested to be January 1, 1970. RFC 1422 on PEM Part II defines the validity period for a certificate in Section 3.3.6. It is recommended that UTC Time formats are used, and notes the lack of a century so that comparisons between different centuries must be done with care. No suggestions on how to do this are included. Sections 3.5.2 also discusses validity period in PEM CRLs. RFC 1421 on PEM Part I discusses validity periods in an expository way. PEM as a whole could have problems after December 31, 1999 based on its use of UTC Time.

RFCs 1113, 1114, and 1115 specify the original version of PEM and have been obsoleted bye 1421, 1422, 1423, & 1424.
21. Virtual Terminal

21.1 Summary

The RFC’s which were categorized into this group were Telnet and its many extensions, as well as the Secure SHell (SSH) protocol. The X window system was not considered since it is not an IETF protocol. Official acknowledgement by the trustee’s of the X window system was given that they will examine the protocol.

Unencrypted Telnet and TN3270 have both been found to be Year 2000 Compliant. The SSH protocols are also Year 2000 compliant.

21.2 Specifics

RFC 1013 on the X Windows version 11 alpha protocol defines are 32 bit unsigned integer timestamp in Section 4.

22. Other

22.1 Summary

This grouping was a hodge-podge of informational RFCs, April Fool’s Jokes, IANA lists, and experimental RFCs. None were found to have any millennium issues.
22.2 Specifics


23. Security Considerations

Although this document does consider the implications of various security protocols, there is no need for additional security considerations. The effect of a potential year 2000 problem may cause some security problems, but those problems are more of specific applications rather than protocol deficiencies introduced in this document.

24. References

Because of the exhaustive nature of this investigation, the reader is referred to the list of published RFC’s available from the IETF Secretariat or the RFC Editor, rather than republishing them here.

25. Editors’ Address

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Appendix A: List of RFC’s for each Area

The following list contains the RFC’s grouped by area that were searched for year 2000 problems.

Each line contains three fields are separated by ‘::’. The first file is the RFC number, the second field is the type of RFC (S = Standard, DS = Draft Standard, PS = Proposed Standard, E = Experimental, H = Historical, I = Informational, BC = Best Current Practice, ‘‘ = No Type), and the third field is the Title.

### A.1 Autoconfiguration

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Nesser                       Informational
1617:: I:: Naming and Structuring Guidelines for X.500 Directory Pilots
1609:: E:: Charting Networks in the X.500 Directory
1608:: E:: Representing IP Information in the X.500 Directory
1588:: I:: WHITE PAGES MEETING REPORT
1562:: I:: Naming Guidelines for the AARNet X.500 Directory Service
1491:: I:: A Survey of Advanced Usages of X.500
1488:: PS:: The X.500 String Representation of Standard Attribute Syntaxes
1487:: PS:: X.500 Lightweight Directory Access Protocol
1485:: PS:: A String Representation of Distinguished Names
1484:: E:: Using the OSI Directory to achieve User Friendly Naming
1430:: I:: A Strategic Plan for Deploying an Internet X.500 Directory Service
1400:: I:: Transition and Modernization of the Internet Registration Service
1384:: I:: Naming Guidelines for Directory Pilots
1355:: I:: Privacy and Accuracy Issues in Network Information Center Databases
1330:: I:: Recommendations for the Phase I Deployment of OSI Directory Services (X.500) and OSI Message Handling Services (X.400) within the ESnet Community
1309:: I:: Technical Overview of Directory Services Using the X.500 Protocol
1308:: I:: Executive Introduction to Directory Services Using the X.500 Protocol
1292:: I:: A Catalog of Available X.500 Implementations
1279:: : : X.500 and Domains
1276:: PS:: Replication and Distributed Operations extensions to provide an Internet Directory using X.500
1275:: I:: Replication Requirements to provide an Internet Directory using X.500
1274:: PS:: The COSINE and Internet X.500 Schema
1255:: I:: A Naming Scheme for c=US
1218:: : : A Naming Scheme for c=US
1202:: I:: Directory Assistance Service
1107:: : : Plan for Internet directory services
954:: DS:: NICNAME/WHOIS
953:: H:: Hostname Server
812:: : : NICNAME/WHOIS
756:: : : NIC name server - a datagram-based information utility
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Disk Sharing
1813:: I:: NFS Version 3 Protocol Specification
1094:: H:: NFS: Network File System Protocol specification

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1459:: E:: Internet Relay Chat Protocol

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Information Services & File Transfer
2122:: PS:: VEMMI URL Specification
2070:: PS:: Internationalization of the Hypertext Markup Language
2068:: PS:: Hypertext Transfer Protocol -- HTTP/1.1
2056:: PS:: Uniform Resource Locators for Z39.50
2055:: I:: WebNFS Server Specification
2054:: I:: WebNFS Client Specification
2044:: I:: UTF-8, a transformation format of Unicode and ISO 10646
2016:: E:: Uniform Resource Agents (URAs)
1986:: E:: Experiments with a Simple File Transfer Protocol for Radio Links using Enhanced Trivial File Transfer Protocol (ETFTP)
1980:: I:: A Proposed Extension to HTML: Client-Side Image Maps
1960:: PS:: A String Representation of LDAP Search Filters
1959:: PS:: An LDAP URL Format
1945:: I:: Hypertext Transfer Protocol -- HTTP/1.0
1942:: E:: HTML Tables
1874:: E:: SGML Media Types
1867:: E:: Form-based File Upload in HTML
1866:: PS:: Hypertext Markup Language - 2.0
1865:: I:: EDI Meets the Internet: Frequently Asked Questions about Electronic Data Interchange (EDI) on the Internet
1862:: I:: Report of the IAB Workshop on Internet Information Infrastructure, October 12-14, 1994
1843:: I:: HZ - A Data Format for Exchanging Files of Arbitrarily Mixed Chinese and ASCII characters
1842:: I:: ASCII Printable Characters-Based Chinese Character Encoding for Internet Messages
1823:: I:: The LDAP Application Program Interface
1815:: I:: Character Sets ISO-10646 and ISO-10646-J-1
1808:: PS:: Relative Uniform Resource Locators
1807:: I:: A Format for Bibliographic Records
1798:: PS:: Connection-less Lightweight Directory Access Protocol
1788:: E:: ICMP Domain Name Messages
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1784:: PS:: TFTP Timeout Interval and Transfer Size Options
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1358:: I:: Charter of the Internet Architecture Board (IAB)
1349:: PS:: Type of Service in the Internet Protocol Suite
1340:: S:: ASSIGNED NUMBERS
1336:: I:: Who’s Who in the Internet Biographies of IAB, IESG and IRSG Members
1325:: I:: FYI on Questions and Answers Answers to Commonly asked "New Internet User" Questions
1324:: I:: A Discussion on Computer Network Conferencing
1311:: I:: Introduction to the STD Notes
1310:: I:: The Internet Standards Process
1300:: I:: Remembrances of Things Past
1299:: I:: Request for Comments Summary RFC Numbers 1200-1299
1297:: I:: NOC Internal Integrated Trouble Ticket System Functional Specification Wishlist ("NOC TT REQUIREMENTS")
1296:: I:: Internet Growth (1981-1991)
1295:: I:: User Bill of Rights for entries and listings in the Public Directory
1291:: I:: Mid-Level Networks
1290:: I:: There’s Gold in them thar Networks! or Searching for Treasure in all the Wrong Places
1287:: I:: Towards the Future Internet Architecture
1280:: S:: IAB OFFICIAL PROTOCOL STANDARDS
1261:: I:: Transition of NIC Services
1259:: I:: Building The Open Road
1251:: I:: Who’s Who in the Internet
1250:: S:: IAB Official Protocol Standards
1249:: I:: DIXIE Protocol Specification
1217:: I:: Memo from the Consortium for Slow Commotion Research (CSCR)
1216:: I:: Gigabit Network Economics and Paradigm Shifts
1208:: I:: A Glossary of Networking Terms
1207:: I:: Answers to Commonly asked "Experienced Internet User" Questions
1206:: I:: FYI on Questions and Answers – Answers to Commonly asked "New Internet User" Questions
1200:: S:: IAB Official Protocol Standards
1199:: I:: Request for Comments Summary RFC Numbers 1100-1199
1198:: I:: FYI on the X Window System
1192:: :: Commercialization of the Internet Summary Report
1181:: :: RIPE Terms of Reference
1180:: :: A TCP/IP Tutorial
1178:: :: Choosing a Name for Your Computer
1177:: :: FYI on Questions and Answers - Answers to Commonly Asked "New Internet User" Questions
1175:: :: FYI on Where to Start - A Bibliography of Internetworking Information
1174:: I:: IAB Recommended Policy on Distributing Internet Identifier Assignment and IAB Recommended Policy Change to Internet "Connected" Status
1173:: :: Responsibilities of Host and Network Managers
1169:: :: Explaining the Role of GOSIP
1167:: :: Thoughts on the National Research and Education Network
1160:: :: The Internet Activities Board
1152:: :: Workshop Report
1150:: I:: F.Y.I. on F.Y.I.
1149:: :: A Standard for the Transmission of IP Datagrams on Avian Carriers
1147:: I:: FYI on a Network Management Tool Catalog
1140:: S:: IAB Official Protocol Standards
1135:: :: Helminthiasis of the Internet
1130:: S:: IAB official protocol standards
1127:: :: Perspective on the Host Requirements RFCs
1121:: :: Act one - the poems
1120:: :: Internet Activities Board
1118:: :: Hitchhikers guide to the Internet
1117:: :: Internet numbers
1111:: :: Request for comments on Request for Comments
1100:: S:: IAB official protocol standards
1099:: I:: Request for Comments Summary RFC Numbers 1000-1099
1093:: :: NSFNET routing architecture
1087:: :: Ethics and the Internet
1083:: S:: IAB official protocol standards
1077:: :: Critical issues in high bandwidth networking
1076:: :: HEMS monitoring and control language
1060:: S:: ASSIGNED NUMBERS
1039:: :: DoD statement on Open Systems Interconnection protocols
1020:: :: Internet numbers
1019:: :: Report of the Workshop on Environments for Computational Mathematics
1018:: :: Some comments on SQuID
1017:: :: Network requirements for scientific research
1015:: :: Implementation plan for interagency research Internet
1014:: :: XDR
1000:: :: Request For Comments reference guide
999:: :: Requests For Comments summary notes
997:: :: Internet numbers
992:: :: On communication support for fault tolerant process groups
991:: S:: Official ARPA-Internet protocols
990:: :: Assigned numbers
980:: :: Protocol document order information
979:: :: PSN End-to-End functional specification
968:: :: Twas the night before start-up
967:: :: All victims together
961:: S:: Official ARPA-Internet protocols
960:: :: Assigned numbers
945:: :: DoD statement on the NRC report
944:: S:: Official ARPA-Internet protocols
943:: :: Assigned numbers
939:: :: Executive summary of the NRC report on transport protocols for Department of Defense data networks
938:: E:: Internet Reliable Transaction Protocol functional and interface specification
928:: :: Introduction to proposed DoD standard H-FP
923:: :: Assigned numbers
909:: E:: Loader Debugger Protocol
908:: E:: Reliable Data Protocol
902:: :: ARPA Internet Protocol policy
901:: S:: Official ARPA-Internet protocols
900:: :: Assigned Numbers
899:: :: Request For Comments summary notes
880:: S:: Official protocols
873:: :: Illusion of vendor support
870:: :: Assigned numbers
869:: H:: Host Monitoring Protocol
852:: :: ARPANET short blocking feature
847:: :: Summary of Smallberg surveys
846:: :: Who talks TCP? - survey of 22 February 1983
845:: :: Who talks TCP? - survey of 15 February 1983
844:: :: Who talks ICMP, too? - Survey of 18 February 1983
843:: :: Who talks TCP? - survey of 8 February 83
842:: :: Who talks TCP? - survey of 1 February 83
840:: S:: Official protocols
839:: :: Who talks TCP?
838:: :: Who talks TCP?
837:: :: Who talks TCP?
836:: :: Who talks TCP?
835:: :: Who talks TCP?
834:: :: Who talks TCP?
833:: :: Who talks TCP?
832:: :: Who talks TCP?
831:: :: Backup access to the European side of SATNET
828:: :: Data communications
825:: :: Request for comments on Requests For Comments

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820:: :: Assigned numbers
817:: :: Modularity and efficiency in protocol implementation
816:: :: Fault isolation and recovery
806:: :: Proposed Federal Information Processing Standard
800:: :: Request For Comments summary notes
794:: :: Pre-emption
790:: :: Assigned numbers
776:: :: Assigned numbers
774:: :: Internet Protocol Handbook
770:: :: Assigned numbers
766:: :: Internet Protocol Handbook
762:: :: Assigned numbers
758:: :: Assigned numbers
755:: :: Assigned numbers
750:: :: Assigned numbers
745:: :: JANUS interface specifications
739:: :: Assigned numbers
717:: :: Assigned network numbers
716:: :: Interim revision to Appendix F of BBN 1822
708:: :: Elements of a distributed programming system
705:: :: Front-end Protocol B6700 version
700:: :: Protocol experiment
699:: :: Request For Comments summary notes
694:: :: Protocol information
686:: :: Leaving well enough alone
684:: :: Commentary on procedure calling as a network protocol
681:: :: Network UNIX
678:: :: Standard file formats
677:: :: Maintenance of duplicate databases
672:: :: Multi-site data collection facility
671:: :: Note on Reconnection Protocol
667:: :: BBN host ports
666:: :: Specification of the Unified User-Level Protocol
663:: :: Lost message detection and recovery protocol
661:: :: Protocol information
655:: :: Network Standard Data Specification syntax
643:: :: Network Debugging Protocol
642:: :: Ready line philosophy and implementation
638:: :: IMP/TIP preventive maintenance schedule
637:: :: Change of network address for SU-DSL
635:: :: Assessment of ARPANET protocols
634:: :: Change in network address for Haskins Lab
631:: :: International meeting on minicomputers and data
communication
629:: :: Scenario for using the Network Journal
628:: :: Status of RFC numbers and a note on pre-assigned
journal numbers
621:: :: NIC user directories at SRI ARC
617::   ::  Note on socket number assignment
609::   ::  Statement of upcoming move of NIC/NLS service
604::   ::  Assigned link numbers
603::   ::  Response to RFC 597
602::   ::  The stockings were hung by the chimney with care
598::   ::  RFC index - December 5, 1973
597::   ::  Host status
590::   ::  MULTICS address change
588::   ::  London node is now up
585::   ::  ARPANET users interest working group meeting
584::   ::  Charter for ARPANET Users Interest Working Group
582::   ::  Comments on RFC 580
581::   ::  Corrections to RFC 560
580::   ::  Note to protocol designers and implementers
578::   ::  Using MIT-Mathlab MACSYMA from MIT-DMS Muddle
569:: H::  NETED
552::   ::  Single access to standard protocols
547::   ::  Change to the Very Distant Host specification
544::   ::  Locating on-line documentation at SRI-ARC
537::   ::  Announcement of NGG meeting July 16-17
530::   ::  Report on the Survey project
529::   ::  Note on protocol synch sequences
527::   ::  ARPAWOCKY
526::   ::  Technical meeting
523::   ::  SURVEY is in operation again
519::   ::  Resource evaluation
518::   ::  ARPANET accounts
515::   ::  Specifications for datalanguage
503::   ::  Socket number list
496::   ::  TNLS quick reference card is available
494::   ::  Availability of MIX and MIXAL in the Network
492::   ::  Response to RFC 467
491::   ::  What is "Free"?
483::   ::  Cancellation of the resource notebook framework meeting
474::   ::  Announcement of NGWG meeting
464::   ::  Resource notebook framework
462::   ::  Responding to user needs
457::   ::  TIPUG
456::   ::  Memorandum
441::   ::  Inter-Entity Communication - an experiment
440::   ::  Scheduled network software maintenance
439::   ::  PARRY encounters the DOCTOR
433::   ::  Socket number list
432::   ::  Network logical map
425::   ::  But my NCP costs $500 a day
419::   ::  To
405::   ::  Correction to RFC 404
404::   ::  Host address changes involving Rand and ISI
403:: :: Desirability of a network 1108 service
402:: :: ARPA Network mailing lists
401:: :: Conversion of NGP-0 coordinates to device specific
coordinates
390:: :: TSO scenario
379:: :: Using TSO at CCN
376:: :: Network host status
372:: :: Notes on a conversation with Bob Kahn on the ICCC
371:: :: Demonstration at International Computer Communications
Conference
370:: :: Network host status
363:: :: ARPA Network mailing lists
356:: :: ARPA Network Control Center
355:: :: Response to NWG/RFC 346
350:: :: User accounts for UCSB On-Line System
349:: :: Proposed standard socket numbers
345:: :: Interest in mixed integer programming MPSX on NIC
360/91 at CCN
334:: :: Network use on May 8
331:: :: IMP System change notification
330:: :: Network host status
329:: :: ARPA Network mailing lists
327:: :: Data and File Transfer workshop notes
322:: :: Well known socket numbers
321:: :: CBI networking activity at MITRE
320:: :: Workshop on hard copy line printers
319:: :: Network host status
317:: :: Official Host-Host Protocol modification
316:: :: ARPA Network Data Management Working Group
315:: :: Network host status
313:: :: Computer based instruction
305:: :: Unknown host numbers
303:: :: ARPA Network mailing lists
295:: :: Report of the Protocol Workshop, 12 October 1971
291:: :: Data management meeting announcement
290:: :: Computer networks and data sharing
282:: :: Graphics meeting report
276:: :: NIC course
270:: :: Correction to BBN Report No. 1822 NIC NO 7958
269:: :: Some experience with file transfer
263:: :: Very Distant Host interface
256:: :: IMPSYS change notification
254:: :: Scenarios for using ARPANET computers
253:: :: Second Network Graphics meeting details
249:: :: Coordination of equipment and supplies purchase
246:: :: Network Graphics meeting
245:: :: Reservations for Network Group meeting
243:: :: Network and data sharing bibliography
242:: :: Data descriptive language for shared data
240:: :: Site status
239:: :: Host mnemonics proposed in RFC 226 NIC 7625
235:: :: Site status
234:: :: Network Working Group meeting schedule
232:: :: Postponement of network graphics meeting
228:: :: Clarification
225:: :: Rand/UCSB network graphics experiment
223:: :: Network Information Center schedule for network users
219:: :: User’s view of the datacomputer
218:: :: Changing the IMP status reporting facility
214:: :: Network checkpoint
213:: :: IMP System change notification
211:: :: ARPA Network mailing lists
209:: :: Host/IMP interface documentation
208:: :: Address tables
207:: :: September Network Working Group meeting
204:: :: Sockets in use
200:: :: RFC list by number
198:: :: Site certification - Lincoln Labs 360/67
195:: :: Data computers-data descriptions and access language
194:: :: Data Reconfiguration Service - compiler/interpreter implementation notes
187:: :: Network/440 protocol concept
186:: :: Network graphics loader
185:: :: NIC distribution of manuals and handbooks
182:: :: Compilation of list of relevant site reports
180:: :: File system questionnaire
179:: :: Link number assignments
173:: :: Network data management committee meeting announcement
171:: :: Data Transfer Protocol
170:: :: RFC list by number
169:: :: Computer networks
168:: :: ARPA Network mailing lists
167:: :: Socket conventions reconsidered
164:: :: Minutes of Network Working Group meeting, 5/16 through 5/19/71
162:: :: NETBUGGER3
160:: :: RFC brief list
157:: :: Invitation to the Second Symposium on Problems in the Optimization of Data Communications Systems
155:: :: ARPA Network mailing lists
154:: :: Exposition style
149:: :: Best laid plans
148:: :: Comments on RFC 123
147:: :: Definition of a socket
140:: :: Agenda for the May NWG meeting
138:: :: Status report on proposed Data Reconfiguration Service
136:: :: Host accounting and administrative procedures
135:: :: Response to NWG/RFC 110
132:: :: Typographical error in RFC 107
131:: :: Response to RFC 116
130:: :: Response to RFC 111
129:: :: Request for comments on socket name structure
126:: :: Graphics facilities at Ames Research Center
124:: :: Typographical error in RFC 107
121:: :: Network on-line operators
120:: :: Network PL1 subprograms
119:: :: Network Fortran subprograms
118:: :: Recommendations for facility documentation
117:: :: Some comments on the official protocol
116:: :: Structure of the May NWG meeting
115:: :: Some Network Information Center policies on handling documents
113:: :: Network activity report
112:: :: User/Server Site Protocol
111:: :: Pressure from the chairman
109:: :: Level III Server Protocol for the Lincoln Laboratory NIC 360/67 Host
108:: :: Attendance list at the Urbana NWG meeting, February 17-19, 1971
107:: :: Output of the Host-Host Protocol glitch cleaning committee
106:: :: User/Server Site Protocol network host questionnaire
104:: :: Link 191
103:: :: Implementation of interrupt keys
102:: :: Output of the Host-Host Protocol glitch cleaning committee
101:: :: Notes on the Network Working Group meeting, Urbana, Illinois, February 17, 1971
100:: :: Categorization and guide to NWG/RFCs
99:: :: Network meeting
95:: :: Distribution of NWG/RFC’s through the NIC
90:: :: CCN as a network service center
89:: :: Some historic moments in networking
87:: :: Topic for discussion at the next Network Working Group meeting
85:: :: Network Working Group meeting
84:: :: List of NWG/RFC’s 1-80
82:: :: Network meeting notes
81:: :: Request for reference information
78:: :: NCP status report
77:: :: Network meeting report
76:: :: Connection by name
75:: :: Network meeting
74:: :: Specifications for network use of the UCSB On-Line System
73:: :: Response to NWG/RFC 67
72:: :: Proposed moratorium on changes to network protocol
71:: :: Reallocation in case of input error
69:: :: Distribution list change for MIT
68:: :: Comments on memory allocation control commands
66:: :: NIC - third level ideas and other noise
64:: :: Getting rid of marking
63:: :: Related network meeting report
61:: :: Note on interprocess communication in a resource sharing computer network
57:: :: Thoughts and reflections on NWG/RFC 54
52:: :: Updated distribution list
51:: :: Proposal for a Network Interchange Language
50:: :: Comments on the Meyer proposal
49:: :: Conversations with S. Crocker UCLA
48:: :: Possible protocol plateau
47:: :: BBN’s comments on NWG/RFC #33
46:: :: ARPA Network protocol notes
45:: :: New protocol is coming
44:: :: Comments on NWG/RFC 33 and 36
43:: :: Proposed meeting [LIL]
40:: :: More comments on the forthcoming protocol
39:: :: Comments on protocol re
37:: :: Network meeting epilogue, etc
36:: :: Protocol notes
35:: :: Network meeting
34:: :: Some brief preliminary notes on the Augmentation Research Center clock
31:: :: Binary message forms in computer
30:: :: Documentation conventions
27:: :: Documentation conventions
25:: :: No high link numbers
24:: :: Documentation conventions
21:: :: Network meeting
16:: :: M.I.T
15:: :: Network subsystem for time sharing hosts
13:: :: [Referring to NWG/RFC 11]
11:: :: Implementation of the Host-Host software procedures in GORDO
10:: :: Documentation conventions
9:: :: Host software
8:: :: Functional specifications for the ARPA Network
7:: :: Host-IMP interface
6:: :: Conversation with Bob Kahn
5:: :: Decode Encode Language
4:: :: Network timetable
3:: :: Documentation conventions
2:: :: Host software
1:: :: Host software
#!/usr/bin/perl

# Program to read text files (such as RFCs and Internet Drafts) and
# output items that might relate to year 2000 issues, particularly
# 2-digit years.

# Version 1.1a. Slight modification by Philip J. Nesser
# (phil@nesser.com) to split lines from old RFC’s that are
# too wide to conform with current RFC standards.

# Version 1.1. By Paul Hoffman (phoffman@imc.org). This is a
# quick-and-dirty hack and could be written more elegantly and
# more efficiently. There may be bugs in this software. For
# example, there was an off-by-one-line bug in version 1.0.
# Use this code at your own risk. This code may be freely
# redistributed.

# Some people like using disk files, others like STDIN and STDOUT.
# This program accomodates both types by setting the $UsageType
# variable. ‘file’ means input comes from the first argument on
# the command line, output goes to that filename with a ".out"
# extension; ‘std’ means STDIN and STDOUT.
$UsageType = 'file';  # Should be ‘file’ or ‘std’

# @CheckWords is a list of words to look for. This list is used in
# addition to the automatic checking for "yy" on a line without "YYYY".
# You might want to add "year yyyy" to this list, but then a large
# proportion of the RFCs and drafts get selected
@CheckWords = qw(UTCTime two-digit 2-digit 2digit century 1900 2000);

if($UsageType eq 'file') {
    if($ARGV[0] eq '') {
        die "You must specify the name of the file to open.
"}
    $InName = $ARGV[0];
    unless(-r $InName) { die "Could not read $InName.
"}
    open(IN, $InName) or die "Could not open $InName.
";
    $OutName = "$InName.out";
    open(OUT, ">$OutName") or die "Could not write to $OutName.
";
    $OutStuff = '';  # Holder for what we’re going to print out
} else {  # Do STDIN and STDOUT
    open(IN, "-"); open(OUT, "-");
}

# Read the whole file into an array. This is a tad wasteful of memory
# but makes the output easier.
@All = ();
while(<IN>) { push(@All, $_) }
$LastLine = $#All;

# Process the instance of "yy" not followed by "yy"
for($i = 0; $i <= $LastLine; $i += 1 ) {
  next unless(grep(/yy/i, $All[$i]));
  next if(grep/yyyy/i, $All[$i]));
  &PrintFive($i, "'yy' on a line without 'yyyy'");
}

# Next do the words that should cause extra concern
foreach $Word (@CheckWords) {
  for($i = 0; $i <= $LastLine; $i += 1 ) {
    next unless(grep/$Word/i, $All[$i]));
    &PrintFive($i, "$Word");
  }
}

# All done. If writing to a file, and nothing got written, delete the
# file so that you can quickly scan for the ".out" files.
# (A better-written program would have waited to do the opens
# until here so the unlink wouldn't be necessary. Oh, well.)
if($UsageType eq 'file') {
  if(length($OutStuff) > 0) {
    $OutStuff = "+++++++++ File $InName +++++++++ 
print OUT $OutStuff; close(OUT);
  } else {  # Nothing to put in the .out
    close(OUT);
    unlink($OutName) or die "Couldn't unlink $OutName\n";
  }
}
exit;

# Print the five lines around the word found
sub PrintFive {
  my $Where = shift(@_); my $Msg = shift(@_);
  my ($WhereRealLine, $Start, $End, $j);

  $WhereRealLine = $Where + 1;
  $Start . = "$Msg found at line $WhereRealLine:\n"
  $End = $WhereRealLine - 2; $End = $WhereRealLine + 2;
  if($Where < 2) { $Start = 0 }
  if($Where > $LastLine - 2) { $End = $LastLine }
  for($j = $Start; $j <= $End; $j += 1) {
    if (length($All[$j-1]) > 64) {
      $FirstHalf = substr($All[$j-1], 0, 64) . "\n";
      $LastHalf = "$j(continued):\t\t" . substr($All[$j-1], 64);
Appendix C: Output of the script in Appendix B on all RFC’s from 1 through 2479

+=+=+=+= File rfc0052.txt +=+=+=+=
2000 found at line 141:
139:
140: Chuck Rose Case University
141: Jennings Computing Center (216) 368-2000
142: Case Western Reserve University x2808
143: 10900 Euclid Avenue

+=+=+=+= File rfc0090.txt +=+=+=+=
2000 found at line 71:
69: consoles);
70:
71: j) Six data communication ports (3 dial @ 2000 baud, 1 dedicated @ 4800 baud, and 2 dedicated @ 50,000 baud) for remote batch entry terminals;
73(continued):

+=+=+=+= File rfc0230.txt +=+=+=+=
2000 found at line 92:
90: as for conventional synchronous block communication, since start and stop bits for each character would need to be transmitted. This loss is not substantial and does occur now for 2000 bps TIP-terminal communication.
94:

2000 found at line 134:
132: 92 transmitting sites in the U.S. and Canada were used with standard Bell System Dataphone datasets used at both ends. At both 1200 and 2000 bps, approximately 82% of the calls had error rates of 1 error in
135: 10^5 bits or better, assuming an equal number of short, medium, and long hauls.

30: justifiable on the basis that the IMP and Host computers were expected to be either in the same room (up to 30 feet of cable) or, via the Distant Host option, within 2000 feet on well-controlled, shielded cables. A connection through common carrier facilities is not comparably free of errors. Usage of common-carrier lines for

20: of the occasional desire to interface a Host to some IMP via a long-distance connection (where long-distance, in this context, is any cable run longer than 2000 feet but may typically be tens of miles) via either a hard-wire or telephone circuit. We believe that any good solution to the general problem of interfacing Hos
ts

141: by a rather short cable (approximately 100 feet long.) The CISMUL is connected to the IMP number 6 (port 0) by an approximately 1500 foot long cable. 80th IMPs are in close physical proximity (approximately 2000 feet) and are connected to each other by a 50 kilobits per second line. The results given above show considerable improvement in the performance with the new IMP DIM.

828: succeeding bytes in the stream used to encode the object.
829: A data object requiring 20000 (47040 octal) bytes would appear in the stream as follows.
2000 found at line 837:
835:  10000010 -- specifying that the next 2 bytes
836:  contain the stream length
837:  01001110 -- first byte of number 20000
838:  00100000 -- second byte
839:  .

2000 found at line 845:
843:  .
844:
845:  Interpretation of the contents of the 20000 bytes in
846:  the stream can be performed by a module which knows the
847:  specific format of the non-atomic type specified by DEFGH in

---

A. ALPHABETICAL LISTING OF SYNTAX RULES

1673:  <4-digit-year> ::= <four decimal digits>
1674:  <2-digit-year> ::= <two decimal digits>
1675:  <4-digit-year> ::= <four decimal digits>
1676:  <24-hour-time> ::= <hour> <minute>
1677:  <slash-date> ::= <numeric-month> "/" <date-of-month> "/" <2-digit-year>
1678:  <space> ::= <TELNET ASCII space (decimal 32)>
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2000


2-digit found at line 333:

"<n>(element)" is equivalent to "<n>*<n>(element)"; that is, exactly <n> occurrences of (element). Thus 2DIGIT is a 2-digit number, and 3ALPHA is a string of three alphabetic characters.

2digit found at line 947:

date = 1*2DIGIT ["-" month ; day month year

2digit found at line 948:

date = 1*2DIGIT ["-" month ; day month year
948:         ["-" ] (2DIGIT /4DIGIT) ; e.g. 20 Aug [19]7
948(continued): 7
949:
950: month = "January" / "Jan" / "February" / "Feb"

2digit found at line 967:
965: ; (seconds optional
965(continued):)
966:
967: hour = 2DIGIT [":"] 2DIGIT [ [":"] 2DIGIT ]
968: ; 0000[00] - 2359[59
968(continued):]
969:

2digit found at line 1718:
1716: CTL = <any TELNET ASCII control character and DEL>
1717:
1718: date = 1*2DIGIT ["-" ] month ["-" ] (2DIGIT /4DIGIT)
1719: date-field = "Date" : date-time
1720: date-time = [ day-of-week "," ] date time

2digit found at line 1754:
1752: host-indicator = 1*( ("at" / "@") node )
1753: host-phrase = phrase host-indicator
1754: hour = 2DIGIT [":"] 2DIGIT [ [":"] 2DIGIT ]
1755: HTAB = <TELNET ASCII horizontal-tab>
1756:

+=+=+=+= File rfc0734.txt +=+=+=+=

2000 found at line 184:
182: Bit name Value Meaning
183:
184: %TOALT 200000,,0 characters 175 and 176 are
184(continued): converted to
185: altmode (033) on input.
186:

2000 found at line 264:
262: NORMALLY OFF.
263:
264: %TOSA1 2000,,0 characters 001-037 should
264(continued): be displayed
265: using the Stanford/ITS extended
265(continued): ASCII
266: graphics character set instead of
266(continued): uparrow

2000 found at line 354:

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352:  %TXTOP    4000    This character has the [TOP] key depressed.
353:
354:  %TXSFL    2000    Reserved, must be zero.
355:
356:  %TXSFT    1000    Reserved, must be zero.

2000 found at line 634:
632:  Value  Key
633:
634:   2000    Reserved
635:   1000    Reserved
636:   0400    <META>

+++++++ File rfc0738.txt ++++
1900 found at line 41:
39: without sending anything.
40:
41:  The time is the number of seconds since 0000 (midnight) 1 January
41(continued): y 1900
42:  GMT, such that the time 1 is 12:00:01 am on 1 January 1900 GMT;
42(continued): this
43:  base will serve until the year 2036. As a further example, the
43(continued): most

1900 found at line 42:
40:
41:  The time is the number of seconds since 0000 (midnight) 1 January
41(continued): y 1900
42:  GMT, such that the time 1 is 12:00:01 am on 1 January 1900 GMT;
42(continued): this
43:  base will serve until the year 2036. As a further example, the
43(continued): most
44:  recent leap year as of this writing began from the time 2,398,29
44(continued): 1,200

+++++++ File rfc0745.txt ++++
2000 found at line 562:
560:  Circuits, EIA standard RS-422," April 1975; Engineering Dept.,
561:  Electronic Industries Assn., 2001 Eye St., N.W., Washington, D.C
561(continued): 
562:  20006.
563:
564:  REA bulletin 345-67, Rural Electrification Admin., U.S. Dept. of
564(continued):

+++++++ File rfc0746.txt ++++
'yy' on a line without 'yyyy' found at line 341:
339:  %TDGRF

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340:   %GOCLR  ;Clear the screen.
341:   %GOMVA xx yy  ;Set cursor.
342:   %GODLA xx yy  ;Draw line from there.
343:   << repeat last two commands for each line >>

'yy' on a line without 'yyyy' found at line 342:
340:   %GOCLR  ;Clear the screen.
341:   %GOMVA xx yy  ;Set cursor.
342:   %GODLA xx yy  ;Draw line from there.
343:   << repeat last two commands for each line >>
344:   %TDNOSP  ;Exit graphics.

2000 found at line 859:
857:  %TRGIN  0,,400000  terminal can provide graphics input.
858:  %TRGHC  0,,200000  terminal has a hard-copy device to which output can
859(continued):  be diverted.
860:  word 4  The name of the site in SIXBIT.
861:  word 5  The user name who compiled the file, usually in
861(continued):  SIXBIT.
862:  word 6  Date of compilation as SIXBIT YYMMDD.
863:  word 7  Time of compilation as SIXBIT HHMMSS.
864:  word 8  Address in file of NAME table.

'yy' on a line without 'yyyy' found at line 218:
216:  word 4  The name of the site in SIXBIT.
217:  word 5  The user name who compiled the file, usually in
217(continued):  SIXBIT.
218:  word 6  Date of compilation as SIXBIT YYMMDD.
219:  word 7  Time of compilation as SIXBIT HHMMSS.
220:  word 8  Address in file of NAME table.

'yy' on a line without 'yyyy' found at line 76:
74:  Messages are transmitted as a character string to an address which
75(continued):  is specified "outside" the message. The destination host ("YYY") is
76(continued):  specified to the sending (or user) FTP as the argument of the "open"
77(continued):  command, and the destination user ("XXX") is specified to the receiving (or server) FTP as the argument of the "MAIL" (or "MLFL") command. In Tenex, when mail is queued this outside information is saved in the file name ("[---].XXX@YYY").
83: The proposed solutions are briefly characterized.

'yy' on a line without 'yyyy' found at line 239:
237:
238:
239: "[---].XXX@YYY", not anything from the header. Only the stri
239(continued): ng "XXX"
240: is passed to the FTP server.
241:

two-digit found at line 1414:
1412: yyyy-mm-dd-hh:mm:ss,fff+hh:mm
1413:
1414: Where yyyy is the four-digit year, mm is the two-digit month
1414(continued): , dd is
1415: the two-digit day, hh is the two-digit hour in 24 hour time,
1415(continued): mm is
1416: the two-digit minute, ss is the two-digit second, and fff is
1416(continued): the
two-digit found at line 1415:
1413:
1414: Where yyyy is the four-digit year, mm is the two-digit month
1414(continued): , dd is
1415: the two-digit day, hh is the two-digit hour in 24 hour time,
1415(continued): mm is
1416: the two-digit minute, ss is the two-digit second, and fff is
1416(continued): the
1417: decimal fraction of the second. To this basic date and time
1417(continued): is
two-digit found at line 1416:
1414: Where yyyy is the four-digit year, mm is the two-digit month
1414(continued): , dd is
1415: the two-digit day, hh is the two-digit hour in 24 hour time,
1415(continued): mm is
1416: the two-digit minute, ss is the two-digit second, and fff is
1416(continued): the
1417: decimal fraction of the second. To this basic date and time
1417(continued): is
1418: appended the offset from Greenwich as plus or minus hh hours
1418(continued): and mm

two-digit found at line 710:
708: yyyy-mm-dd-hh:mm:ss,fff+hh:mm
709:
Where yyyy is the four-digit year, mm is the two-digit month, dd is the two-digit day, hh is the two-digit hour in 24 hour time, mm is the two-digit minute, ss is the two-digit second, and fff is the two-digit decimal fraction of the second. To this basic date and time is appended the offset from Greenwich as plus or minus hh hours and mm.

The date-time will be in the default TOPS20 ODTIM format "dd-mmm-yy hh:mm:ss" (24 hour time).

The files will be named "arbitrary.NIMAIL.-1", where "arbitrary." will be replaced by the mailbox name.

<daytime> ::= "at" <SP> <date> <SP> <time>
<date> ::= <dd> "-" <mon> "-" <yy>
<time> ::= <hh> ":" <mm> ":" <ss> "-" <zone>
'yy' on a line without 'yyyy' found at line 1602:
1600:                        "JUL" | "AUG" | "SEP" | "OCT" | "NOV" | "D
1600(continued):             EC"
1601:
1602:              <yy> ::= the two decimal integer year of the century
1602(continued): in the
1603:                        range 01 to 99.
1604:

century found at line 1602:
1600:                        "JUL" | "AUG" | "SEP" | "OCT" | "NOV" | "D
1600(continued):             EC"
1601:
1602:              <yy> ::= the two decimal integer year of the century
1602(continued): in the
1603:                        range 01 to 99.
1604:

+=+=+=+=+= File rfc0809.txt +=+=+=+=+=
2000 found at line 3349:
3347: 3348:        #define WID     0000000   /* Write Image Data */
3349:        #define WGD     0020000   /* Write Graphic Data */
3350:        #define WAC     0022000   /* Write AlphanumCh */
3351: 2000 found at line 3350:
3348:        #define WID     0000000   /* Write Image Data */
3349:        #define WGD     0020000   /* Write Graphic Data */
3350:        #define WAC     0022000   /* Write AlphanumCh */
3351: 3352:        #define LWM     0024000   /* Load Write Mode */
2000 found at line 3379:
3377: 3378:        #define ERS     0030000   /* Erase */
3379:        #define ERL     0032000   /* Erase Line */
3380:        #define SLU     0034000   /* Special Location Update */
3381:        #define SCRL_ZAP 0100   /* unlimited scroll speed */
2000 found at line 3392:
3390:        #define LLB     0070000   /* Load Lb */
3391:        #define LLC     0074000   /* Load Lc */
3392:        #define LGW     020000   /* perform write */
3393: 3394:        #define NOP     0110000   /* No-Operation */
2000 found at line 3396:

Nesser                       Informational                     [Page 90]
3394: #define NOP 0110000 /* No-Operation */
3395:
3396: #define SPD 0120000 /* Select Special Device */
3397: #define LPA 0130000 /* Load Peripheral Address */
3398: #define LPR 0140000 /* Load Peripheral Register */

#define ALPHA 06000 /* LPR - Alphanumeric data */
#define GRAPH 04000 /* LPR - Graphic data */
#define IMAGE 02000 /* LPR - Image data */
#define LTHENH 01000 /* take lo byte then hi byte */
#define DROPBYTE 0400 /* drop last byte */

#define INTERR 02000 /* SPD - Interrupt Enable */
#define TEST 04000 /* SPD - Diagnostic Test */

++++ File rfc0810.txt ++++
'yy' on a line without 'yyyy' found at line 146:
144: , (comma) is used as a data element delimiter
145:
146: XXX/YYY indicates protocol information of the type
146(continued):
147: TRANSPORT/SERVICE.
148:

++++ File rfc0820.txt ++++

++++ File rfc0821.txt ++++
'}yy' on a line without 'yyyy' found at line 1944:
1942: <daytime> ::= <SP> <date> <SP> <time>
1943: 1944: <date> ::= <dd> <SP> <mon> <SP> <yy>
1945:
1946: 
   <time> ::= <hh> ":" <mm> ":" <ss> <SP> <zone>

'y' on a line without 'yyy' found at line 154:
1952:    "JUL" | "AUG" | "SEP" | "OCT" | "NOV" | "D
1952(continued): 
   EC"
1953:
1954:    <yy> ::= the two decimal integer year of the century
1954(continued): 
in the
1955:    range 00 to 99.
1956:

'yy' on a line without 'yyyy' found at line 1635:
1633:      5.1.  SYNTAX
1634:
1635:      date-time   =  [ day "," ] date time        ; dd mm yy
1636:                                           ;  hh:mm:ss zzz
1636(continued):
1637:

'y' on a line without 'yyyy' found at line 2701:
2699:      dates       =   orig-date                   ; Original
2700:                     [ resent-date ]               ; Forwarded
2701:      date-time   =  [ day "," ] date time        ; dd mm yy
2702:                                           ;  hh:mm:ss zzz
2702(continued):
2703:      day         =  "Mon" / "Tue" / "Wed" / "Thu"

2-digit found at line 344:
342:    "<n>(element)" is equivalent to "<n>*<n>(element)"; th
343(continued):    is,
344:    exactly <n> occurrences of (element). Thus 2DIGIT is a 2
344(continued):    -digit
345:    number, and 3ALPHA is a string of three alphabetic character
345(continued):    rs.
346:

2digit found at line 344:
"<n>(element)" is equivalent to "<n>*<n>(element)"; that is, exactly <n> occurrences of (element). Thus 2DIGIT is a 2-digit number, and 3ALPHA is a string of three alphabetic characters.

2digit found at line 1641:
1639:       date = 1*2DIGIT month 2DIGIT ; day month year
1640:       ; e.g. 20 Jun
1641(continued): r
1642(continued): 82
1643:

2digit found at line 1650:
1648:       time = hour zone ; ANSI and Mili
1648(continued): tary
1649:
1650:       hour = 2DIGIT ":" 2DIGIT [":" 2DIGIT]
1651: ; 00:00:00 - 23
1651(continued): :59:59
1652:

2digit found at line 2697:
2695:       CTL = <any ASCII control > ; ( 0- 37, 0.
2696:       character and DEL> ; ( 177,
2696(continued): 127.)
2697:       date = 1*2DIGIT month 2DIGIT ; day month year
2698:       ; e.g. 20 Jun
2699:       dates = orig-date ; Original

2digit found at line 2747:
2745:       field-name = 1*<any CHAR, excluding CTLs, SPACE, and ":"> 
2746(continued): 
2746:       group = phrase ":" [\#mailbox] ";"
2747:       hour = 2DIGIT ":" 2DIGIT [":" 2DIGIT]
2748: ; 00:00:00 - 23
2748(continued): :59:59
2749:       HTAB = <ASCII HT, horizontal-tab> ; ( 11, 
2749(continued): 9.)
Several examples of valid dates appear in the sample:

Another popular syntax is that used in SMTP:

Example:

This protocol provides a site-independent, machine readable date and time. The Time service sends back to the originating source the time in seconds since midnight on January first 1900. One motivation arises from the fact that not all systems have a 1900 base will serve until the year 2036.
1639: 2000 Propagation Delay Measurement
1640: 4000 X25
1641: 10000 Profile Measurements

2000 found at line 1642:
1640: 4000 X25
1641: 10000 Profile Measurements
1642: 20000 Self Authenticating Password
1643: 40000 Host traffic Matrix
1644: 100000 Experimental/Special

2000 found at line 1669:
1667: 200 Trace ON
1668: 1000 Statistics ON
1669: 2000 Message Generator ON
1670: 4000 Packet Trace ON
1671: 10000 Host Data Checksum is BAD

2000 found at line 1672:
1670: 4000 Packet Trace ON
1671: 10000 Host Data Checksum is BAD
1672: 20000 Reload Location SET
1673:
1674:

File rfc0884.txt

2000 found at line 236:
234: GENERAL-TERMINAL-100A
235: HAZELTINE-1500
236: HAZELTINE-2000
237: HP-2621
238: HP-2640A

File rfc0899.txt

1900 found at line 337:
335: provides a site-independent, machine readable date and time.
335(continued): The
336: Time service sends back to the originating source the time in
336(continued): seconds
337: since midnight on January first 1900.
338:
339: 867 Postel May 83 Daytime Protocol

File rfc0900.txt

2000 found at line 1595:
1593: HAZELTINE-1510
1594: HAZELTINE-1520
1595: HAZELTINE-2000
A session begins when a host opens a transport connection to a target listening on a well-known port. LDP uses RDP port number zzz or TCP port number yyy. When the connection has been established, the host sends a HELLO command, and the target replies with a HELLO_REPLY. The HELLO_REPLY

'yy' on a line without 'yyyy' found at line 327: 
326:        READ [n]                          #xxx
327:        RETR    =yyy
328:        ACKS
329:        ACKD

'yy' on a line without 'yyyy' found at line 159: 
157:     ,(comma)        is used as a data element delimiter
158:     XXX/YYYY       indicates protocol information of the type
160:     TRANSPORT/SERVICE.
3. The data format should be based on the UDP Time format, which specifies 32-bit time in seconds since 1 January 1900, but extended additional bits for the fractional part of a second.

experiment the results indicated by UDP and ICMP are compared. In the UDP Time protocol time is indicated as a 32-bit field in seconds past 0000 UT on 1 January 1900, while in the ICMP Timestamp message time is indicated as a 32-bit field in milliseconds past 0000 UT of each day.

NTP provides the protocol mechanisms to synchronize time in principle to precisions in the order of nanoseconds while preserving a non-ambiguous date, at least for this century. The protocol includes provisions to specify the precision and estimated error of the local clock and the characteristics of the reference clock to which it may

NTP timestamps are represented as a 64-bit fixed-point number, in seconds relative to 0000 UT on 1 January 1900. The integer part is in the first 32 bits and the fraction part in the last 32 bits.
144(continued): s, as
145: shown in the following diagram.

+++++ File rfc0960.txt ++++=

2000 found at line 1659:
1657: 014.000.000.018 2624-522-80900 52 DFVLR5-X25
1658(continued): [HDC1]
1658: 014.000.000.019 2041-170-10000 00 SHAPE-X25
1659(continued): [JFW]
1659: 014.000.000.020 5052-737-20000 50 UQNET
1659(continued): [AXH]
1660: 014.000.000.021 3020-801-00057 50 DMC-CRC1
1660(continued): [JR17]
1661: 014.000.000.022-014.255.255.254 Unassigned
1661(continued): [JBP]

2000 found at line 1984:
1982: AEGIS
1983: APOLLO
1984: BS-2000
1985: CEDAR
1986: CGW

2000 found at line 2350:
2348: HAZELTINE-1510
2349: HAZELTINE-1520
2350: HAZELTINE-2000
2351: HP-2621
2352: HP-2621A

+++++ File rfc0973.txt ++++

2000 found at line 377:
376: We might add the following to the parent zone:
377: 99.128.IN-ADDR.ARPA. 2000 NS Q.ISI.EDU.
378: 2000 NS XX.MIT.EDU.
379: Q.ISI.EDU. 2000 A <address of Q.ISI.EDU.>

2000 found at line 378:
376: 99.128.IN-ADDR.ARPA. 2000 NS Q.ISI.EDU.
378: 2000 NS XX.MIT.EDU.
379: Q.ISI.EDU. 2000 A <address of Q.ISI.EDU.>
380: XX.MIT.EDU. 2000 A <address of XX.MIT.EDU.>

2000 found at line 379:
377: 99.128.IN-ADDR.ARPA. 2000 NS Q.ISI.EDU.
378: 2000 NS XX.MIT.EDU.
and the following to the child zone:

and the following to the child zone:

and the following to the child zone:

and the following to the child zone:

and the following to the child zone:

and the following to the child zone:

and the following to the child zone:

The date is sent as 6 digits in the format YYMMDD, where YY is the last two digits of the year, MM is the two digits of the month, leading zero, if appropriate), and DD is the day of the month.
century found at line 817:
815:   last two digits of the year, MM is the two digits of the month
815(continued):   h (with
816:   leading zero, if appropriate), and DD is the day of the month
816(continued):   d as
817:   part of the year (i.e., 86 specifies 1986, 30 specifies 2030,
818(continued):   99 is
819:   1999, 00 is 2000).

2000 found at line 819:
819:   leading zero, if appropriate). The closest century is assume
819(continued):   d as
818:   part of the year (i.e., 86 specifies 1986, 30 specifies 2030,
818(continued):   99 is
819:   1999, 00 is 2000).

2000 found at line 1190:
1188: (client asks for new newsgroups since April 3, 1985)
1190: C:      NEWGROUPS 850403 020000
1191: S:      231 New newsgroups since 03/04/85 02:00:00 follow

2000 found at line 1275:
1273: (client asks for new newsgroups since 2 am, May 15, 1985)
1275: C:      NEWGROUPS 850515 020000
1276: S:      235 New newsgroups since 850515 follow
1277: S:      net.fluff

2000 found at line 1282:
1280: (client asks for new news articles since 2 am, May 15, 1985)
1282: C:      NEWNEWS * 850515 020000
1283: S:      230 New news since 850515 020000 follows
1284: S:      <1772@foo.UUCP>

2000 found at line 1283:
1281: (client asks for new news articles since 2 am, May 15, 1985)
1282: C:      NEWNEWS * 850515 020000
1283: S:      230 New news since 850515 020000 follows
Very Distant Host (VDH) methods are not recommended for new implementations. The Distant Host (DH) method is used when host and IMP are separated by not more than about 2000 feet of cable, while the HDLC Distant Host is used for greater distances where a modem is required. Retransmission, resequencing and flow control should be used, in line with CEN/CENELEC recommendations.

Both UTCTime and the RFC 822 date-time syntax contain: Year, (lowest two digits), Month, Day of Month, hour, minute, (optional), and Timezone. 822.date-time also contains an optional day of the week, but this is redundant. There should be a symmetrical mapping can be made between these constructs <5>. The UTCTime format which specifies the timezone offset should be used, in line with CEN/CENELEC recommendations.
The extended syntax of zone defined in the JNT Mail Protocol should be used in the mapping of UTCTime defined in chapter 3.

5. Lack of separate 822-P1 originator specification

In practice, a gateway will need to parse various illegal variants on 822.date-time. In cases where 822.date-time cannot be parsed, it is recommended that the derived UTCTime is set to the value at the time of translation.

2-digit found at line 2785:

```
2783:   last-trace " ;"
2784:   "ext" 1*DIGIT
2785:   "flags" 2DIGIT
2786:   [ "intended" mailbox ] " ;"
2787:   [ "info" printablestring ]
```

`2000` found at line 2265:

```
2263:   014.000.000.018 2624-522-80900 52 DFVLR5-X25
2264:     [GB7]
2264:   014.000.000.019 2041-170-10000 00 SHAPE-X25
2265:     [JFW]
2265:   014.000.000.020 5052-737-20000 50 UQNET
2265:     [AXH]
2266:   014.000.000.021 3020-801-00057 50 DMC-CRC1
2266:     [JR17]
2267:   014.000.000.022 2624-522-80902 77 DFVLRVAX-X25
2267:     [GB7]
```

`2000` found at line 2584:

```
2582:   AEGIS
2583:   APOLLO
2584:   BS-2000
2585:   CEDAR
2586:   CGW
```

`2000` found at line 2945:

```
2943:   HAZELTINE-1510
2944:   HAZELTINE-1520
2945:   HAZELTINE-2000
```
2946: HP-2621
2947: HP-2621A

2000 found at line 76:
74: Process type: 000027 options: 040000
77: Foreign address: [192.5.39.87] max size: 576
78: Input packets 3645 Output packets 3690

1900 found at line 3105:
3103: protocol provides a site-independent, machine readable data
3103(continued): e and
3104: time. The Time service sends back to the originating sour
3104(continued): ce the
3105: time in seconds since midnight on January first 1900.
3106:
3107: 867 Postel May 83 Daytime Protocol

2000 found at line 1412:
1410: method is used when the host and IMP (the Defense Communic
1410(continued): ation
1411: Agency calls it a Packet Switch Node or PSN) are separated
1411(continued): by not
1412: more than about 2000 feet of cable, while the HDLC Distant
1412(continued): Host
1413: (HDH) is used for greater distances where a modem is requi
1413(continued): red.
1414: Under HDH, retransmission, resequencing and flow control a
1414(continued): re

2000 found at line 1353:

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The local system clock, measured in milliseconds since 00:00 January 1900 UTC. Assumed to be only a local estimate of the time.

The value 0 is reserved for an uninitialized clock (For example, an uninitialized time-of-day chip.)

A network synchronized clock, which is assumed to be synchronized across some part of a network. The clock value is measured in milliseconds since 00:00 1 January 1900 UTC. Specific information about the synchronization protocol is found in the system variable dictionary. The value 0 is used to indicate an uninitialized clock.

Several examples of valid dates appear in the sample message above.
Universal Time format, which measures a time as the number of seconds since January 1, 1900, at midnight GMT.

The creation date of the file. The date is expressed in Universal Time format, which measures a time as the number of seconds since January 1, 1900, at midnight GMT. Creation date does not necessarily mean the time the file system created the directory entry or records of the file. For systems that support modification or appending to +=+=+=+= File rfc1038.txt +=+=+=+= File rfc1050.txt +=+=+=+= File rfc1057.txt

Program numbers are given out in groups of hexadecimal 200000 (decimal 536870912) according to the following chart:

0 - 1ffffffff defined by Sun
20000000 - 3ffffffff defined by user
40000000 - 5ffffffff transient
60000000 - 7ffffffff reserved
7.3 Program Number Assignment

Program numbers are given out in groups of hexadecimal 200000 00 (decimal 536870912) according to the following chart:

<table>
<thead>
<tr>
<th>Program Numbers</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 1fffffff</td>
<td>defined by Sun</td>
</tr>
<tr>
<td>20000000 - 3fffffff</td>
<td>defined by user</td>
</tr>
<tr>
<td>40000000 - 5fffffff</td>
<td>transient</td>
</tr>
<tr>
<td>60000000 - 7fffffff</td>
<td>reserved</td>
</tr>
</tbody>
</table>

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mechanisms to synchronize time in principle to precisions in the order of nanoseconds while preserving a non-ambiguous date we will into the next century. The protocol includes provisions to specify characteristics and estimate the error of the local clock and time server to which it may be synchronized. It also includes

frequency to the TA time scale. At 0000 hours on 1 January 1900, the NTP time scale was set to 2,272,060,800, representing the number of TA seconds since 0000 hours on 1 January 1900. The insertion of leap seconds in UTC does not affect the oscillator itself, only the translation between TA and UTC, or conventional civil time.

The main product of the protocol, a special timestamp format has been established. NTP timestamps are represented as a 64-bit unsigned fixed-point number, in seconds relative to 0000 UT on 1 January 1900. The integer part is in the first 32 bits and the fraction part...
650 (continued): \( t \) in the
651: last 32 bits, as shown in the following diagram.

1900 found at line 690:
688: the Integer Part) has been set and that the 64-bit field will
688 (continued):
689: overflow some time in 2036. Should NTP be in use in 2036, so
689 (continued): me
690: external means will be necessary to qualify time relative to
690 (continued): 1900 and
691: time relative to 2036 (and other multiples of 136 years).
692: Timestamped data requiring such qualification will be so prec
692 (continued): ious

==*==*==*==*==*==*==*==+= File rfc1060.txt ==*==*==*==*==*==*==*==+=
'yy' on a line without 'yyyy' found at line 2324:
2322: AB-00-03-00-00-00  6004  DEC Local Area Transport
2322 (continued):  (LAT) - old
2323: AB-00-04-00-xx-xx  ????  Reserved DEC customer private
2323 (continued):  use
2324: AB-00-04-01-xx-yy  6007  DEC Local Area VAX Cluster gr
2324 (continued):  oups
2325: System Communication Archite
2325 (continued):  ture (SCA)
2326: CF-00-00-00-00-00  9000  Ethernet Configuration Test
2326 (continued):  protocol (Loopback):

2000 found at line 2729:
2727: 014.000.000.018  2624-522-80900 52  FGAN-SIEMENS-X25
2727 (continued):  [GB7]
2728: 014.000.000.019  2041-170-10000 00  SHAPE-X25
2728 (continued):  [JFW]
2729: 014.000.000.020  5052-737-20000 50  UQNET
2729 (continued):  [AXH]
2730: 014.000.000.021  3020-801-00057 50  DMC-CRC1
2730 (continued):  [VXT]
2731: 014.000.000.022  2624-522-80329 02  FGAN-FGANFFMVAX-X25
2731 (continued):  [GB7]

2000 found at line 3155:
3153: AEGIS  MACOS  TP3010
3154: APOLLO  MINOS  TRSDOS
3155: BS-2000  MOS  UNIX
3156: CEDAR  MPE5  UNIX
3157: CGW  MSDOS  UNIX-BSD

2000 found at line 3508:
3506: HAZELTINE-1520  IBM-3278-5-E

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3507: HAZELTINE-1552 IBM-3279-2-E
3508: HAZELTINE-2000 IBM-3279-3-E
3509: HAZELTINE-ESPRIT IMLAC
3510: HP-2392 INFOTON-100

"yy" on a line without "yyyy" found at line 1321:

1319: "NO" SP text_line / "BAD" SP text_line)
1320:
1321: date ::= string in form "dd-mmm-yy hh:mm:ss-zzz"
1322: envelope ::= "(" env_date SP env_subject SP env_from SP
1323(continued): P

UTCTime found at line 1501:

1499:
1500: commonReference
1501: UTCTime,
1502:
1503: additionalReferenceInformation[0]

2000 found at line 878:

876:
877: 0040000 This is a directory; "type" field should be NFDIR.
877(continued):
878: 0020000 This is a character special file; "type" field sho
878(continued): uld
879: be NFCHR.
880: 0060000 This is a block special file; "type" field should
880(continued): be

2000 found at line 883:

881: NFBLK.
882: 0100000 This is a regular file; "type" field should be NFR
882(continued): EG.
883: 0120000 This is a symbolic link file; "type" field should
883(continued): be
884: NFLNK.
885: 0140000 This is a named socket; "type" field should be NFN
885(continued): ON.

2000 found at line 887:

885: 0140000 This is a named socket; "type" field should be NFN
885(continued): ON.
886: 0004000 Set user id on execution.
887:        0002000 Set group id on execution.
888:        0001000 Save swapped text even after use.
889:        0000400 Read permission for owner.

2000 found at line 187:
185:     throughout DoD common user data networks, users of these netw
186(continued):      orks
187:     should submit requirements for additional Protection Authorit
188(continued):      y Flags
189:     to DISA DISDB, Washington, D.C. 20305-2000, for review and a
190(continued):      pproval.
191:     Such review and approval should be sought prior to design,
192:     development or deployment of any system which would make use
193(continued):      of

2000 found at line 774:
772:     data networks, and to maximize interoperability, each activit
773(continued):      y should
774(continued):      for
775(continued):      ternet
776(continued):      Activities Board for architectural review and, if required, a
777(continued):      cleared

UTCTime found at line 922:
920:                issuer          Name,
921:                list            SEQUENCE RCLEntry,
922:                lastUpdate      UTCTime,
923:                nextUpdate      UTCTime)
924:                rcletype,

UTCTime found at line 923:
921:                list            SEQUENCE RCLEntry,
922:                lastUpdate      UTCTime,
923:                nextUpdate      UTCTime)
924:                rcletype,

UTCTime found at line 927:
925:                rcletype,
926:                subject         CertificateSerialNumber,
927:                revocationDate  UTCTime)
928:
929:  3.4  Certificate Definition and Usage

UTCTime found at line 1296:
1294:
1295:           Validity ::=    SEQUENCE{
1296:                   notBefore       UTCTime,
1297:                   notAfter        UTCTime}
1298:

UTCTime found at line 1297:
1295:           Validity ::=    SEQUENCE{
1296:                   notBefore       UTCTime,
1297:                   notAfter        UTCTime}
1298:
1299:           SubjectPublicKeyInfo ::=        SEQUENCE{
+++++++ File rfc1117.txt ++++++++++ 'yy' on a line without 'yyyy' found at line 4965:
4963:          jwmanly%amherst.bitnet@MITVMA.MIT.EDU
4964:  [JWN10] Norris, James W    a02jwn1%niu.bitnet@CUNYVM.CUNY.E
4964(continued):                DU
4965:  [JY24]  Yu, Jessica        jyy@MERIT.EDU
4966:  [JY33]  Yoshida, Jun       ---none---
4967:  [KA4]   Auerbach, Karl    auerbach@CSL.SRI.COM

+++++++ File rfc1123.txt ++++++++++ 2digit found at line 3239:
3237:           The syntax for the date is hereby changed to:
3238:
3239:              date = 1*2DIGIT month 2*4DIGIT
3240:
3241:

century found at line 3253:
3251:
3252:           All mail software SHOULD use 4-digit years in dates, to
3252(continued):    ease
3253:           the transition to the next century.
3254:
3255:           There is a strong trend towards the use of numeric time
3255(continued):    zone

+++++++ File rfc1133.txt ++++++++++ 'yy' on a line without 'yyyy' found at line 493:

Nesser  Informational  [Page 110]
UTCTime found at line 1471:
1469: the full BNF easier to parse.
1470:
1471: 3.3.5. UTCTime
1472:
1473: Both UTCTime and the RFC 822 822.date-time syntax contain: Y
1473(continued): ear

UTCTime found at line 1473:
1471: 3.3.5. UTCTime
1472:
1473: Both UTCTime and the RFC 822 822.date-time syntax contain: Y
1473(continued): ear
1474: (lowest two digits), Month, Day of Month, hour, minute, second
1474(continued): d
1475: (optional), and Timezone. 822.date-time also contains an optional
1475(continued): ional

UTCTime found at line 1482:
1480: In practice, a gateway will need to parse various illegal
1480(continued): l
1481: variants on 822.date-time. In cases where 822.date-time
1481(continued):
1482: cannot be parsed, it is recommended that the derived UTC
1482(continued): Time
1483: is set to the value at the time of translation.
1484:

UTCTime found at line 1485:
1483: is set to the value at the time of translation.
1484:
1485: The UTCTime format which specifies the timezone offset should
1485(continued): be
1486: used.
1487:

UTCTime found at line 4469:
4467:
4468: The extended syntax of zone defined in the JNT Mail Protocol
4468(continued): should
4469: be used in the mapping of UTCTime defined in Chapter 3.
6. Lack of 822-MTS originator specification

`yy` on a line without `yyyy` found at line 9715:

cerns to security and management personnel at DDN faci
line 9713: ties. It is available online, via kermit or anonymous
line 9714: FTP, from nic.ddn.mil, in SCC:DDN-SECURITY-yy-nn.TXT (where
line 9715: "yy"
line 9716: is the year and "nn" is the bulletin number). The SCC
line 9717: vides immediate assistance with DDN-related host secur
line 9718: ity

1994: "NETMON." These tools were independently developed, ar
line 1095: and functionally different, run in different environments,
line 1096: are no more related than Richard Burton the 19th centu
line 1097: explorer and Richard Burton the 20th century actor. B
line 1098: tool "NETMON" is listed as "NETMON (I)," MITRE’s as "N
line 1099: ETMON

2000 found at line 4134:
line 4132: libraries), but this has not been done. Curses i
line 4133: s very slow and cpu intensive on VMS, but the tool has b
4134: run in a window on a VAXstation 2000. Just don’t try
4135: to run it on a terminal connected to a 11/750.

+=+=+=+=+= File rfc1148.txt +=+=+=+=+

UTCTime found at line 1475:
1473: the full BNF easier to parse.
1474:
1475: 3.3.5. UTCTime
1476:
1477: Both UTCTime and the RFC 822 822.date-time syntax contain: Y 1477(continued):

UTCTime found at line 1477:
1475: 3.3.5. UTCTime
1476:
1477: Both UTCTime and the RFC 822 822.date-time syntax contain: Y 1477(continued):
1478: (lowest two digits), Month, Day of Month, hour, minute, second 1478(continued): d 1479: (optional), and Timezone. 822.date-time also contains an optional
1479(continued):

UTCTime found at line 1486:
1484: In practice, a gateway will need to parse various illegal 1484(continued):
1485: variants on 822.date-time. In cases where 822.date-time 1485(continued):
1486: cannot be parsed, it is recommended that the derived UTC 1486(continued): Time 1487: is set to the value at the time of translation.
1488:

UTCTime found at line 1489:
1487: is set to the value at the time of translation.
1488:
1489: The UTCTime format which specifies the timezone offset should 1489(continued):
1490: be used.
1491:
UTCTime found at line 4566:
4564: 
4565: The extended syntax of zone defined in the JNT Mail Protocol
4565(continued): should
4566: be used in the mapping of UTCTime defined in Chapter 3.
4567:  
4568: 6. Lack of 822-MTS originator specification

File rfc1152.txt

'yy' on a line without 'yyyy' found at line 937:
935: Reservation Multiple-Access).
936: 
937: Finally, Yechiam Yemeni (YY, Columbia University) discussed h
937(continued): is work
938: on a protocol silicon compiler. In order to exploit the pote
938(continued): ntrial
939: parallelism, he is planning to use one processor per connecti
939(continued): on.

File rfc1153.txt

'yy' on a line without 'yyyy' found at line 119:
117: 
118: 
119: Date: ddd, dd mmm yy hh:mm:ss zzz
120: From: listname-REQUEST@fqhn
121: Reply-To: listname@fqhn
122: Subject: listname Digest Vyy #nn
123: To: listname@fqhn
124:

'yy' on a line without 'yyyy' found at line 125:
123: To: listname@fqhn
124: 
125: listname Digest ddd, dd mmm yy Volume yy : Iss
125(continued): ue nn
126: 
127: Today’s Topics:

'yy' on a line without 'yyyy' found at line 137:
135: 
135(continued): ------
136:
RFC 2626  The Internet and the Millennium Problem (Year 2000)  June 1999

137:  Date: ddd, dd mmm yy hh:mm:ss zzz
138:  From: Joe User <username@fqhn>
139:  Subject: Message One Subject

’yy’ on a line without ‘yyyy’ found at line 147:
145:  ------------------------------
146:  
147:  Date: ddd, dd mmm yy hh:mm:ss zzz
148:  From: Jane User <username@fqhn>
149:  Subject: Message Two Subject

’yy’ on a line without ‘yyyy’ found at line 157:
155:  ------------------------------
156:  
157:  End of listname Digest Vyy Issue #nn
158:  ******************************
159:  
+++++++= File rfc1161.txt ++++==
1900 found at line 322:
320:     on the protocol-ID
321:  
322:     03019000
323:  
324:  5. Acknowledgements

2000 found at line 210:
208:     (1)  <nsap> is a hex string defining the nsap, e.g.,
209:  
210:     "snmp"/NS+4900590800200038bafe00
211:  
212:     Similarly, SNMP traps are, by convention, sent to a manager l
212(continued):     istening

2000 found at line 291:
289:     (1)  <nsap> is a hex string defining the nsap, e.g.,
290:  
291:     "snmp"/NS+4900590800200038bafe00
292:  
293:     Similarly, SNMP traps are, by convention, sent to a manager l
293(continued):     istening

+++++++= File rfc1164.txt ++++==
1265:     Phone:  (313) 936-3000

Nesser                       Informational                    [Page 115]
2000 found at line 89:
87: are also likely play a role along with Switched Multi-megabit Data
87(continued): Service (SMDS) provided by telecommunications carriers. It a
88(continued): lso
89: would be fair to ask what role FTS-2000 might play in the sys
89(continued): tem, at
90: least in support of government access to the NREN, and possib
90(continued): ly in
91: support of national agency network facilities.

2000 century found at line 72:
70: only choice; I don’t see any prospect of either the governmen
70(continued): t or
71: private enterprise building a monolithic, centralized, ubiqui
71(continued): tous "Ma
72: Datagram" network provider in this century.
73:
74: 2. Responsibilities of Network Managers

2000 found at line 208:
206: 1.1MBps, no matter how high the theoretical transfer rate
206(continued): of the
207: path. This corresponds to cycling the sequence number space in
208: T_wrap=2000 secs, which is safe in today’s Internet.
210: Based on this reasoning, an earlier RFC [McKenzie89] has c
210: audited

2000 found at line 7630:
7628: link failure
7629: 2000 DefaultRecoveryTimeout Interval between successive
7630: HELLOs to/from active neigh
7631: bors
7632:

2000 found at line 925:
923: Hyperchannel
924: Just in case
925: ref. [6]
927:

'yy' on a line without 'yyyy' found at line 2102:
2100: "NO" SP text_line / "BAD" SP text_line)
2101:
2102: date ::= string in form "dd-mmm-yy hh:mm:ss-zzz"
2103:
2104: envelope ::= "(" env_date SP env_subject SP env_from SP

2000 found at line 2614:
2612: question. For example:
2613:
2614: tag42 FETCH 197 BODY 2000:3999
2615:
2616: would fetch the second two thousand bytes of the body of
2616: message

'yy' on a line without 'yyyy' found at line 136:
134: directory. Information includes packet counts by NSS and
134: byte
135: counts for type of use (ftp, smtp, telnet, etc.). Filenames
135: are
136: of the form ‘NSFyy-mm.type’.
137: Files are available for anonymous ftp; use ‘guest’ as the
138: +++++++++++++++++++++++++++++++++ File rfc1210.txt ++++++++++++++++++

2000 found at line 1548:
1546: Franci Bigi (1)  
1547: CEC  
1548: Rue de la Loi 2000  
1549: B-1049  
1550: Brussels

2000 found at line 1756:
1754: Rolf Speth (1)  
1755: CEC  
1756: Rue de la Loi 2000  
1757: B-1049  
1758: Brussels

2000 found at line 1773:
1771: Jose Torcato (1), (2)  
1772: CEC, TR 61 0/10  
1773: Rue de la Loi 2000  
1774: B-1049  
1775: Brussels

2000 found at line 1801:
1799: Karel De Vriendt (1)  
1800: CEC  
1801: Rue de la Loi 2000  
1802: B-1049  
1803: Brussels

2000 found at line 1837:
1835: Rosalie Zobel (1) (2)  
1836: CEC  
1837: Rue de la Loi 2000  
1838: B-1049  
1839: Brussels

+++=+=+=+=+= File rfc1211.txt ++++++===

1900 found at line 1591:
1589: westine 49% mconnect OSI3.NCSL.NIST.GOV  
1591: connecting to host OSI3.NCSL.NIST.GOV (0x6c300681), port 0x19  
1591(continued): 00  
1592: connection open  
1593: 220 osi3.ncsl.nist.gov sendmail 4.0/NIST(rbj/dougm) ready at
2000 found at line 2363:
2361: Office Automation Division
2362: Code H610
2363: Washington, DC  20305-2000
2364:
2365: Hostname: DCA-EMS.DCA.MIL

2000 found at line 1249:
1247: Rapport Communication, Inc.
1248: 3055 Q Street NW
1249: Washington, DC  20007
1250:
1251: Tel: +1 202-342-2727

2000 found at line 983:
981: and placed in an ethernet packet).  120 request packets ar
981(continued): e sent
982: each cycle (3 for each of 40 nodes), and 120 response pack
982(continued): ets are
983: expected.  72000 bytes (240 packets at 300 bytes each) mus
983(continued): t be
984: transferred during each poll cycle, merely to determine th
984(continued): at the
985: network is fine.

'y' on a line without 'yyyy' found at line 2482:
2480: and concerns to security and management personnel at
2480(continued): DDN
2480(continued): nonymous
2481: FTP, from the host NIC.DDN.MIL, in SCC:DDN-SECURITY-
2481(continued): yy-
2482(continued): nn.TXT (where "yy" is the year and "nn" is the bulle
2482(continued): tin
2483: number).  The SCC provides immediate assistance with
2483(continued): DDN-

'y' on a line without 'yyyy' found at line 2482:
2480: facilities. It is available online, via kermit or a
2480(continued): nonymous
2481: FTP, from the host NIC.DDN.MIL, in SCC:DDN-SECURITY-
2481(continued): yy-
2482: nn.TXT (where "yy" is the year and "nn" is the bulle
2482(continued): tin
2483: number).  The SCC provides immediate assistance with

Nesser                       Informational                    [Page 119]
2483(continued): DDN-related host security problems; call (800) 235-3155
2484(continued): (6:00

==== File rfc1251.txt ====
2000 found at line 316:
314: where growing above 100 network numbers seemed excess
314(continued):  ive.
315: Todays number of networks in the global infrastructur
315(continued): e
316: exceeds 2000 connected networks, and many more if iso
316(continued): lated
317: network islands get included.
318:

==== File rfc1254.txt ====
2000 found at line 592:
590: number of packet arrivals, over which packets are dropped wit
590(continued): h
591: uniform probability. For instance, in a sample implementatio
591(continued): n, if
592: this interval spanned 2000 packet arrivals, and a suitable
593: probability of drop was 0.001, then two random variables woul
593(continued): d be
594: drawn in a uniform distribution in the range of 1 to 2,000.
594(continued): The
2000 found at line 859:
857: indicates that to get good, consistent performance, we may ne
857(continued): ed to
858: have up to 5 to 10 times the number of active source-destinat
858(continued): ion
859: pairs. In a typical gateway, this may require around 1000 to
859(continued): 2000
860: queues.
861:

==== File rfc1255.txt ====
2000 found at line 1361:
1359: Rapport Communication, Inc.
1360: 3055 Q Street NW
1361: Washington, DC 20007
1362: 1363: Tel: +1 202-342-2727

==== File rfc1259.txt ====
2000 century found at line 345:
343: should never go back to any monopoly arrangement like the pre
divestiture AT&T which held back market-driven innovation in telecommunications for half a century. Given the interconnection technology now available, we should never again have to accept the argument that we have to sacrifice interoperability for efficiency.

In light of the possibilities for new service offerings by the 21st century, as well as the growing importance of telecommunications and information services to US economic and social development, limiting our concept of universal service to 1.

If we have the vision and commitment to try this, the transformation of the network frontier from wilderness to civilization need not display the brutality of 19th century imperialism. As commercial opportunities to offer applications and services develop, entrepreneurs will discover that ease of use sells. The norm

California v. FCC (9th Cir. 1990).

NTIA Telecomm 2000 at 79.

Committee on Energy and Commerce, Subcommittee on
WITH ATTRIBUTE-SYNTAX
uTCTimeSyntax
::= {pilotAttributeType 23}

UTCTime

---

EDBVersion ::= UTCTime

---

03019000

---

"snmp"/NS+4900590800200038bafe00

---

Similarly, SNMP traps are, by convention, sent to a manager listening

---

(1) <nsap> is a hex string defining the nsap, e.g.,
"snmp"/NS+4900590800200038bafe00

+=+=+=+=+= File rfc1284.txt +=+=+=+=+=
2000 found at line 1146:
1144: Hopkinton Mass 01748
1145:
1146: Phone: 508-435-2000
1147: EMail: kasten@europa.clearpoint.com
1148:

+=+=+=+=+= File rfc1285.txt +=+=+=+=+=
'yy' on a line without 'yyyy' found at line 219:
217: -- The unique identifier for the FDDI station. This is a
218: -- string of 8 octets, represented as
219: -- X' yy yy xx xx xx xx xx' (continued):
220: -- with the low order 6 octet (xx) from a unique IEEE
221: -- assigned address. The high order two bits of the IEEE
221(continued):

'yy' on a line without 'yyyy' found at line 232:
230: -- (Universal/Local) bit should both be zero. The first
231(continued):
232: -- octets, the yy octets, are implementor-defined.
233:
234: -- The representation of the address portion of the station
234(continued):

+=+=+=+=+= File rfc1290.txt +=+=+=+=+=
'yy' on a line without 'yyyy' found at line 549:
547: Anonymous FTP to nis.nsf.net
548: cd stats
549: get nsfyy-mm.ptraffic where yy is year, 91 and mm is month
549(continued):
550: get nsf91-06.ptraffic ptraffic is the packet traffic
551:

'yy' on a line without 'yyyy' found at line 552:
550: get nsf91-06.ptraffic ptraffic is the packet traffic
551:
552: get nsfyy-mm.btraffic where yy is year, 91 and mm is month
552(continued):
553: get nsf91-06.btraffic btraffic is the byte traffic
554:
UTCTime found at line 3648:
3646:     When comparing attributes of UTCTime syntax, if the secon
3647:       ds field
3648:         is omitted, QUIPU does not perform the match correctly (i
3649:         (continued):    e., the
3650:         seconds field in the attribute values should be ignored,
3650:         but are

2000 found at line 4158:
4156:     UCOM.X 500 runs on: Sun 3, Sun 4, IBM RS 6000, Philips P 9000
4157:     (continued):      , DEC
4158:     machines, Bull DPX 2000, HP 9000/300, Siemens IN 6000 and 386
4158:     (continued):      -based
4159:     PCs. It can easily be ported to any UNIX machine.
4160:

2000 found at line 4803:
4801:     HARDWARE PLATFORMS
4802:     3Com’s OSI/TCP CS/2000 and CS/2100.
4804:     SOFTWARE PLATFORMS

2000 found at line 4807:
4805:     SOFTWARE PLATFORMS
4806:     The "SW/2000-OT Vers 1.0" software runs on 3Com’s OSI/TCP CS/
4807:     (continued):      2000 and
4808:     CS/2100, both stand-alone systems.
4809:

2000 found at line 4812:
4810:     AVAILABILITY
4811:     The dual-stack OSI/TCP terminal server and its "SW/2000-OT Ve
4812:     (continued):      rs 1.0"
4813:     software is available from:
century found at line 428:
426: mechanisms to synchronize time in principle to precisions in the
426(continued): order
427: of nanoseconds while preserving a non-ambiguous date well into t
427(continued): the next
428: century. The protocol includes provisions to specify the charact
428(continued): eristics
429: and estimate the error of the local clock and the time server to
429(continued): which
430: it may be synchronized. It also includes provisions for operatio
430(continued): n with a

century found at line 4529:
4527: political and ritual needs characteristic of the societies in wh
4527(continued): ich they
4528: flourished. Astronomical observations to establish the winter an
4528(continued): d summer
4529: solstices were in use three to four millennia ago. By the 14th c
4529(continued): entury
4530: BC the Shang Chinese had established the solar year as 365.25 da
4530(continued): ys and
4531: the lunar month as 29.5 days. The lunisolar calendar, in which t
4531(continued): he

century found at line 4548:
4546: with the Shang Chinese, the ancient Egyptians had thus establish
4546(continued): ed the
4547: solar year at 365.25 days, or within about 11 minutes of the pre
4547(continued): sent
4548: measured value. In 432 BC, about a century after the Chinese had
so, the Greek astronomer Meton calculated there were 110 lunar months of 29 days and 125 lunar months of 30 days for a total of 235 lunar months.

The seven-day Sumerian week was introduced only in the fourth century AD by Emperor Constantine I. During the Roman era a 15-year census cycle, called the Indiction cycle, was instituted for taxation purposes. The Gregorian calendar is in use throughout most of the world today, some countries did not adopt it until early in the twentieth century. While it remains a fascinating field for time historians, the above narrative provides conclusive evidence that conjugating calendar dates sometimes used to represent dates near our own era in convention al time, and with fewer digits, is defined as MJD = JD <196> 2,400,000.5.

Following the convention that our century began at 0h on 1 Janua ry 1900, at which time the tropical year was already 12h old, that eclectic instant corresponds to MJD 15,020.0. Thus, the Julian timescale ticks in through observations of the Sun, Moon and planets. In 1958 the standard second was defined as 1/31,556,925.9747 of the tropical year that began this century. On this scale the tropical year is 365.2421987 days and the lunar month - one complete revolution of the Moon around the
Earth - is 29.53059 days; however, the actual tropical year can be determined

1900 found at line 851:
product of the protocol, a special timestamp format has been established. NTP timestamps are represented as a 64-bit unsigned fixed-point number, in seconds relative to 0h on 1 January 1900. The integer part is in the first 32 bits and the fraction part in the last 32 bits. This format allows convenient multiple-precision arithmetic and

1900 found at line 873:
integer part) has been set and that the 64-bit field will overflow some time in 2036. Should NTP be in use in 2036, some external means will be necessary to qualify time relative to 1900 and time relative to 2036 (and other multiples of 136 years). Timestamped data requiring such qualification will be so precious that appropriate means should be

1900 found at line 4620:
sometimes used to represent dates near our own era in conventional time and with fewer digits, is defined as MJD = JD <196> 2,400,000.5. Following the convention that our century began at 0h on 1 January 1900, at which time the tropical year was already 12h old, that eclectic instant corresponds to MJD 15,020.0. Thus, the Julian timescale ticks in

1900 found at line 4724:
always coincident with it. At 0h on 1 January 1972 (MJD 41,317.0), the first tick of the UTC Era, the NTP clock was set to 2,272,060,80 representing the number of standard seconds since 0h on 1 January 1900
4725: (MJD 15,020.0). The insertion of leap seconds in UTC and subsequ
4726(continued): ently
4726: into NTP does not affect the UTC or NTP oscillator, only the con
4726(continued): version

2000 found at line 4489:
4487: the Mid-Continent Chain, the deployment of LORAN-C transmitters
4487(continued): now
4488: provides complete coverage of the U.S. LORAN-C timing receivers,
4488(continued): such as
4489: the Austron 2000, are specialized and extremely expensive (up to
4489(continued):
4490: $20,000). They are used primarily to monitor local cesium clocks
4490(continued): and are
4491: not suited for unattended, automatic operation. While the LORAN-
4491(continued): C system

+++++++ File rfc1309.txt +++++++++
2000 found at line 48:
46:
47: As the pace of industry, science, and technological developme
47(continued): nt
48: quickened over the past century, it became increasingly proba
48(continued): ble that
49: someone in a geographically distant location would be trying
49(continued): to solve
50: the same problems you were trying to solve, or that someone i
50(continued): n a

+++++++ File rfc1314.txt +++++++++
2000 found at line 1109:
1107:  00DE  YPosition  011F  0005  00000001  00
1107(continued): 00016C
1108:  00EA  Group4Options  0125  0004  00000001  00
1108(continued): 000002
1109:  00F6  ResolutionUnit  0128  0003  00000001  00
1109(continued): 020000
1110:  0102  Software  0131  0002  00000008  00
1110(continued): 000174
1111:  010E  DateTime  0132  0002  00000014  00
1111(continued): 00017C

+++++++ File rfc1323.txt +++++++++
2000 found at line 320:
318: 1.1MBps, no matter how high the theoretical transfer rate
318(continued): of the
319: path. This corresponds to cycling the sequence number spa
319(continued): ce in
T\text{wrap} = 2000 \text{ secs}, which is safe in today’s Internet.

It is important to understand that the culprit is not the larger

In addition, back issues of the Report are available for a nonymous
names in the form IMRYY-MM.TXT, where YY is the last two digits of
the year and MM two digits for the month. For example, the June
1991 Report is in the file IMR91-06.TXT.

attributes remaining in the O/R address shall be encoded on the LHS. This is to ensure a reversible mapping. For example, if the is an address /S=XX/O=YY/ADMD=A/C=NN/ and a mapping for /ADMD=A/C=NN/ is used, then /S=XX/O=YY/ is encoded on the LHS.

For example, if the is an address /S=XX/O=YY/ADMD=A/C=NN/ and a mapping for /ADMD=A/C=NN/ is used, then /S=XX/O=YY/ is encoded on the LHS.

\text{C} = "XX"
\text{ADMD} = "YY"
\text{O} = "ZZ"
"\text{RFC-822}" = "Smith(a)ZZ.YY.XX"

\text{ADMD} = "YY"
\text{O} = "ZZ"
This is mapped first to an RFC 822 address, and then back to the 'yy' on a line without 'yyyy' found at line 2673:

```
C          = "XX"
ADMD       = "YY"
O          = "ZZ"
Surname    = "Smith"
```

Both UTCTime and the RFC 822 date-time syntax contain: Y ear

In practice, a gateway will need to parse various illegal variants on 822.date-time. In cases where 822.date-time cannot be parsed, it is recommended that the derived UTC is set to the value at the time of translation.

When mapping to X.400, the UTCTime format which specifies the timezone offset shall be used.
UTCTime found at line 5143:
5141:
5142:    The extended syntax of zone defined in the JNT Mail Protoc
5142(continued):    ol shall
5143:    be used in the mapping of UTCTime defined in Chapter 3.
5144:
5145: 7. Lack of 822-MTS originator specification

+++++++ File rfc1330.txt ++++ File rfc1330.txt ++++ File rfc1330.txt ++++ File rfc1330.txt
2000 found at line 1770:
1768:     While ESnet will provide X.400 routing service for systems, i
1768(continued):     t cannot
1769:     provide routing via commercial X.400 carriers at this time.
1769(continued):     The
1770:     FTS-2000 charge for routing X.400 messages is $.45 (US) plus
1770(continued):     X.25
1771:     packet charges. This could result in a charge of several dol
1771(continued):     lars for
1772:     large messages, a real possibility with the multi-media capac
1772(continued):     ity of

+++++++ File rfc1336.txt ++++ File rfc1336.txt ++++ File rfc1336.txt ++++ File rfc1336.txt
2000 found at line 378:
376:            where growing above 100 network numbers seemed excess
376(continued):            ive.
377:            Todays number of networks in the global infrastructur
377(continued):            e
378:            exceeds 2000 connected networks, and many more if iso
378(continued):            lated
379:            network islands get included.
380:

+++++++ File rfc1338.txt ++++ File rfc1338.txt ++++ File rfc1338.txt ++++ File rfc1338.txt
'yy' on a line without 'yyyy' found at line 401:
399:     3.2. Historic growth rates
400:     MM/YY ROUTES MM/YY ROUTES
401:                  ADVERTISED ADVERTISED
402(continued):                  ED
403:                  ------------------------ ------------------
403(continued):                  ----- -----     

'yy' on a line without 'yyyy' found at line 1060:
1058:     1071 Beal Ave.
1059:     Ann Arbor, MI 48109
1060:     email: jyy@merit.edu
1061:
1062:     Nesser                       Informational                    [Page 131]
'yy' on a line without 'yyyy' found at line 3390:
3388:     AB-00-03-00-00-00        6004    DEC Local Area Transport
3388(continued):                 (LAT) - old
3389:     AB-00-04-00-xx-xx        ?? ??    Reserved DEC customer private
3389(continued):                use
3390:     AB-00-04-01-xx-yy        6007    DEC Local Area VAX Cluster
3390(continued):                groups
3391:                              Sys. Communication Architecture (SCA)
3392:     CF-00-00-00-00-00        9000    Ethernet Configuration Test
3392(continued):                protocol
1900 found at line 4066:
4064:      014.000.000.063    2422-650-23500 00   Tollpost-Globe AS
4064(continued):  [OXG]
4065:      014.000.000.064    2422-330-02500 00   Tollpost-Globe AS
4065(continued):  [OXG]
4066:      014.000.000.065    2422-350-01900 00   Tollpost-Globe AS
4066(continued):  [OXG]
4067:      014.000.000.066    2422-410-00700 00   Tollpost-Globe AS
4067(continued):  [OXG]
4068:      014.000.000.067    2422-539-06200 00   Tollpost-Globe AS
4068(continued):  [OXG]
2000 found at line 1300:
1298:      nkd          1650/tcp
1299:      nkd          1650/udp
1300:      callbook      2000/tcp
1301:      callbook      2000/udp
1302:      dc          2001/tcp
2000 found at line 1301:
1299:      nkd          1650/udp
1300:      callbook      2000/tcp
1301:      callbook      2000/udp
1302:      dc          2001/tcp
1303:      wizard      2001/udp   curry
2000 found at line 4013:
4011:      014.000.000.018    2624-522-80900 52   FGAN-SIEMENS-X25
4011(continued):  [GB7]
4012:      014.000.000.019    2041-170-10000 00   SHAPE-X25
4012(continued):  [JFW]
4013:      014.000.000.020    5052-737-20000 50   UQNET
4013(continued):  [AXH]
4014:      014.000.000.021    3020-801-00057 50   DMC-CRC1
4014(continued):  [VXT]
4015:      014.000.000.022    2624-522-80329 02   FGAN-FGANFFMVAX-X25
2000 found at line 4838:
4836:  AIX/370              LOCUS     SWIFT
4837:  AIX-PS/2            MACOS     TAC
4838:  BS-2000              MINOS     TANDEM
4839:  CEDAR                MOS       TENEX
4840:  CGW                   MPE5      TOPS10

2000 found at line 5188:
5186:  HAZELTINE-1520       IBM-3278-3
5187:  HAZELTINE-1552       IBM-3278-4
5188:  HAZELTINE-2000       IBM-3278-5
5189:  HAZELTINE-ESPRIT     IBM-3279-2
5190:  HITACHI-5601         IBM-3279-3

`yy` on a line without `yyyy` found at line 260:
260:  mandatory field. Its format is "ID:: XXX//YYY", where X
260(continued):  XX is
261:  the publisher-ID (the controlled symbol of the publisher
261(continued):  )
262:  and YYY is the ID (e.g., report number) of the publication
262(continued):  on as

`yy` on a line without `yyyy` found at line 262:
262:  mandatory field. Its format is "ID:: XXX//YYY", where X
262(continued):  XX is
263:  the publisher-ID (the controlled symbol of the publisher
263(continued):  )
264:  and YYY is the ID (e.g., report number) of the publication
264(continued):  on as
265:  assigned by the publisher. This ID is typically printed
265(continued):  on
266:  the cover, and may contain slashes.
In order to avoid conflicts among the symbols of the publishing organizations (the XXX part of the "ID:: XXX/YYYY") it is suggested that the various organizations that publish reports (such as universities, departments, and laboratories) register their 2-digit

The format for ENTRY date is "Month Day, Year". The month must be alphabetic (spelled out). The "Day" is a 1- or 2-digit number. The "Year" is a 4-digit number.

DATE (O) -- The publication date. The formats are "Month Year" and "Month Day, Year". The month must be alphabetic (spelled out). The "Day" is a 1- or 2-digit number. The "Year" is a 4-digit number.

main product of the protocol, a special timestamp format has been established. NTP timestamps are represented as a 64-bit unsigned fixed-point number, in seconds relative to 0h on 1 January 1900. The integer part is in the first 32 bits and the fraction part in last 32 bits. This format allows convenient multiple-precision

overflow some time in 2036. Should NTP or SNTP be in use in 2036, some external means will be necessary to qualify time relative to
145: 1900 and time relative to 2036 (and other multiples of 136 years).
146: Timestamped data requiring such qualification will be so precise
147: that appropriate means should be readily available. There will exist

objective an MSL of at least 2000 seconds. If there were no
TIME-WAIT delay, the ultimate limit on transaction rate would be set by
speed-of-light delays in the network and by the latency of host

To improve this transaction rate, we could use TCP timestamps
to

For example, with MSL= 2000 secs, R=10**9 Bps, and Ts = 0.5 secs,
TRmax < 2*10**-3 Tps.

For example, if MSL = 2000 seconds then TRmax < 10**6 Tps. These
are acceptable limits for transaction processing. However, if they are not, we could augment CC with TCP timestamps to

TRmax * MSL < 2**31
2000 found at line 1276:

1274:       (a) no timestamps       2**31/MSL       MSL       3rd seq
1275(continued):                e.g., MSL=2000 sec
1276(continued):                space
1277:                               TRmax = 10**6
1278:

File rfc1405.txt

'yy' on a line without 'yyyy' found at line 378:
376:     maps into
377:
378:          C=xx; ADMD=yyy; PRMD=zzz; O=ooo; OU=uuu; DD.Dnet=net;
379:          DD.Mail-11=route::node::localpart;
380:

'yy' on a line without 'yyyy' found at line 384:
382:          xx  = country code of the gateway performing the conversion
383(continued):                ion
384:          yyy = Admd of the gateway performing the conversion
385:          zzz = Prmd of the gateway performing the conversion
386:          ooo = Organisation of the gateway performing the conversion
386(continued):                ion

'yy' on a line without 'yyyy' found at line 474:
472:       it is connected to. In this case the mapping is trivial:
473:
474:          C=xx; ADMD=yyy; PRMD=zzz; O=ooo; OU=uuu; DD.Dnet=net;
475:          DD.Mail-11=route::node::localpart;
476:

'yy' on a line without 'yyyy' found at line 477:
475:          DD.Mail-11=route::node::localpart;
476:
477(continued):                (see sect. 5.2 for explication of ‘xx’,‘yyy’,‘zzz’,‘ooo’,‘uuu
477(continued):                ’,‘net’)
478:
479:     maps into

'yy' on a line without 'yyyy' found at line 487:
485:       described into section 5.4 apply:
486:
487:          C=xx; ADMD=yyy; PRMD=www; DD.Dnet=net;
488:          DD.Mail-11=route::node::localpart;
489:
'yy' on a line without 'yyyy' found at line 492:
490:     maps into
491:
492:        gwnode::gw"C=xx;ADMD=yyy;PRMD=www;DD.Dnet=net;
493:        DD.Mail-11=route::node::localpart;"
494:

'yy' on a line without 'yyyy' found at line 595:
593:     maps into
594:
595:        C=xx; ADMD=yyy; DD.Dnet=net;
596:        DD.Mail-11=route::gwnode::gw(p)(q)x400-text-address(q);
597:

+==+==+==+= File rfc1409.txt +==+==+==+
'yy' on a line without 'yyyy' found at line 311:
309:                                          IAC SB AUTHENTICATION RE
310:                                          KERBEROS_V4 CLIENT|MUTUA
311:                                          RESPONSE yy yy yy yy yy
312:                                          IAC SE
313:

+==+==+==+= File rfc1411.txt +==+==+==+
'yy' on a line without 'yyyy' found at line 163:
161:                                          IAC SB AUTHENTICATION RE
162:                                          KERBEROS_V4 CLIENT|MUTUA
163:                                          RESPONSE yy yy yy yy yy
164:                                          IAC SE
165:

+==+==+==+= File rfc1415.txt +==+==+==+
2000 found at line 2814:
2812:        2 1016 Grouping threshold violation | 503
2812(continued):
2813:        2 1017 Inconsistent PDU request | 503
2813(continued):
2814:        2 2000 Association with user not allowed | 532
2814(continued):
2815:        2 2002 Unsupported service class | 504
2815(continued):
2816:        0 2003 Unsupported functional unit | 211
2816(continued):

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'yy' on a line without 'yyyy' found at line 318:
IAC SB AUTHENTICATION RESPONSE yy yy yy yy yy

'yy' on a line without 'yyyy' found at line 156:
154: c/o Rapport Communication
155: 3055 Q Street NW
156: Washington, DC 20007
157: US
158:

'yy' on a line without 'yyyy' found at line 1148:
BAoTF1JTQSBExIFN1Y3VaX5LCBJbMuMQ8wDQYDVQQLEwZDXRhIDEx
1146(continued): DTAL
1147: BgNVBAsTBFRMQ0EwHhcNOTEwOTAxMDgwMDAwWhcNOTIwOTAxMDc1OTU5WjBR
1147(continued): MQsw
1148: CQYDVQQGEwJVUzEgMB4GA1UEChMXUlNBIERhdGhGUEVjXjdpHksIEluYy4x
1148(continued): DzAN
1149: BgNVBAsTBkJldGhGTEFMA0GA1UECzXGdGhGUEVjXjdpHksIEluYy4x
1149(continued): YgAw
1150: XwJYCsnp61QCxYykN1ODwutF/j/MEk3kJL+3PjYyH0w+/9rL9g6X65B/LD4bJHt
1150(continued): 05XW

'yy' on a line without 'yyyy' found at line 1150:
CQYDVQQGEwJVUzEgMB4GA1UEChMXUlNBIERhdGhGUEVjXjdpHksIEluYy4x
1148(continued): DzAN
1149: BgNVBAsTBkJldGhGTEFMA0GA1UECzXGdGhGUEVjXjdpHksIEluYy4x
1149(continued): YgAw
1150: XwJYCsnp61QCxYykN1ODwutF/j/MEk3kJL+3PjYyH0w+/9rL9g6X65B/LD4bJHt
1150(continued): 05XW
1151: cqAz/7H7XhjYCM0PCqbdzoACZtIETrKrcJiDYoP/DkZ8k1GCk7HQhpIwID
1151(continued): AQAB
1152:  MA0GCSqGSIb3DQEBAgUAA38AAICPv4f9Gx/tY4+p+4DB7MV+tKZnvBoy8zgo
1152(continued):  MGOx

'yy' on a line without 'yyyy' found at line 1256:
1254:  BAgT1JQTQXBEYXRhIPN1Y3VyaXR5LCBbMmMuMQ8wDQYDVQQLEwZCZXRhIEx
1254(continued):  DTAL
1255:  BgNVBAsTBFRMQ0EwHhcN0T1wOTAxMDgwMDAwWhcN0T1wOTAxMDc1OTU5WjBR
1255(continued):  MQsw
1256:  CQYDVQQGEwJVUzEgMB4GA1UEChMXU1NBIERhdGEGu2VjdvHDJsIEluc3Ey
1256(continued):  DzAN
1257:  BgNVBAsTBkJldGEgMTEPMA0GA1UECxMGTk9UQVJZMHAwCgYEVQgBAQICAwD
1257(continued):  YgAw
1258:  XwJYCsn61QCxYykN1ODwutF/3pjuYyH0kw+/9rLg6X65B/LD4bJHt
1258(continued):  05XW

'yy' on a line without 'yyyy' found at line 1258:
1256:  CQYDVQQGEwJVUzEgMB4GA1UEChMXU1NBIERhdGEGu2VjdvHDJsIEluc3Ey
1256(continued):  DzAN
1257:  BgNVBAsTBkJldGEgMTEPMA0GA1UECxMGTk9UQVJZMHAwCgYEVQgBAQICAwD
1257(continued):  YgAw
1258:  XwJYCsn61QCxYykN1ODwutF/3pjuYyH0kw+/9rLg6X65B/LD4bJHt
1258(continued):  05XW
1259:  cqAz/7R7XhjYCm0Pcqdz0ACZtI1ETrKrcJiDY0p+DkZ8k1gCk7hQHpbIwID
1259(continued):  AQQAB
1260:  MA0GCSqGSIb3DQEBAgUAA38AAICPv4f9Gx/tY4+p+4DB7MV+tKZnvBoy8zgo
1260(continued):  MGOx

UTCTime found at line 1596:
1594:  Validity ::= SEQUENCE{
1596:    notBefore    UTCTime,
1597:    notAfter    UTCTime}
1598:

UTCTime found at line 1597:
1595:  Validity ::= SEQUENCE{
1596:    notBefore    UTCTime,
1597:    notAfter    UTCTime}
1598:
1599:    SubjectPublicKeyInfo ::= SEQUENCE{

UTCTime found at line 1640:
1638:  signature    AlgorithmIdentifier,
1639:  issuer    Name,
1640:  lastUpdate    UTCTime,
1641:  nextUpdate    UTCTime,
1642:  revokedCertificates

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UTCTime found at line 1641:
1639:     issuer   Name,
1640:     lastUpdate    UTCTime,
1641:     nextUpdate    UTCTime,
1642:     revokedCertificates
1643:          SEQUENCE OF CRLEntry OPTIONAL}

UTCTime found at line 1647:
1645:     CRLEntry ::= SEQUENCE{
1646:             userCertificate    SerialNumber,
1647:             revocationDate    UTCTime}

century found at line 463:
461:     confusion relating to daylight savings time. Note that UTCT
462:     expresses the value of a year modulo 100 (with no indication
462(continued):     of
463:     century), hence comparisons involving dates in different cent
463(continued):     uries
464:     must be performed with care.
465:

'yy' on a line without 'yyyy' found at line 332:
330:     The time stamp on the file as it appears at the sending site
may be sent and applied to the copy at the receiving site. The form is US
mm/dd/yy and hh:mm:ss. A time zone is optional. If the time
omitted, local time is assumed. If the DATE command is omitt
ed, time and date of arrival are assumed.

UTCTime found at line 362:

UTCTime found at line 378:

<table>
<thead>
<tr>
<th>Revisions Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Revision ::= "REVISION" value(Update UTCTime)

DESCRIPTION" Text

UTCTime found at line 516:

Xpress Transfer Protocol, version 3.6, XTP Forum,
1900 State Street, Suite D, Santa Barbara, California
93101 USA, January 11, 1992.

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The date of the last update of a document is given in the form 'yymmdd'. A start date must be set. A document can be published this way before the information in it is valid. (This

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'yy' on a line without 'yyyy' found at line 1675:
1673:   <Update-info> ::= "Update: FORMAT=V3; DATE=" 'yymdd' \ 
1674:       "; START=" 'yymdd' \ 
1675:       ["; END=" 'yymdd'] <CR>
1676: 
1677: <window-size> ::= "RTS-window-size: " \ 

9. Other relevant documents

We note that none of the IDPR protocols contain explicit provisions for dealing with an exhausted timestamp space. As timestamp exhaustion will not occur until well into the next century, we expect timestamp space viability to outlast the IDPR protocols.
UTCTime found at line 302:
300:  2.21. UTC Time
301:
302:     Values of type uTCTimeSyntax are encoded as if they were Prin
302(continued):     table
303:     Strings with the strings containing a UTCTime value.
304:
UTCTime found at line 303:
301:
302:     Values of type uTCTimeSyntax are encoded as if they were Prin
302(continued):     table
303:     Strings with the strings containing a UTCTime value.
304:
305:  2.22. Guide (search guide)

UTCTime found at line 377:
375:   <algorithm-id> ::= <oid> '#' <algorithm-parameters>
376:
377:   <utc-time> ::= an encoded UTCTime value
378:
379:   <hex-string> ::= <hex-digit> | <hex-digit> <hex-string>

'yy' on a line without 'yyyy' found at line 1950:
1948: The text version is sent.
1948(continued):
1949:
1950:     file /ftp/rfc/rfcnnnn.yyy     where 'nnnn' is the RFC n
1950(continued):    umber.
1951:     and 'yyy' is 'txt' or 'ps
1951(continued):     '.
1952:

'yy' on a line without 'yyyy' found at line 1951:
1949:
1950:     file /ftp/rfc/rfcnnnn.yyy     where 'nnnn' is the RFC n
1950(continued):    umber.
1951:     and 'yyy' is 'txt' or 'ps
1951(continued):     '.
1952:
1953:     help     to get information on how
1953(continued):     to use

'yy' on a line without 'yyyy' found at line 5111:
5109:
Validity ::= SEQUENCE {
    NotBefore       UTCTime,
    NotAfter        UTCTime
}

UTCTime found at line 5112:

Validity ::= SEQUENCE {
    NotBefore       UTCTime,
    NotAfter        UTCTime
}

UTCTime found at line 6297:

Version ::= INTEGER { 1988(0) } SerialNumber ::= INTEGER

Validity ::= SEQUENCE {
    notBefore               UTCTime,
    notAfter                UTCTime
}

SubjectPublicKeyInfo  ::=  SEQUENCE {
    FddiSMTStationIdType ::= OCTET STRING (SIZE (8))
    -- The unique identifier for the FDDI station. This is a string of 8 octets, represented as X' yy yy xx xx x
    -- xx xx' with the low order 6 octet (xx) from a unique e IEEE
    -- assigned address. The high order two bits of the I
    -- The representation of the address portion of the st
}

'yy' on a line without 'yyyy' found at line 243:

'yy' on a line without 'yyyy' found at line 248:
3.2 Historic growth rates

<table>
<thead>
<tr>
<th>MM/YY</th>
<th>ROUTES</th>
<th>MM/YY</th>
<th>ROUTES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADVERTISED</td>
<td></td>
<td>ADVERTIS</td>
</tr>
<tr>
<td></td>
<td>ED</td>
<td></td>
<td>-----</td>
</tr>
</tbody>
</table>

Congress must understand that the NREN is not just a new technology
regulated companies from becoming viable players. We must realize that we are about to enter a power struggle for the control of the information resources of the 21st century that promises to be every bit as harsh and bruising as the power struggle for natural resources was at the end of the last century.

While the intentions of most appear to be good, as this study has
Example: zone file for foo.xx:

```
   pqr          MX 100  relay.yy.
   xyz          MX 100  relay.yy       (no trailing dot!)
```

When fully written out this stands for:

```
   pqr.foo.xx.  MX 100  relay.yy.
   xyz.foo.xx.  MX 100  relay.yy.foo.xx.   (name extension!)
```

6. Missing secondary servers

```
   foo.xx.      MX 100  gateway.xx.
   *.foo.xx.    MX 100  gateway.xx.
```

8. Hostnames

```
   MX 200  fallback.yy.
```

2000

```
   86400 ; Refresh 24 hours
   7200 ; Retry 2 hours
```
The text version is sent.

In addition, Listserv usually maintains automatic archives of postings to a list. These archives, contained in the file "listname LOGyymm", do not contain the MIME headers, so all encoding information will be lost. This is a limitation of the Listserv software.

The following searches should be tried. Unless otherwise stated, the "XXX" or "YYY" part of the search filter should be chosen in such a way as to return a single result. Unless stated otherwise, results should return all attributes for the entry.
'yy' on a line without 'yyyy' found at line 848:

846:
847:    objectClass=person AND
848:     (commonName=XXX* OR telephoneNumber=*YYY)
849:

850:    75. Search returning all entries (i.e., 100 entries in the si
850(continued):

2000 found at line 527:
525:
526:    42. If the DSA runs as a static server, state the start-up ti
526(continued):
527(continued):
527(continued):
528:     DSA with a database of 20000 entries. If this varies wid
528(continued):
528(continued):
529:     according to configuration options, give figures for the
529(continued):
529(continued):

2000 found at line 709:
707:
708:    i. The tests should be made against an organisational databa
708(continued):
709(continued):
709(continued):
710:     20000 entries. Some tests are against subsets of this da
710(continued):
710(continued):
710(continued):
711:     so the database should be set up according to the followi
711(continued):

2000 found at line 713:
711:
712:
713:    Create an organisational DSA with 20000 entries below the
713(continued):
714(continued):
714(continued):
715(continued):
715(continued):

2000 found at line 808:
806:
807:
808:    ii. An organisation subtree search, on the subtree of 20000 e
808(continued):
809:
810:    The following searches should be tried. Unless otherwise sta
810(continued):

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851: 75. Search returning all entries (i.e., 100 entries in the single
851(continued): level search, and all 20000 entries in the subtree search
851(continued): :
852:
853: objectClass=*
RFC 2626  The Internet and the Millennium Problem (Year 2000)  June 1999

379: file /ftp/rfc/rfcnnnn.yyy where ‘nnnn’ is the RFC number.
379(continued): and ‘yyy’ is ‘txt’ or ‘ps’.
380: ‘yy’ on a line without ‘yyyy’ found at line 380:
378: file /ftp/rfc/rfcnnnn.yyy where ‘nnnn’ is the RFC number.
379(continued): and ‘yyy’ is ‘txt’ or ‘ps’.
380: ‘yy’ on a line without ‘yyyy’ found at line 574:
572: In addition, back issues of the Report are available for a nonymous
573: FTP from the host ftp.isi.edu in the in-notes/imr directory
573(continued): y, with
574: the file names in the form imryymm.txt, where yy is the la
two digits of the year and mm two digits for the month. For ex

2000 found at line 300:
298: ifSpeed          Speed of line rate for SONET/SDH,
300: (e.g., 155520000 bps).
301:
302: ifPhysAddress   The value of the Circuit Identifier
575(continued): .
2000 found at line 357:
355: ifSpeed          set to speed of SONET/SDH path
356: (e.g., an STS-1 path has a
357: rate of 50112000 bps.)
358:
359: ifPhysAddress   Circuit Identifier or OCTET STRING
359(continued): of

2000 found at line 357:
355: ifSpeed          set to speed of SONET/SDH path
356: (e.g., an STS-1 path has a
357: rate of 50112000 bps.)
358:
359: ifPhysAddress   Circuit Identifier or OCTET STRING
359(continued): of

‘yy’ on a line without ‘yyyy’ found at line 1950:
1948: The text version is sent.
1948(continued):

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1949:
1950:           file /ftp/rfc/rfcnnnn.yyy where ’nnnn’ is the RFC n
1950(continued):          umber.
1951:                                         and ’yyy’ is ’txt’ or ’ps
1951(continued):                ’.
1952:

’y’ on a line without ‘yyyy’ found at line 1951:
1949:
1950:           file /ftp/rfc/rfcnnnn.yyy where ’nnnn’ is the RFC n
1950(continued):          umber.
1951:                                         and ‘yyy’ is ’txt’ or ’ps
1951(continued):                ’.
1952:
1953:           help                          to get information on how
1953(continued):                to use

+== File rfc1607.txt +==

A VIEW FROM THE 21ST CENTURY

Status of this Memo

A VIEW FROM THE 21ST CENTURY

Cerf

[Page 1]
century found at line 228:
226: Cerf
226(continued): [Page 4]
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transmission, switching and computing in a cost-effective way. For a long time, this technology involved rather
bulky equipment - some of the early 3DV clips from 2000-2005 showed rooms full of gear required to steer beams around. A very interesting combination of fiber optics and

UTCTime found at line 240:
  provider :: DistinguishedNameSyntax,
  /* points to network provider */
  onlineDate :: uTCTimeSyntax
  /* date when network got connected to the Internet */

UTCTime found at line 370:
  asGuardian :: DistinguishedNameSyntax, */
  /* DN of guardian of this AS */
  lastModifiedDate :: UTCtimeSyntax */
  /* important as routes change frequently */

UTCTime found at line 423:
  assDate :: uTCTimeSyntax,
  /* date of assignment for this number */
  nicHandle :: CaseIgnoreStringSyntax,

UTCTime found at line 1048:
  speed: id-nw-at.10 :numericString
  traffic: id-nw-at.11 :numericString
  configurationDate: id-nw-at.12 :utcTime
  configurationHistory: id-nw-at.13 :caseIgnoreString
  nodeName,nd: id-nw-at.14 :caseIgnoreString

UTCTime found at line 1071:
  onlineDate: id-nw-at.27 :utcTime
  ipnodeName,IPnd: id-nw-at.28 :caseIgnoreString

UTCTime found at line 1083:
  assBy: id-nw-at.37 :DN
  assTo: id-nw-at.38 :DN
  assDate: id-nw-at.39 :utcTime
The general format of a Gopher+ view descriptor is:

```
 HELP                          TO GET INFORMATION ON HOW TO USE
```

An Experimental protocol.

This is an information document and does not specify any

---

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[Page 157]
1565: xxx/yyyy zzz: <nnnK>
1566:
1567:

'yy' on a line without 'yyyy' found at line 1575:
1573:
1574:
1575: where xxx is a general type-of-information advisory, yyy is w
1575(continued): hat
1576: information format you need understand to interpret this info
1576(continued): rmation,
1577: zzz is a language advisory (coded using POSIX definitions), a
1577(continued): nd nnn

'yy' on a line without 'yyyy' found at line 1584:
1582: the need to be consistent in the use of type/encoding attribu
1582(continued): tes with
1583: the MIME specification. The Gopher+ Type Registry may thus
1584: eventually disappear, together with the set of xxx/yyyy values
1584(continued): it
1585: currently contains.)
1586:

+====== File rfc1625.txt +======
2000 found at line 255:
253: ( use = "wb", relation = "ro", term = 0 )
254: AND
255: ( use = "wb", relation = "ro", term = 2000 )
256: )
257:

+====== File rfc1632.txt +======
UTCTime found at line 3795:
3793: association is rejected. However, if a chain operation is r
3793(continued): equired
3794: to check the DN, the bind IS allowed.
3795: - When comparing attributes of UTCTime syntax, if the seconds
3795(continued): field
3796: is omitted, QUIPU does not perform the match correctly (i.e
3796(continued): ., the
3797: seconds field in the attribute values should be ignored, bu
3797(continued): t are
Most archive machines perform other functions as well. Please respect the needs of their primary users and restrict your FTP access to non-prime hours (generally between 1900 and 0600 hours local time) whenever possible. It is especially important to remember this for sites located on another continent or across 'yy' on a line without 'yyyy' found at line 590:

588:  554 Error, failed (technical reason)
589: 4.4.6 HOLDuntil <YYMMDDHHMMSS> [+/-GMTdifference]
591:  The HOLDuntil command allows for the delayed delivery of a message, s a

'yy' on a line without 'yyyy' found at line 590:

588:  554 Error, failed (technical reason)
589: 4.4.6 HOLDuntil <YYMMDDHHMMSS> [+/-GMTdifference]
591:  The HOLDuntil command allows for the delayed delivery of a message, s a

2000 found at line 431:
429:  Data Check 0X10010000
430:  Operation Check 0X10050000
431:  Component Disconnected (LU) 0X08020000
432:
433:  Note 2*: Device End – A positive response to the Server’s data

2000 found at line 1355:
1353:  0x00 Command Reject 0x10030000
1353(continued):
1354:
1355:                   0x01        Intervention Required    0x08020000
1355(continued):
1356:
1357:                   0x02           Operation Check       0x10050000
1357(continued):

+++=+=+=+= File rfc1671.txt +=+=+=+=+=
1900 found at line 410:
408:     Phone:  +41 22 767-4967
409:     Fax:    +41 22 767-7155
410:     Telex:  419000 cer ch
411:     EMail: brian@dxcoms.cern.ch
412:

+++=+=+=+= File rfc1679.txt +=+=+=+=+=
century found at line 95:
93:     examined below. The time frame for design, development, and
94:     deployment of HPN based systems and subsystems is 1996 into t
94(continued): he
95:     twenty first century.
96:
97:     Three general problem domains have been identified by the HPN
97(continued): working

+++=+=+=+= File rfc1689.txt +=+=+=+=+=
century found at line 6899:
6897:     vision of how information management must change in the 1990s
6897(continued): to meet
6898:     the social and economic opportunities and challenges of the 2
6898(continued): 1st
6899:     century. Members of the Coalition Task Force include, among
6899(continued): others,
6900:     higher education institutions, publishers, network service pr
6900(continued): oviders,
6901:     computer hardware, software, and systems companies, library n
6901(continued): etworks
2000 found at line 421:
419:        archie did for the world of ftp. A central server periodi
419(continued): cally
420:        scans the complete menu hierarchies of Gopher servers appe
420(continued): aring on
421: an ever-expanding list (over 2000 sites as of November 1993). The
422: resulting index is provided by a veronica server and can be
423: accessed by any gopher client.

2000 found at line 471:
469: There are currently (as of November 1993) some 500 registered
470: WAIS databases with an estimated 2000 additional databases that
471: are not yet registered. There are approximately another 100 commercial
472: WAIS databases.

2000 found at line 574:
572: 4 Baker Boston $849 Sportsware
572(continued): r
573: 5 Baker Washington $3,100 Weights
574: 6 Baker Washington $2000 Camping Gear
574(continued): ear
575: 7 Baker Atlanta $290 Baseball Gloves
576: 8 Baker Boston $1,500 Sportsware
576(continued): r

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516:     13 La xxxxxx     -- [Printable string]
517:                        -- could be T61 string, with tag 14

’y’ on a line without ‘yyyy’ found at line 522:
520:
521:     The most likely attributes for an RDN have the following hex
521(continued):         values
522:     for yy.
523:
524:                        CommonName 03

’y’ on a line without ‘yyyy’ found at line 903:
901:
902:
903:     yy is exactly one octet (i.e., one hex digit per y) holdin
903(continued):         g part
904:     of the length
905:

’y’ on a line without ‘yyyy’ found at line 918:
916:     innermost nest of construction)
917:
918:     yy - as part of a value - a variable value, each y represe
918(continued):         nts one
919:
920:

+=+=+=+=+= File rfc1699.txt +=+=+=+=+=

century found at line 1050:
1048:
1049:
1050:  1607 Cerf Apr 94 A VIEW FROM THE 21ST CENTURY
1051:
1052:  This document is a composition of letters discussing a possible
1052(continued):         future.

+=+=+=+=+= File rfc1700.txt +=+=+=+=+=

’y’ on a line without ‘yyyy’ found at line 9905:
9903:    AB-00-03-00-00-00  6004 DEC Local Area Transport (LAT) -
9903(continued):         old
9904:    AB-00-04-00-xx-xx  ???? Reserved DEC customer private us
9904(continued):         e
9905:    AB-00-04-01-xx-yy  6007 DEC Local Area VAX Cluster group
9905(continued):         s
9906:                        (SCA)
9906(continued):         Sys. Communication Architecture
9907:    CF-00-00-00-00-00  9000 Ethernet Configuration Test prot
9907(continued):         ocol

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1900 found at line 10173:
10171: 014.000.000.063 2422-650-23500 00 Tollpost-Globe AS [OX
10171(continued): 7
10172: 014.000.000.064 2422-330-02500 00 Tollpost-Globe AS [OX
10172(continued): 7
10173: 014.000.000.065 2422-350-01900 00 Tollpost-Globe AS [OX
10173(continued): 7
10174: 014.000.000.066 2422-410-00700 00 Tollpost-Globe AS [OX
10174(continued): 7
10175: 014.000.000.067 2422-539-06200 00 Tollpost-Globe AS [OX
10175(continued): 7

1900 found at line 10255:
10253:
10254:
10255: 014.000.000.131 2422-190-41900 00 T-G Airfreight AS [OX
10255(continued): 7
10256: 014.000.000.132 2422-616-16100 00 Tollpost-Globe AS [OX
10256(continued): 7
10257: 014.000.000.133 2422-150-50700-00 Tollpost-Globe Int. [OX
10257(continued): 7

1900 found at line 11112:
11110: 1569 621 ?? Something from Emulex
11111: 1571 623 UNKNOWN??? Running on a Novell Server
11112: 1900 076C Xerox
11113: 2857 0b29 Site Lock
11114: 3113 0c29 Site Lock Applications

2000 found at line 2822:
2820: tcp-id-port 1999/tcp cisco identification port
2821: tcp-id-port 1999/udp cisco identification port
2822: callbook 2000/tcp
2823: callbook 2000/udp
2824: dc 2001/tcp

2000 found at line 2823:
2821: tcp-id-port 1999/udp cisco identification port
2822: callbook 2000/tcp
2823: callbook 2000/udp
2824: dc 2001/tcp
2825: wizard 2001/udp curry

2000 found at line 10120:
10118: 014.000.000.018 2624-522-80900 52 FGAN-SIEMENS-X25 [GB
10118(continued): 7
10119: 014.000.000.019 2041-170-10000 00 SHAPE-X25 [JF
10119(continued): W
<table>
<thead>
<tr>
<th>Line</th>
<th>Description</th>
<th>Numbers</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>10120</td>
<td>014.000.000.020 5052-737-20000 50 UQNET</td>
<td>[AX H]</td>
<td>2000 found at line 11572:</td>
</tr>
<tr>
<td>10121</td>
<td>014.000.000.021 3020-801-00057 50 DMC-CRC1</td>
<td>[VX T]</td>
<td>2000 found at line 11573:</td>
</tr>
<tr>
<td>10122</td>
<td>014.000.000.022 2624-522-80329 02 FGAN-FGANFFMVAX-X25</td>
<td>[GB 7]</td>
<td>2000 found at line 11574:</td>
</tr>
<tr>
<td>11570</td>
<td>AMIGA-1200/LC040</td>
<td></td>
<td>2000 found at line 11575:</td>
</tr>
<tr>
<td>11571</td>
<td>AMIGA-1200/040</td>
<td></td>
<td>2000 found at line 11576:</td>
</tr>
<tr>
<td>11572</td>
<td>AMIGA-2000</td>
<td></td>
<td>2000 found at line 11577:</td>
</tr>
<tr>
<td>11573</td>
<td>AMIGA-2000/010</td>
<td></td>
<td>2000 found at line 11578:</td>
</tr>
<tr>
<td>11574</td>
<td>AMIGA-2000/020</td>
<td></td>
<td>2000 found at line 11579:</td>
</tr>
</tbody>
</table>
2000 found at line 11578:
11576: AMIGA-2000/030
11577: AMIGA-2000/LC040
11578: AMIGA-2000/EC040
11579: AMIGA-2000/040
11580: AMIGA-3000

2000 found at line 11579:
11577: AMIGA-2000/LC040
11578: AMIGA-2000/EC040
11579: AMIGA-2000/040
11580: AMIGA-3000
11581: AMIGA-3000/EC040

2000 found at line 12014:
12012: AIX/370
12013: AIX-PS/2
12014: BS-2000
12015: CEDAR
12016: CGW

2000 found at line 12356:
12354: HAZELTINE-1520
12355: HAZELTINE-1552
12356: HAZELTINE-2000
12357: HAZELTINE-ESPRIT
12358: HITACHI-5601

‘yy’ on a line without ‘yyyy’ found at line 1166:
1164: will be made.

‘yy’ on a line without ‘yyyy’ found at line 1168:
1166: node.sub.domain.name IN TA xx.yy.zz.aa.bb.cc.dd.ee
1167: ee.dd.cc.bb.aa.zz.yy.aa.in-addr.tcp IN PTR node.sub.domain.name
1168(continued): ame.

Using these entries, along with the existing DNS A records, a
Using these entries, along with the existing DNS A records, a requesting node can determine where the remote node is located. The format xx.yy.zz is the IEEE assigned portion and aa.bb.cc.dd.ee is the encoded machine serial number as described in section 4.1.

@ IN SOA marsh.cs.curtin.edu.au. postmaster.cs.curtin.edu.au. (94070503 10800 3600 ; Serial (ymmdndn)

University, but then Eric Wassenaar from Nikhef did a major rewrite and still seems to be actively working on improving it. The program is available from ftp://ftp.nikhef.nl/pub/network/host_YYMMDD.tar.Z (YYMMDD is the date of the latest release).

By default, host just maps host names to Internet addresses, querying

Example of use:
- limit 2000

2.3.3 schema
File rfc1718.txt

'yy' on a line without 'yyyy' found at line 969:
967: mailing list. File names beginning with "1" (one) contain ge
968: IETF information. This is only a partial list of the availab
969: files. (The 'yymm' below refers to the year and month.)
970:
971: o 0mtg-agenda.txt Agenda for the meeting

'yy' on a line without 'yyyy' found at line 972:
970:
971: o 0mtg-agenda.txt Agenda for the meeting
972: o 0mtg-at-a-glance-yymm.txt Logistics information for t
972(continued): he meeting
973: o 0mtg-rsvp.txt Meeting registration form
974: o 0mtg-sites.txt Future meeting sites and da
974(continued):

'yy' on a line without 'yyyy' found at line 975:
973: o 0mtg-rsvp.txt Meeting registration form
974: o 0mtg-sites.txt Future meeting sites and da
974(continued):
975: o 0mtg-multicast-guide-yymm.txt Schedule for MBone-multicas
975(continued): t sessions
976: o 0mtg-traveldirections-yymm.txt Directions to the meeting s
976(continued):
977: o 0tao.txt This document

'yy' on a line without 'yyyy' found at line 976:
974: o 0mtg-sites.txt Future meeting sites and da
974(continued):
975: o 0mtg-multicast-guide-yymm.txt Schedule for MBone-multicas
975(continued): t sessions
976: o 0mtg-traveldirections-yymm.txt Directions to the meeting s
976(continued):
977: o 0tao.txt This document
978:

File rfc1720.txt

'yy' on a line without 'yyyy' found at line 2230:
2228: The text version is sent.
2228(continued):
2229:
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2230: file /ftp/rfc/rfcnnnn.yyy where 'nnnn' is the RFC number.
2230(continued): and 'yyy' is 'txt' or 'ps'
2231(continued): .
2232:

'yy' on a line without 'yyyy' found at line 2231:
2229:
2230: file /ftp/rfc/rfcnnnn.yyy where 'nnnn' is the RFC number.
2230(continued): and 'yyy' is 'txt' or 'ps'
2231: .
2232:
2233: help to get information on how
2233(continued): to use

File rfc1730.txt

2digit found at line 3334:
3332: date ::= date_text / " date_text "
3333:
3334: date_day ::= 1*2digit
3335: ;; Day of month
3336:
2digit found at line 3337:
3335: ;; Day of month
3336:
3337: date_day_fixed ::= (SPACE digit) / 2digit
3338: ;; Fixed-format version of date_day
3339:
2digit found at line 3348:
3346: date_year ::= 4digit
3347:
3348: date_year_old ::= 2digit
3349: ;; OBSOLETE, (year - 1900)
3350:
2digit found at line 3657:
3655: TEXT_CHAR ::= <any CHAR except CR and LF>
3656:
3657: time ::= 2digit ":" 2digit ":" 2digit
3658: ;; Hours minutes seconds
3659:

1900 found at line 3349:
3347:
3348: date_year_old ::= 2digit

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The format of dates and times has changed due to the impending end of the century. Clients that fail to accept a four-digit year or a signed four-digit timezone value will not work properly with IMAP4.

message or part of a message. For example, a user connected to an IMAP4 server via a dialup link can determine that a message has a 2000 byte text segment and a 40 megabyte video segment, and elect to fetch only the text segment.

This field denotes the version of AppleSingle format in the event that the format evolves (more fields may be added to the header). The version described in this note is version $00020000 or 0x00020000.
0x00020000.

Filler

#define F_fStationary   0x0800 /* file is a stationary pad */
#define F_fNameLocked   0x1000 /* file can’t be renamed by Finder */
#define F_fHasBundle    0x2000 /* file has a bundle */
#define F_fInvisible    0x4000 /* file’s icon is invisible */
#define F_fAlias        0x8000 /* file is an alias file (System 7) */

typedef magicNum; /* internal file type tag */
typedef versionNum; /* format version: 2 = 0x00020000 */
uchar8 filler[16]; /* filler, currently all bits 0 */
uint16 numEntries; /* number of entries which follow */

/* Times are stored as a "signed number of seconds before of
after 12:00 a.m. (midnight), January 1, 2000 Greenwich Mean Time
(2000 GMT). */
* Applications must convert to their native date and time
* conventions." Any unknown entries are set to 0x80000000

We recommend that a new IPng Transition (NGTRANS) Working Gro
formed with Bob Gilligan of Sun Microsystems and xxx of yyy as co-
chairs to design the mechanisms and procedures to support the
1930 (continued):
1931: transition of the Internet from IPv4 to IPv6 and to give advi
1931 (continued): ce on

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that appropriate means should be readily available. There will exist

Values of type uTCTimeSyntax are encoded as if they were_PRINTER
Strings with the strings containing a UTCTime value.

Values of type uTCTimeSyntax are encoded as if they were_PRINTER
Strings with the strings containing a UTCTime value.

Guide (search guide)

<utc-time> ::= an encoded UTCTime value
<hex-string> ::= <hex-digit> | <hex-digit> <hex-string>

The text version is sent.

file /ftp/rfc/rfcnnnn.yyy where ’nnnn’ is the RFC number.

and ’yyy’ is ’txt’ or ’ps

’yy’ on a line without ‘yyyy’ found at line 2118:

file /ftp/rfc/rfcnnnn.yyy where ’nnnn’ is the RFC number.

and ’yyy’ is ’txt’ or ’ps

help to get information on how

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’yy’ on a line without ‘yyyy’ found at line 4173:
4171:
4172:   <email-address> should be the address of the person
4172(continued):   who
4173:   made the last change. YYMMDD denotes the date this
4173(continued):   change
4174:   was made.
4175:

’yy’ on a line without ‘yyyy’ found at line 4305:
4303:
4304:   Format:
4305:   YYMMDD
4306:
4307:   YYMMDD denotes the date this route was withdrawn.

’yy’ on a line without ‘yyyy’ found at line 4307:
4305:
4306:
4307:
4308:
4309:

’yy’ on a line without ‘yyyy’ found at line 4394:
4392:
4393:   Format:
4394:   <email-address> YYMMDD
4395:
4396:   <email-address> should be the address of the person
4396(continued):   who

’yy’ on a line without ‘yyyy’ found at line 4397:
4395:
4396:
4396(continued):   who
4397:
4397(continued):   made the last change. YYMMDD denotes the date this
4398:
4399:

+++++++ File rfc1800.txt ++++ ++++

’yy’ on a line without ‘yyyy’ found at line 1950:
1948:   The text version is sent.
1948(continued):
1949:
1950:   file /ftp/rfc/rfcnnnn.yyy   where ‘nnnn’ is the RFC n

Nesser                       Informational                    [Page 174]
1950(continued): umber.
1951: and 'yyy' is 'txt' or 'ps
1951(continued): '
1952:

'yy' on a line without 'yyyy' found at line 1951:
1949:
1950: file /ftp/rfc/rfcnnnn.yyy where 'nnnn' is the RFC n
1950(continued): umber.
1951: and 'yyy' is 'txt' or 'ps
1951(continued): '
1952:
1953: help to get information on how
1953(continued): to use

+=+=+=+=+= File rfc1806.txt +=+=+=+=+=

century found at line 8:
6:
7: Network Working Group
7(continued): . Troost
8: Request for Comments: 1806 New Century
8(continued): Systems
9: Category: Experimental S
9(continued): . Dorner
10: QUALCOMM Incorporated
10(continued): rporated

century found at line 402:
400:
401: Rens Troost
402: New Century Systems
403: 324 East 41st Street #804
404: New York, NY, 10017 USA

century found at line 408:
406: Phone: +1 (212) 557-2050
407: Fax: +1 (212) 557-2049
408: EMail: rens@century.com
409:
410:

+=+=+=+=+= File rfc1807.txt +=+=+=+=+=

'yy' on a line without 'yyyy' found at line 318:
316: mandatory field. The ID field identifies the bibliogra
316(continued): phic
317: record and is used in management of these records.

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Its format is "ID:: XXX//YYY", where XXX is the publisher-ID (the controlled symbol of the publisher) and YYY is the ID (e.g., report number) of the publication as assigned by the publisher. This ID is typically printed on the cover, and may contain slashes.

In order to avoid conflicts among the symbols of the publishing organizations (the XXX part of the "ID:: XXX//YYY") it is suggested that the various organizations that publish reports (such as universities, departments, and laboratories) register their 2-digit codes.

The format for ENTRY date is "Month Day, Year". The month must be alphabetic (spelled out). The "Day" is a 1- or 2-digit number. The "Year" is a 4-digit number.

The publication date. The formats are "Month Year" and "Month Day, Year". The month must be alphabetic (spelled out). The "Day" is a 1- or 2-digit number. The "Year" is a 4-digit number.

omitted, the record is assumed to be a new record and no revision. If the revision date is specified as 0, this indicates that no revision has been made.
406: is assumed to be January 1, 1900 (the previous RFC, used
407(continued): revision data of 0, 1, 2, 3, etc. this specification is
407(continued): for
408: programs that might process records from RFC1357).

2000 found at line 187:
185: 8 BASIC GREEK 0370-03CF
186: 10 CYRILLIC 0400-04FF
187: 32 GENERAL PUNCTUATION 2000-206F See note 1,
187(continued): below.
188: 39 MATHEMATICAL OPERATORS 2200-22FF See note 1,
188(continued): below.
189: 44 BOX DRAWING 2500-257F

2000 found at line 5855:
5853: 5 HelloLossFactor Number of consecutively missed H
5853(continued): ELLO messages before declaring link f
5854: ailure
5855: 2000 DefaultRecoveryTimeout Interval between successive HELL
5855(continued): Os
to/from active neighbors
5857:

2000 found at line 405:
403: 0 - 1fffffff defined by rpc@sun.com
405: 20000000 - 3fffffff defined by user
406: 40000000 - 5fffffff transient
407: 60000000 - 7fffffff reserved

2000 found at line 1881:
1879: Content-Transfer-Encoding: base64
1880: AfR1WSeyLhy5AtcX0ktUVlbfC1vvcoCjYWly/yYjVj48eqzUvGTGMsV6
1881(continued): MdlynU
1882: d4jcJgRnQiQvIxmx2VRgh8W8MkAlul+RWGu7jnxjp0sNsU562+RZr0f4F
1882(continued): 3K3n4w
1883: onUUP265UvVmj23RStguZ/nl/OxnFM6S6dGv39V/i/RofqI=

yy' on a line without 'yyyy' found at line 1994:
1992: U6B13vzpE8wMSVefzaCTSpXRSc08ceYEzrIYS53/CKZV2/Sga71pGNlux
1992(continued): BMspY
1993: Lwdj5Q3NKocg1LMngMo8yrMAe+avMjfOnhui49Xon1Gft+N5XDH/+wI9qx
1993(continued): I9fkQv
1994: NZVD1WihCYEkx5ke549tLkjEqHqbWJv5c+K/uxdiD2dBt+nRCXcu00Px
1994(continued): 3yKRY
1995: g/9BgTf36padSHuv48xBg5YagaEPwEzLIqD31vAyP23rqPhfbh6sjhQ2
1995(continued): KrWhF
1996: 213Tv8kQsIHHI2UaUbqkJJe6PEdWhwsqCFPDkpjzQRnTuJH6x1eNUFg
1996(continued): +CG1V+

+++++++ File rfc1861.txt ++++++++ yy' on a line without 'yyyy' found at line 766:
764: 554 Error, failed (technical reason)
765:
766: 4.5.6 HOLDuntil <YYMMDDHHMMSS> [+-GMTdifference]
767:
768: The HOLDuntil command allows for the delayed delivery of a message,
768(continued): ssage,

yy' on a line without 'yyyy' found at line 1061:
1059: the current transaction should be kept in the following format:
1059(continued): t:
1060:
1061: YYMMDDHHMMSS+GMT (example: 950925143501+7)
1062:
1063:

+++++++ File rfc1865.txt ++++++++ 1900 found at line 1564:
1562:
1563: START
1564: GET ITU-1900
1565: END
1566:

2000 found at line 1745:
1743: Logistics Management Institute
1744: Attn. Library
1745: 2000 Corporate Ridge
1746: McLean, Virginia, 22102-7805
1747:

Nesser Informational [Page 178]
Let \( \alpha \) and \( \beta \) be finite sets.

Since 20000000m (represented by the value 0x29) is greater than the equatorial diameter of the WGS 84 ellipsoid (12756274m), it is therefore suitable for use as a

The text version is sent.

file /ftp/rfc/rfcnnnn.yyy where ‘nnnn’ is the RFC number. and ‘yyy’ is ‘txt’ or ‘ps’
2063: and 'yyy' is 'txt' or 'ps
2064:
2065: help to get information on how
2065(continued):

+++ File rfc2626.txt +++++
1900 found at line 859:
857: Group Leader, Communications Systems Phone: +41 22 767-
857(continued): 4967
858: Computing and Networks Division Fax: +41 22 767-
858(continued): 7155
859: CERN Telex: 419000 cer
859(continued): ch
860: European Laboratory for Particle Physics Email: brian@dxcoms
860(continued): .cern.ch
861: 1211 Geneva 23, Switzerland

+++ File rfc1889.txt ++++
1900 found at line 518:
516: Wallclock time (absolute time) is represented using the times
516(continued): tamp
517: format of the Network Time Protocol (NTP), which is in second
517(continued): s
518: relative to 0h UTC on 1 January 1900 [5]. The full resolution
518(continued): NTP
519: timestamp is a 64-bit unsigned fixed-point number with the in
519(continued): teger
520: part in the first 32 bits and the fractional part in the last
520(continued): 32

2000 found at line 1526:
1524: ^
1525: ntp_sec =0xb44db705 v ^ dlsr=0x0005.4000 ( 5
1525(continued): .250s)
1526: ntp_frac=0x20000000 v ^ lsr =0xb705:2000 (46853
1526(continued): .125s)
1527: (3024992016.125 s) v ^
1528: r v ^ RR(n)

2000 found at line 1535:
1533: A 0xb710:8000 (46864.500 s)
1534: DLSR -0x0005:4000 ( 5.250 s)
1535: LSR -0xb705:2000 (46853.125 s)
1536: --------------------------
1537: delay 0x 6:2000 ( 6.125 s)
2000 found at line 1537:
1535:     LSR -0xb705:2000 (46853.125 s)
1536:     -------------------------------
1537:     delay 0x   6:2000 (    6.125 s)
1538:     1539:     Figure 2: Example for round-trip time computation

2000 found at line 3182:
3180:     * Big-endian mask for version, padding bit and packet type p
3180(continued): air
3181:     */
3182:     #define RTCP_VALID_MASK (0xc000 | 0x2000 | 0xfe)
3183:     #define RTCP_VALID_VALUE ((RTP_VERSION << 14) | RTCP_SR)
3184:

2000 found at line 293:
291:     The sampling frequency should be drawn from the set: 8000, 11
292(continued): 25,
293:     16000, 22050, 24000, 32000, 44100 and 48000 Hz. (The Apple Ma
293(continued): cintosh
294:     computers have native sample rates of 22254.54 and 11127.27,
294(continued): which
295:     can be converted to 22050 and 11025 with acceptable quality b
295(continued): y

2000 found at line 568:
566:     Sampling rate and channel count are contained in the payload.
567(continued): MPEG-I
568:     audio supports sampling rates of 32000, 44100, and 48000 Hz (I
568(continued): SO/IEC
569:     11172-3, section 1.1; "Scope"). MPEG-II additionally supports
569(continued): ISO/IEC
570:     11172-3 Audio...}).

2000 found at line 1271:
1269:     3rWM5Ir3ier3/7WM5Ir36+v35v73ife1jOWK94n3/7T3/ffm5uD+7N339/f3
1269(continued): 9/eq3ff3
1270:     9/eFiJK5tLizsoeSmpW7uLS8/7iio7Wisfv38biio7uyufv3tfv35uH+7N3d
1270(continued): 9/exuKX3
1271:     5+z3vuuu4ogO7srnsvvz8/venogO0v7a1/7iio7WisYy+iv7s3ff3p6KjtL+2
1271(continued): pf/wi7nw
1272:     3ard3Q==
1273:     $$-CyberCash-End-7Tm/djB05pLIw3JAYy5E7A==-$$
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.yy’ on a line without ‘yyyy’ found at line 1273:
1271:  5+z3vu4oqQ7srnsvvz8/venog0v7a1/7ii07WisYy+iv7s3ff3p6KjtL+2
1271(continued):   pf/wl7nw
1272:     3ard3Q==
1273:     $$-CyberCash-End-7Tm/djB05pLIw3JAy5E7A==--$$
1274:
1275:     ####################################################################
1275(continued):     #######

.yy’ on a line without ‘yyyy’ found at line 1328:
1326:     merchant-date: 19950121100505.nnn
1327:     merchant-response-code: failure/success/etc.
1328:     pr-hash: 7Tm/djB05pLIw3JAy5E7A==
1329:     pr-signed-hash:
1330:       a/0meaMHRinNVi8nq/fK5y5AfTZZUCX0S3gkJAhZTmcrkp6RZvppmDd/P71
1330(continued):     boFLFDBh

.yy’ on a line without ‘yyyy’ found at line 1340:
1338:       rHzP5YqaMnk5iRBHvwK5MxKKG00ef5s8M5W81I2d0XpecH4xNbn8BMAJ6
1338(continued):     iSkZmszo
1339:     QfDeWqga48g2tqlA6ifZGp7daDR81umlGMCv8==
1340:     $$-CyberCash-End-7Tm/djB05pLIw3JAy5E7A==--$$
1341:
1342:     ####################################################################
1342(continued):     #######

.yy’ on a line without ‘yyyy’ found at line 1474:
1472:       mjD6ickhd+SQZhbrCNer1TiPGhuL4w0AxzGh8aHk2oXjoMpVzWw2EImPu5Qa
1472(continued):     PEc36xgr
1473:     mNz8vCovDiuy3tZ42IGArxBweasLPLCbm0Y=
1474:     $$-CyberCash-End-7Tm/djB05pLIw3JAy5E7A==--$$
1475:
1476:     ####################################################################
1476(continued):     #######

.yy’ on a line without ‘yyyy’ found at line 1482:
1480:     order-id: 1231342234242
1481:     merchant-amount: usd 10.00
1482:     pr-hash: 7Tm/djB05pLIw3JAy5E7A==
1483:     pr-signed-hash:
1484:       a/0meaMHRinNVi8nq/fK5y5AfTZZUCX0S3gkJAhZTmcrkp6RZvppmDd/P71
1484(continued):     boFLFDBh

.yy’ on a line without ‘yyyy’ found at line 1490:
1488:     date: 19950121100505.nnn
1489:     merchant-signature:
1490:     v4qZMe2d7mUXztVdC3ZPMmMy9YH1BA7bhR96LSehK15y1qR/1KwwbBAX8CEq
1490(continued):     ns55UIYY
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1491:     GGMwPMGoF+GDPM7G1C6fReQ5wyvV1PnETSVO9/LAyRz0zzR淤ue0jWDlr5
1491(continued):
1492:

'yy' on a line without 'yyyy' found at line 1593:
1591:     mjD6ickhd+SQZhbRCNer1TiGhul4wUAxzGh8aHk2oXjoMpVzWw2EImPu5Qa
1591(continued):     PEc36xgr
1592:     mNz8vCovDiuy3tZ421GArxBweasLPLCb0m0Y=
1593:     $$$-CyberCash-End-7Tm/djB05pLIw3JAy5E7A=-$$
1594:
1595:     #############################################################
1595(continued):            #######

'yy' on a line without 'yyyy' found at line 1602:
1600:     order-id: 1231-3424-234242
1601:     merchant-amount: usd 10.00
1602:     pr-hash: 7Tm/djB05pLIw3JAy5E7A==
1603:     pr-signed-hash:
1604:     a/0meAMHRinNVd8nq/fKsYg5AfTZZUCX0S3gkJAhZTmcrrp6RZvppmDd/P71
1604(continued):            boFLFD(hb

'yy' on a line without 'yyyy' found at line 1692:
1690:     mjD6ickhd+SQZhbRCNer1TiGhul4wUAxzGh8aHk2oXjoMpVzWw2EImPu5Qa
1690(continued):     PEc36xgr
1691:     mNz8vCovDiuy3tZ421GArxBweasLPLCb0m0Y=
1692:     $$$-CyberCash-End-7Tm/djB05pLIw3JAy5E7A=-$$
1693:
1694:     #############################################################
1694(continued):            #######

'yy' on a line without 'yyyy' found at line 1804:
1802:     mjD6ickhd+SQZhbRCNer1TiGhul4wUAxzGh8aHk2oXjoMpVzWw2EImPu5Qa
1802(continued):     PEc36xgr
1803:     mNz8vCovDiuy3tZ421GArxBweasLPLCb0m0Y=
1804:     $$$-CyberCash-End-7Tm/djB05pLIw3JAy5E7A=-$$
1805:
1806:     #############################################################
1806(continued):            #######

'yy' on a line without 'yyyy' found at line 1821:
1819:     response-code: failure/success/etc.
1820:     order-id: 1231-3424-234242
1821:     pr-hash: 7Tm/djB05pLIw3JAy5E7A==
1822:     pr-signed-hash:
1823:     8zqw0ipqtLtte0tBz5/5VPNJPponfTwkZPbt05lqMykKDvThhO0ycrfT7e
1823(continued):        Xrn/hLUC

'yy' on a line without 'yyyy' found at line 1827:
1825: retrieval-reference-number: 43211234321
1826: authorization-code: a12323
1827: card-hash: 7Tm/djB05pLIw3JAyy5E7A==
1828: 
1829: card-prefix: nnxxxx [Returned if merchant is not full-PAN]

`yy' on a line without 'yyyy' found at line 1948:
1946: mjD6ickhd+SQZhbcRNe11t1Gqhu14WUaxzGh8aRk2oXjoMpVzWw2EImPu5Qa
1947: mNz8vCoVdiuy3tZ42IgArxBeasLPlChb0Y=
1948: $$-CyberCash-End-7Tm/djB05pLIw3JAyy5E7A==$$
1949: 
1950: ##############################################################
1950(continued): ###

`yy' on a line without 'yyyy' found at line 1958:
1956: order-id: 12313242324242
1957: merchant-amount: usd 10.00
1958: pr-hash: 7Tm/djB05pLIw3JAyy5E7A==
1959: 
1960: 

`yy' on a line without 'yyyy' found at line 2050:
2048: CEUEvQhcmruop9Eehv+bejc3fDDZ23JKrb1h1Z1171SvFR14PKFsi32pXFqTO
2049: L6c8mM3tI1qdHNCe0N5f7AsdK50tYSxAYJLIR6MqPrXjNJeAx7Vu1odMlk
2049(continued): rzGOV1fo
2050: 5w33BQHK3U2h+1e5zYeByH32Y4gmy1YYXIye4xpuPN4QU0dGrWzoImYE44Q
2050(continued): OwjD5ozl
2051: xulPbjj6cpEI/9wTwR3tpkBb4ZfYirxxnoj9JUKPK9Sr9v91J
2052: $$-CyberCash-End-7Tm/djB05pLIw3JAyy5E7A==$$

`yy' on a line without 'yyyy' found at line 2052:
2050: 5w33BQHK3U2h+1e5zYeByH32Y4gmy1YYXIye4xpuPN4QU0dGrWzoImYE44Q
2050(continued): OwjD5ozl
2051: xulPbjj6cpEI/9wTwR3tpkBb4ZfYirxxnoj9JUKPK9Sr9v91J
2052: $$-CyberCash-End-7Tm/djB05pLIw3JAyy5E7A==$$
2053: 
2054: ##############################################################
2054(continued): ###

`yy' on a line without 'yyyy' found at line 2064:
2062: response-code: failure/success/etc.
2063: order-id: 1231-3424-234242
2064: pr-hash: 7Tm/djB05pLIw3JAyy5E7A==
2065: pr-signed-hash: 4V8gWHx1f8eCkWsCsM038mTbQ7IBBcEmGDAwjdbaLu5Qm/bh06OX1npe
2066(continued): 2d3Hijxy
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'yy' on a line without 'yyyy' found at line 2068:
2066:    IV8gWHx1f8eEkWsCsMOE3M8mnTbQ7IBBcEmyGDAwjdBalu5Qm/bh060X1npe
2066(continued):
2067:    +X8vKcVE6l6To27u7A7UmGm+po91CUSLxgtyqyn3jWhHZpc5NZpw0TCf2pAK
2067(continued):
2068:        card-hash: 7Tm/djB05pLIw3JAy5E7A==
2069:        card-number: 4811123456781234
2070:        card-type: visa

'yy' on a line without 'yyyy' found at line 2151:
2149:        transaction: 123123213
2150:        date: 19950121100505.nnn
2151:        $$-CyberCash-End-7Tm/djB05pLIw3JAy5E7A==-$$
2152:
2153:        ###################################################################
2154(continued):
2155:

'yy' on a line without 'yyyy' found at line 2193:
2191:            by their CyberCash application...
2192:        supported-versions: 08.win, 0.81win, 0.8mac
2193:        $$-CyberCash-End-7Tm/djB05pLIw3JAy5E7A==-$$
2194:
2195:        ###################################################################
2196(continued):
2197:

'yy' on a line without 'yyyy' found at line 2359:
2357:        35XiC9Yn8f1E4Va14UxMf2RCR1B/XoV6AEd64KwPeCYyOywbbRcYpRMBXFLy
2358(continued):
2359:        YgWM+ME1
2360:        +yp7c66SrCBhW4Q8A7YQ+5j5uy7uKyyq70hrV0IMpRDPjiQXZMooLZ0ifJP
2360(continued):
2361:         mpvJ66hC
2361:        VZuWMuA6LR+TJzWUms4sUP9z6zMQShedUyOPrtw1vkJXU1vZ5aI80JAgUcLE
2361(continued):
2362:         itcD+dsY

'yy' on a line without 'yyyy' found at line 2360:
2358:
2359:        35XiC9Yn8f1E4Va14UxMf2RCR1B/XoV6AEd64KwPeCYyOywbbRcYpRMBXFLy
2359(continued):
2360:        YgWM+ME1
2360:        +yp7c66SrCBhW4Q8A7YQ+5j5uy7uKyyq70hrV0IMpRDPjiQXZMooLZ0ifJP
2360(continued):
2361:         mpvJ66hC
2361:        VZuWMuA6LR+TJzWUms4sUP9z6zMQShedUyOPrtw1vkJXU1vZ5aI80JAgUcLE
2361(continued):
2362:         itcD+dsY
2362:        Df4CzA00fC10P0k358H2B/pSBfUrHAa+IqMHyZkV/HBi9TjTwmtkJi+8T9or
2362(continued):
2363:         XS0jSvor

'yy' on a line without 'yyyy' found at line 2502:
2500:        lw51IHbmo1Jj7H6wyNNrEpEjy4tM73jcosBfGeQDHxgyHluaiFNr2D+WvmuYo

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2500(continued): 7eun2dsy
2501: Wve20/FwicWHvkgsaDPsgOjzetns1JCNZzbW
2502: $$CyberCash-End-7Im/djB05pLIw3JAy7E7A==$$
2503:
2504: ####################################################################################################################
2504(continued): ####

‘yy’ on a line without ‘yyyy’ found at line 2591:
2590: x-opaque: [if can’t decrypt]
2590(continued): 9/eFiJK5tLizsoeSmpW7uLS8/7iio7Wisfv38biio7uyufv3tfv35uH+7N3d
2591: 5+z3vu9q07srnsvzvz8/venog00v7aI/7iio7WisYy+iv7s3ff3p6KjtL+2
2591(continued): pf/wil7nw
2592:
2593: ####################################################################################################################
2593(continued): ####

‘yy’ on a line without ‘yyyy’ found at line 2653:
2652: x-opaque: [if can’t decrypt]
2652(continued): 9/eFiJK5tLizsoeSmpW7uLS8/7iio7Wisfv38biio7uyufv3tfv35uH+7N3d
2653: 5+z3vu9q07srnsvzvz8/venog00v7aI/7iio7WisYy+iv7s3ff3p6KjtL+2
2653(continued): pf/wil7nw
2654:
2655: ####################################################################################################################
2655(continued): ####

+=+=+=+= File rfc1900.txt +=+=+=+=
1900 found at line 8:
6:
7: Network Working Group
7(continued): B. C. Carpenter
8: Request for Comments: 1900
8(continued): Y. Rekhter
9: Category: Informational
9(continued): IAB
10: Febru
10(continued): ary 1996

1900 found at line 60:
58: Carpenter & Rekhter
58(continued): Informational
58(continued): [Page 1]
115:
116(continued):         ary 1996
117:
118:

1900 found at line 172:
170:  Carpenter & Rekhter            Informational
170(continued):               [Page 3]
171: RFC 1900  Renumbering Needs Work  Febru
172: (continued):  ary 1996
173:
174:

1900 found at line 207:
205: Phone: +41 22 767-4967
206: Fax: +41 22 767-7155
207: Telex: 419000 cer ch
208: EMail: brian@dxcoms.cern.ch
209:

+++ File rfc1902.txt ++++
'yy' on a line without 'yyyy' found at line 2027:
2025: Several clauses defined in this document use the UTC Time for
2025(continued):  mat:
2026:
2027: YYMMDDHHMMZ
2028:
2029: where: YY - last two digits of year

'yy' on a line without 'yyyy' found at line 2029:
2027: YYMMDDHHMMZ
2028:
2029: where: YY - last two digits of year
2030: MM - month (01 through 12)
2031: DD - day of month (01 through 31)

UTCTime found at line 136:
134: BEGIN
135: TYPE NOTATION ::=
136: "LAST-UPDATED" value(Update UTCTime)
137: "ORGANIZATION" Text
138: "CONTACT-INFO" Text
3. Problem

should be noted that careful extrapolations of the current tr
suggest that the address space will be exhausted early in the
century.

The text version is sent.

The text version is sent.

The text version is sent.

The text version is sent.

The text version is sent.

The text version is sent.

The text version is sent.
1900 found at line 851:
849:       An Experimental protocol.
850:
851:     1900 - Renumbering Needs Work
852:
853:     This is an information document and does not specifi
853(continued): y any

2-digit found at line 500:
498:     Specific repetition: "<n>(element)" is equivalent to
499:     "<n>*<n>(element)"; that is, exactly <n> occurrences of
500:     (element). Thus 2DIGIT is a 2-digit number, and 3ALPHA is
500(continued): a
501:     string of three alphabetic characters.
502:

2-digit found at line 872:
870:     asctime-date = weekday SP date3 SP time SP 4DIGIT
871:
872:     date1 = 2DIGIT SP month SP 4DIGIT
873:     ; day month year (e.g., 02 Jun 1982)
874:     date2 = 2DIGIT "-" month "-" 2DIGIT

2-digit found at line 874:
872:     date1 = 2DIGIT SP month SP 4DIGIT
873:     ; day month year (e.g., 02 Jun 1982)
874:     date2 = 2DIGIT "-" month "-" 2DIGIT
875:     ; day-month-year (e.g., 02-Jun-82)
876:     date3 = month SP (2DIGIT | (SP 1DIGIT))
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2digit found at line 876:
874:        date2          = 2DIGIT "-" month "-" 2DIGIT
875: ; day-month-year (e.g., 02-Jun-82)
876:        date3          = month SP ( 2DIGIT | ( SP 1DIGIT ) )
877: ; month day (e.g., Jun 2)
878:

2digit found at line 879:
877: ; month day (e.g., Jun 2)
878:
879:        time           = 2DIGIT ":" 2DIGIT ":" 2DIGIT
880: ; 00:00:00 - 23:59:59
881:

File rfc1967.txt

'yy' on a line without 'yyyy' found at line 276:
274: +-----+----....................----+
275:
276:        where: C0 and 80 are representative LZS-DCP headers; nn,
276(continued): xx, yy,
277: and zz are values determined by the packet’s conte
277(continued): xt.
278:

File rfc1980.txt

century found at line 301:
299: ALT="Our products">
300: <AREA SHAPE=RECT COORDS="0,51,100,100 HREF="technology.htm
300(continued): 1"
301: ALT="Technology for the next century">
302: </MAP>
303:

File rfc1997.txt

2000 found at line 130:
128: 690 may define research, educational and commercial community
128(continued): values
129: that may be used for policy routing as defined by the operato
129(continued): rs of
130: that AS using community attribute values 0x02B20000 through
131: 0x02B2FFFF).
1900 found at line 14:
12: Request for Comments Summary
13:
14: RFC Numbers 1900-1999
15:
16: Status of This Memo

1900 found at line 18:
16: Status of This Memo
17:
18: This RFC is a slightly annotated list of the 100 RFCs from RF
19(continued): C 1900
20: through RFCs 1999. This is a status report on these RFCs. T
20(continued): his memo
20: provides information for the Internet community. It does not
20(continued): specify

1900 found at line 60:
58: Elliott Informational
58(continued): [Page 1]

1900 found at line 172:
170: Elliott  Informational
170(continued): [Page 3]
1900 found at line 228:

226: Elliott Informational

226(continued): [Page 4]
RFC 1999

Summary of 1900-1999

January 1997

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1900 found at line 452:

450: Elliott

Informational

450 (continued):

[Page 8]
RFC 2626  The Internet and the Millennium Problem (Year 2000)  June 1999

788:   RFC 1999  Summary of 1900-1999  Janu
788(continued):   ary 1997
789:   
790:   

1900 found at line 844:
842:   Elliott                      Informational                     [  
842(continued):   Page 15]   
843:   
844:   RFC 1999  Summary of 1900-1999  Janu  
844(continued):   ary 1997   
845:   
846:   

1900 found at line 900:
898:   Elliott                      Informational                     [  
898(continued):   Page 16]   
899:   
900:   RFC 1999  Summary of 1900-1999  Janu  
900(continued):   ary 1997   
901:   
902:   

1900 found at line 956:
954:   Elliott                      Informational                     [  
954(continued):   Page 17]   
955:   
956:   RFC 1999  Summary of 1900-1999  Janu  
956(continued):   ary 1997   
957:   
958:   

1900 found at line 1012:
1010:  Elliott                      Informational                     [  
1010(continued):   Page 18]   
1011:   
1012:   RFC 1999  Summary of 1900-1999  Janu  
1012(continued):   ary 1997   
1013:   
1014:   

1900 found at line 1068:
1066:  Elliott                      Informational                     [  
1066(continued):   Page 19]   
1067:   

Nesser                       Informational                    [Page 194]
Hosts in an IP network are identified by IP addresses, and the I
9: Obsoletes: 1920, 1880, 1800, 1780, 1720, Febru
9(continued): ary 1997
10: 1610, 1600, 1540, 1500, 1410, 1360,

2000 found at line 60:
58: Internet Architecture Board Standards Track
58(continued): [Page 1]
RFC 2000  Internet Standards  February 1997

Internet Architecture Board Standards Track

[Page 2]
2000 found at line 228:
226: Internet Architecture Board Standards Track
226(continued): [Page 4]
2000 found at line 284:
282: Internet Architecture Board Standards Track
282(continued): [Page 5]
Nesser

Informational

[Page 196]
RFC 2000  Internet Standards  February 1997

2000 found at line 396:
394: Internet Architecture Board Standards Track
394(continued):  [Page 7]

2000 found at line 452:
450: Internet Architecture Board Standards Track
450(continued): [Page 8]
2000 found at line 508:
506: Internet Architecture Board Standards Track
506(continued): [Page 9]
<table>
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<tr>
<td>2626</td>
<td>The Internet and the Millennium Problem (Year 2000)</td>
<td>June 1999</td>
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<td>Internet Architecture Board Standards Track</td>
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<td></td>
<td>(continued):</td>
<td>Page 33</td>
</tr>
<tr>
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<tr>
<td>2000</td>
<td>Internet Official Protocol Standards</td>
<td>Req 20</td>
</tr>
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<td>(continued):</td>
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<td>Host Requirements - Communications</td>
<td>Req 11</td>
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Nesser Informational [Page 202]
RFC 2626  The Internet and the Millennium Problem (Year 2000)  June 1999

1963:
1964:  RFC 2000  Internet Standards  Febru
1964(continued):
1965:
1966:

2000 found at line 2020:
2019:
2020:  RFC 2000  Internet Standards  Febru
2020(continued):  ary 1997
2021:
2022:

2000 found at line 2076:
2074:  Internet Architecture Board Standards Track [2074(continued):  Page 37]
2075:
2076:  RFC 2000  Internet Standards  Febru
2076(continued):  ary 1997
2077:
2078:

2000 found at line 2132:
2130:  Internet Architecture Board Standards Track [2130(continued):  Page 38]
2131:
2132:  RFC 2000  Internet Standards  Febru
2132(continued):  ary 1997
2133:
2134:

2000 found at line 2188:
2186:  Internet Architecture Board Standards Track [2186(continued):  Page 39]
2187:
2188:  RFC 2000  Internet Standards  Febru
2188(continued):  ary 1997
2189:
2190:

2000 found at line 2244:
2242:  Internet Architecture Board Standards Track [2242(continued):  Page 40]
2243:
2244:  RFC 2000  Internet Standards  Febru
2244(continued):  ary 1997

Nesser  Informational  [Page 203]
2859:
2860: RFC 2000 Internet Standards Febru
2860(continued): ary 1997
2861:
2862:
2863: 2000 found at line 2916:
2914: Internet Architecture Board Standards Track [ ]
2914(continued): Page 52]
2915:
2916: RFC 2000 Internet Standards Febru
2916(continued): ary 1997
2917:
2918:
2919: 2000 found at line 2972:
2970: Internet Architecture Board Standards Track [ ]
2970(continued): Page 53]
2971:
2972: RFC 2000 Internet Standards Febru
2972(continued): ary 1997
2973:
2974:
2975: 2000 found at line 3028:
3026: Internet Architecture Board Standards Track [ ]
3026(continued): Page 54]
3027:
3028: RFC 2000 Internet Standards Febru
3028(continued): ary 1997
3029:
3030:
3031: 2000 found at line 3084:
3082: Internet Architecture Board Standards Track [ ]
3082(continued): Page 55]
3083:
3084: RFC 2000 Internet Standards Febru
3084(continued): ary 1997
3085:
3086:
+=+=+=+=+= File rfc2007.txt +=+=+=+=+=
2000 found at line 1156:
1154:
1155: Access-Type: gopher

Nesser Informational [Page 206]
1157:
1158: Access-Type: www

+=+=+=+=+= File rfc2015.txt +=+=+=+=+=
'yy' on a line without 'yyyy' found at line 153:
151:
152:       hIwDY32hYGCE8MKBA/wOu7d45aUxF4Q0RKJprD3v5Z9K1YcRJ2fve87IM1D
153(continued):       lx4Oj
153:
154:       eW4GDdBFbJE7VUpp13N19GL8e/AqbyyjHH4aS0YoTk10QQ9nnRvjY8nZL3
154(continued):       MPXSZ
154:
155:       g9VQxFeGqzykzmykU6A26MSMexeR4ApeeON6xz2Wfo+0yOqAq61b46wsvld
155(continued):       Z96YA
155:
156:       AABH78hyX7YX4uITlNCWEI1BoqqvCeIMpp7UQ2IZBrKg6GtukS8NxbukLea
156(continued):       mqVW3

+=+=+=+=+= File rfc2025.txt +=+=+=+=+=
UTCTime found at line 751:
749:             context-id       Random-Integer,   -- see Section 6.3
749(continued):
750:             pvno             BIT STRING,       -- protocol versio
750(continued):         n number
751:             timestamp        UTCTime OPTIONAL, -- mandatory for S
751(continued):         PKM-2
752:             randSrc          Random-Integer,
753:             targ-name        Name,

UTCTime found at line 923:
921:             context-id       Random-Integer,   -- see Section 6.3
922(continued):
922:             pvno [0]         BIT STRING OPTIONAL, -- prot. versio
923:             timestamp        UTCTime OPTIONAL, -- mandatory for S
923(continued):         PKM-2
924:             randTarg         Random-Integer,
925:             src-name [1]     Name OPTIONAL,

UTCTime found at line 2159:
2157:             context-id       Random-Integer,
2158:             pvno             BIT STRING,
2159:             timestamp        UTCTime OPTIONAL, -- mandatory for S
2159(continued):         PKM-2
2160:             randSrc          Random-Integer,
2161:             targ-name        Name,

UTCTime found at line 2248:
2246:
2247:             pvno [0]         BIT STRING OPTIONAL,
2248:             timestamp        UTCTime OPTIONAL, -- mandatory for S

Nesser                       Informational                    [Page 207]
PKM-2
randTarg Random-Integer,
src-name [1] Name OPTIONAL,

Validity ::= SEQUENCE {
    notBefore UTCTime,
    notAfter UTCTime
}

Validity ::= SEQUENCE {
    notBefore UTCTime,
    notAfter UTCTime
}

signature AlgorithmIdentifier,
issuer Name,
thisUpdate UTCTime,
nextUpdate UTCTime OPTIONAL,
revokedCertificates SEQUENCE OF SEQUENCE {
    userCertificate CertificateSerialNumber,
    revocationDate UTCTime
}

revokedCertificates SEQUENCE OF SEQUENCE {
    userCertificate CertificateSerialNumber,
    revocationDate UTCTime
} OPTION

Digital Equipment Corporation
1401 H Street NW
Washington DC 20005
Phone: +1 202 383 5615
main product of the protocol, a special timestamp format has been established. NTP timestamps are represented as a 64-bit unsigned fixed-point number, in seconds relative to 0h on 1 January 1900. The integer part is in the first 32 bits and the fraction part in the last 32 bits. In the fraction part, the non-significant low order bits can be necessary to qualify time relative to 1900 and time relative (and other multiples of 136 years). There will exist a 200-picosecond interval, henceforth ignored, every 136 years when the 64-bit field will overflow some time in 2036 (second 4,294,967,296).

Should NTP or SNTP be in use in 2036, some external means will be necessary to qualify time relative to 1900 and time relative (and other multiples of 136 years). There will exist a 200-picosecond interval, henceforth ignored, every 136 years when the 64-bit field will overflow some time in 2036 (second 4,294,967,296).

The following convention: If bit 0 is set, the UTC time is in the range 1968-2036 and UTC time is reckoned from 0h 0m 0s UTC on 1 January 1900. If bit 0 is not set, the time is in the range 2036-2104 and UTC time is reckoned from 6h 28m 16s UTC on 7 February 2036. Note that when calculating the correspondence, 2000 is not a leap year. Note also that leap seconds are not counted in the reckoning.
'yy' on a line without 'yyyy' found at line 738:

736: To: ietf-types@iana.org
738: Subject: Registration of MIME media type XXX/YYYY
740: MIME media type name:

1900 found at line 638:
636: [RFC 1814] Gerich, E., "Unique Addresses are Good", June 1995
637:
639: February 1996.
640:

1900 found at line 420:
420:
421: RFC 1900: Carpenter, B., and Y. Rekhter, "Renumbering Needs Work",
422: RFC 1900, February 1996.
423: RFC 1920: Postel, J., "INTERNET OFFICIAL PROTOCOL STANDARDS",
423(continued):

2digit found at line 3782:
3780: date ::= date_text / <" date_text <">
3781:
3782: date_day ::= 1*2digit
3783: ;; Day of month
3784:
2digit found at line 3785:
3783: ;; Day of month
3784:
3785:  date_day_fixed ::= (SPACE digit) / 2digit
3786:    ;; Fixed-format version of date_day
3787:
2digit found at line 4101:
4099:  TEXT_CHAR ::= <any CHAR except CR and LF>
4100:
4101:  time ::= 2digit ":" 2digit ":" 2digit
4102:    ;; Hours minutes seconds
4103:
2digit found at line 330:
328:    ::= partial
329:
330:  date_year_old ::= 2digit
331:    ;; (year - 1900)
332:
1900 found at line 331:
329:
330:  date_year_old ::= 2digit
331:    ;; (year - 1900)
332:
333:  date_time_old ::= <"> date_day_fixed "-" date_month "-" dat
333(continued):  e_year

2000 found at line 716:
714:
715:    start time = 1    start time =
715(continued):  1
716:  Usage record N: flow count = 2000 flow count = 200
716(continued):  0 (done)
717:
718:    start time = 1    start time =
718(continued):  5

2000 found at line 725:
723:
724:    In the continuing flow case, the same flow was reported when
724(continued):  its
725:    count was 2000, and again at 3000: the total count to date i
725(continued):  s 3000.
726:    In the OLD/NEW case, the old flow had a count of 2000. Its r
726(continued):  ecord
727:
In the continuing flow case, the same flow was reported when its count was 2000, and again at 3000: the total count to date is 3000.

In the OLD/NEW case, the old flow had a count of 2000. Its record:

Specific repetition: "<n>(element)" is equivalent to "<n>*<n>(element)"; that is, exactly <n> occurrences of (element).

Thus 2DIGIT is a 2-digit number, and 3ALPHA is a string of three alphabetic characters.

asctime-date = wkday SP date3 SP time SP 4DIGIT

date1 = 2DIGIT SP month SP 4DIGIT

date2 = 2DIGIT "-" month "-" 2DIGIT

date3 = month SP ( 2DIGIT | ( SP 1DIGIT ))
2digit found at line 1167:
1165:            date2        = 2DIGIT "-" month "-" 2DIGIT
1166:            ; day-month-year (e.g., 02-Jun-82)
1167:            date3        = month SP ( 2DIGIT | ( SP 1DIGIT ))
1168:            ; month day (e.g., Jun 2)
1169:

2digit found at line 1170:
1168:            ; month day (e.g., Jun 2)
1169:
1170:            time         = 2DIGIT ":" 2DIGIT ":" 2DIGIT
1171:            ; 00:00:00 - 23:59:59
1172:

2digit found at line 7652:
7650:
7651:            warning-value = warn-code SP warn-agent SP warn-text
7652:            warn-code  = 2DIGIT
7653:            warn-agent = ( host [":" port ] ) | pseudonym
7654:            ; the name or pseudonym of the server
7654(continued):
1900 found at line 1083:
1081: for TCP connections on that port of that host, and the Reques
1081(continued):
1082: for the resource is abs_path. The use of IP addresses in URL’
1082(continued):
1083: be avoided whenever possible (see RFC 1900 [24]). If the abs_
1083(continued):
1084: not present in the URL, it MUST be given as "/" when used as
1084(continued):
1085: Request-URI for a resource (section 5.1.2).

1900 found at line 8249:
8247:
8248(continued):
8249: 1900, IAB, February 1996.
8250:
8251: [25] Deutsch, P., "GZIP file format specification version 4.3
8251(continued):
2000 found at line 8453:
8451: HTTP/1.1 clients and caches should assume that an RFC-850 d
8451(continued):
8452: which appears to be more than 50 years in the future is in
8452(continued):
in the past (this helps solve the "year 2000" problem).


Many discussions of renumbering emphasize interactions among organizations’ numbering plans and those of the global Internet. According to RFC1900, "Unless and until viable alternatives are developed, extended deployment of Classless Inter-Domain Routing (CIDR) is vital to keep the Internet routing system alive and to"

Program numbers are given out in groups of hexadecimal 2000 (decimal 536870912) according to the following chart:

<table>
<thead>
<tr>
<th>Group</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 1fffffff</td>
<td>defined by <a href="mailto:rpc@sun.com">rpc@sun.com</a></td>
</tr>
<tr>
<td>20000000 - 3fffffff</td>
<td>defined by user</td>
</tr>
<tr>
<td>40000000 - 5fffffff</td>
<td>transient</td>
</tr>
<tr>
<td>60000000 - 7fffffff</td>
<td>reserved</td>
</tr>
</tbody>
</table>

AUTHENTICATE command (or the similar POP3 AUTH command), yielding

AUTHENTICATE CRAM-MD5

OK CRAM authentication successful
RFC 2626  The Internet and the Millennium Problem (Year 2000)  June 1999

+=+=+=+=+= File rfc2096.txt +=+=+=+=+=
1900 found at line 134:
132: ipForward MODULE-IDENTITY
134: LAST-UPDATED "9609190000Z" -- Thu Sep 26 16:34:47 PDT 19
134(continued): 96
135: ORGANIZATION "IETF OSPF Working Group"
136: CONTACT-INFO

1900 found at line 147:
145: DESCRIPTION
146: "The MIB module for the display of CIDR multipath IP
146(continued): Routes."
147: REVISION "9609190000Z"
148: DESCRIPTION
149: "Revisions made by the OSPF WG."

+=+=+=+=+= File rfc2099.txt +=+=+=+=+=
2000 found at line 14:
12: Request for Comments Summary
13:
14: RFC Numbers 2000-2099
15:
16: Status of This Memo

2000 found at line 18:
16: Status of This Memo
17:
18: This RFC is a slightly annotated list of the 100 RFCs from RF
18(continued): 1990 C 2000
19: through RFCs 2099. This is a status report on these RFCs. T
19(continued): his memo
20: provides information for the Internet community. It does not
20(continued): specify

2000 found at line 60:
58: Elliott Informational
58(continued): [Page 1]
RFC 2099  Summary of 2000-2099  March 1997

2000 found at line 116:
114: Elliott  Informational
114(continued): [Page 2]
2000 found at line 172:
170: Elliott Informational
170(continued): [Page 3]
227:  RFC 2099  Summary of 2000-2099  Ma
228(continued):  rch 1997
229:
230:

2000 found at line 284:
282:  Elliott  Informational
282(continued):  [Page 5]
283:  RFC 2099 Summary of 2000-2099 Ma
284(continued):  rch 1997
285:
286:

2000 found at line 340:
338:  Elliott Informational
338(continued):  [Page 6]
RFC 2099

Summary of 2000-2099

Elliott

Informational

[Page 7]
<table>
<thead>
<tr>
<th>Nesser</th>
<th>Informational</th>
</tr>
</thead>
</table>

[Page 217]
Nesser                       Informational                    [Page 218]
Changing providers is just one possible reason for renumbering. The informational document [RFC 1900] shows why renumbering is an increasingly frequent event. Both DHCP [RFC 1541] and PPP [RFC 1661] promote the use of dynamic address allocation.

Solutions for renumbering sites. The need to contain the overhead in a rapidly growing Internet routing system is likely to make
533(continued):    e
534: renumbering more and more common [RFC 1900].
535:
536: The need to scale the Internet routing system, and the use of
536(continued):    CIDR as

1900 found at line 632:
631:
632: [RFC 1900] Carpenter, B., and Y. Rekhter, "Renumbering Needs
633:
634: 1900 found at line 633:
631:
632: [RFC 1900] Carpenter, B., and Y. Rekhter, "Renumbering Needs
633:
634: 1900 found at line 633:
631:
632: [RFC 1900] Carpenter, B., and Y. Rekhter, "Renumbering Needs
633:
634: 1900 found at line 633:
631:
632: [RFC 1900] Carpenter, B., and Y. Rekhter, "Renumbering Needs
633:
634: [RFC 1918] Rekhter, Y., Moskowitz, B., Karrenberg, D., de Groo
635(continued):    t, G.

++++++ File rfc2109.txt ++++
'yy' on a line without 'yyyy' found at line 1054:
1052: date value in a fixed-length variant format in place of Max-A
1052(continued):    ge:
1053:
1054: Wdy, DD-Mon-YY HH:MM:SS GMT
1055:
1056: Note that the Expires date format contains embedded spaces, a
1056(continued):    nd that

++++++ File rfc2116.txt ++++
2000 found at line 4132:
4130: * MAIL.X-OD V2.3
4131:
4132: * MAIL.2000 V1.2, AKOM
4133:
4134: * MS-Mail

2000 found at line 5393:
5391: 1-800-257-OPEN (U.S. and Canada)
5392: 1-612-482-6736 (worldwide)
5393: FAX: 1-612-482-2000 (worldwide)
5394: EMAIL: info@cdc.com
5395: or
To:    Department of Consumer and Regulatory Affairs
To:    Washington, D.C.  20001

We, the undersigned natural persons of the age of eighteen years,

The address, including street and number, of the initial registered office of the corporation is c/o C T Corporation System, 1030 15th Street, N.W., Washington, D.C. 20005, and the name of its initial registered agent at such address is C T Corporation System.

Crescendo is used in the web pages at http://mcentury.citi.do.ca along with a growing number of others. One very interesting use of Crescendo occurs on the Music Theory Online publication, a serious scholarly music resources. http://rism.harvard.edu/RISM/

* About Hill Associates
* HAI Products and Services Catalog
* Datacomm/2000-ED Series
* Contacting Hill Associates
* Employment Opportunities
2808(continued):
2809:
2810:  [24] _____, "Introduction to the STD Notes," RFC 1311, USC/Infor
2810(continued):

"yy' on a line without 'yyyy' found at line 3210:
3208:     the prefix, all attributes remaining in the OR address s
3208(continued):
3209:     encoded on the LHS. This is to ensure a reversible mapp
3209(continued):
3210:     ing. For
3210(continued):
3211:     example, if there is an address /S=XX/O=YY/ADMD=A/C=NN/
3211(continued):
3212:     on the LHS.

'yy' on a line without 'yyyy' found at line 3211:
3209:     encoded on the LHS. This is to ensure a reversible mapp
3209(continued):
3210:     ing. For
3210(continued):
3211:     example, if there is an address /S=XX/O=YY/ADMD=A/C=NN/
3211(continued):
3212:     on the LHS.

'yy' on a line without 'yyyy' found at line 3317:
3315:
3316:     C          = "XX"
3317:     ADMD       = "YY"
3318:     O          = "ZZ"
3319:     "RFC-822"  = "Smith(a)ZZ.YY.XX"

'yy' on a line without 'yyyy' found at line 3319:
3317:     ADMD       = "YY"
3318:     O          = "ZZ"
3319:     "RFC-822"  = "Smith(a)ZZ.YY.XX"
3320:
3321:     This is mapped first to an RFC 822 address, and then back to
3321(continued):
'yy' on a line without 'yyyy' found at line 3325:
3323:
3324: C = "XX"
3325: ADMD = "YY"
3326: O = "ZZ"
3327: Surname = "Smith"

UTCTime found at line 1705:
1703: "yen*(165)"
1704:
1705: 3.3.5. UTCTime
1706:
1707: Both UTCTime and the RFC 822 822.date-time syntax contain: Ye
1707(continued):
1708(continued): ar,
1709: (technically a time differential in UTCTime). 822.date-time
1709(continued): also

UTCTime found at line 1709:
1707: Both UTCTime and the RFC 822 822.date-time syntax contain: Ye
1707(continued):
1708(continued): ar,
1709: Month, Day of Month, hour, minute, second (optional), and Tim
1709(continued): ezone
1710: (technically a time differential in UTCTime). 822.date-time
1710(continued): also
1711: contains an optional day of the week, but this is redundant.
1711(continued): With
1711(continued): the exception of Year, a symmetrical mapping can be made betw
1711(continued): een

UTCTime found at line 1717:
1715: In practice, a gateway will need to parse various illegal
1715(continued): variants
1716(continued): on 822.date-time. In cases where 822.date-time cannot be
1716(continued): parsed,
1717: it is recommended that the derived UTCTime is set to the v
1717(continued): alue at
1718: the time of translation. Such errors may be noted in an R
1718(continued): FC 822
1719: comment, to aid detection and correction.
When mapping to X.400, the UTCTime format which specifies the timezone offset shall be used.

RFC 822, as modified by RFC 1123, requires use of a four digit year. Note that the original RFC 822 uses a two digit date, which is no longer legal. UTCTime uses a two digit date. To map a year from RFC 822 to X.400, simply use the last two digits. To map a year from X.400 to RFC 822, assume that the two digit year refers to a year in

---

C=xx; ADMD=yyy; PRMD=zzz; O=ooo; OU=uuu; DD.Dnet=net;
DD.Mail-11=route::node::localpart;

C=xx; ADMD=yyy; PRMD=zzz; O=ooo; OU=uuu; DD.Dnet=net;
DD.Mail-11=node-clns::localpart;

xx = country code of the gateway performing the conversion
ion
yyy = Admd of the gateway performing the conversion
zzz = Prmd of the gateway performing the conversion
ooo = Organisation of the gateway performing the conversion
ion

---

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916:       DD.Mail-11=route::node::localpart;
917:

’y’ on a line without ‘yyyy’ found at line 918:
916:       DD.Mail-11=route::node::localpart;
917:
918:   (see sect. 5.2 for explication of ‘xx’, ‘yyy’, ‘zzz’, ‘ooo’, ‘uuu’
918(continued): ‘, ‘net’)
919:
920:     maps into

’y’ on a line without ‘yyyy’ found at line 926:
924:     and for DECnet/OSI addresses
925:
926:       C=xx; ADMD=yyy; PRMD=zzz; 0=ooo; OU=uuu; DD.Dnet=net;
927:       DD.Mail-11=node-clns::localpart;
928:

’y’ on a line without ‘yyyy’ found at line 937:
935:     described into section 5.4 apply:
936:
937:       C=xx; ADMD=yyy; PRMD=www; DD.Dnet=net;
938:       DD.Mail-11=route::node::localpart;
939:

’y’ on a line without ‘yyyy’ found at line 942:
940:     maps into
941:
942:       gwnode::gw"C=xx;ADMD=yyy;PRMD=www;DD.Dnet=net;
943:       DD.Mail-11=route::node::localpart;"
944:

’y’ on a line without ‘yyyy’ found at line 961:
959:     Again for DECnet/OSI addresses:
960:
961:       C=xx; ADMD=yyy; PRMD=www; DD.Dnet=net;
962:       DD.Mail-11=node-clns::localpart;
963:

’y’ on a line without ‘yyyy’ found at line 966:
964:     maps into
965:
966:       gwnode::gw"C=xx;ADMD=yyy;PRMD=www;DD.Dnet=net;
967:       DD.Mail-11=node-clns::localpart;"
968:

’y’ on a line without ‘yyyy’ found at line 1095:
1093:   maps into
1094: C=xx; ADMD=yyy; DD.Dnet=net;
1095: DD.Mail-11=route::gwnode::gw(p)(q)x400-text-address(q);

'yy' on a line without 'yyyy' found at line 1104:
1102: maps into

1104: C=xx; ADMD=yyy; DD.Dnet=net;
1105: DD.Mail-11=gwnode::gw(p)(q)x400-text-address(q);
1106:

+=+=+=+=+= File rfc2167.txt +=+=+=+=+=
2digit found at line 1026:
1024:
1025: year = 4digit
1026: month = 2digit
1027: day = 2digit
1028: hour = 2digit

2digit found at line 1027:
1025: year = 4digit
1026: month = 2digit
1027: day = 2digit
1028: hour = 2digit
1029: minute = 2digit

2digit found at line 1028:
1026: month = 2digit
1027: day = 2digit
1028: hour = 2digit
1029: minute = 2digit
1030: second = 2digit

2digit found at line 1029:
1027: day = 2digit
1028: hour = 2digit
1029: minute = 2digit
1030: second = 2digit
1031: milli-second = 3digit

2digit found at line 1030:
1028: hour = 2digit
1029: minute = 2digit
1030: second = 2digit
1031: milli-second = 3digit
1032: host-name = dns-char *(dns-char / ".")
2digit found at line 3186:
3184:
3185:     year = 4digit
3186:     month = 2digit
3187:     day = 2digit
3188:     hour = 2digit

2digit found at line 3187:
3185:     year = 4digit
3186:     month = 2digit
3187:     day = 2digit
3188:     hour = 2digit
3189:     minute = 2digit

2digit found at line 3188:
3186:     month = 2digit
3187:     day = 2digit
3188:     hour = 2digit
3189:     minute = 2digit
3190:     second = 2digit

2digit found at line 3189:
3187:     day = 2digit
3188:     hour = 2digit
3189:     minute = 2digit
3190:     second = 2digit
3191:

2digit found at line 3190:
3188:     hour = 2digit
3189:     minute = 2digit
3190:     second = 2digit
3191:
3192:

2000 found at line 1229:
1227:     C -class rwhois.net domain host
1228:     S %class domain:description:Domain information
1229:     S %class domain:version:19970103101232000
1230:     S %class
1231:

2000 found at line 3626:
3624:     soa  000800h
3625:     status  001000h
3626:     xfer  002000h
3627:     X  004000h
3628:
2000 found at line 427:
425:                                          Server: MyAgent/1.0
426:                                          ATM-Service: CBR
428:                                          Content-type: video/mpeg
428(continued):
429:

2000 found at line 464:
462:                                          Server: MyAgent/1.0 ATM.
462(continued): address
463:                                          ATM-Service: CBR
465:                                          Content-type: video/mpeg
465(continued):
466:

2000 found at line 292:
290:     a setuid file anywhere in the system, including those on NF
290(continued): S
291:     mounted partitions.
292:     "find / -group kmem -perm -2000 -print" will do the same fo
292(continued): r kmem
293:     group permissions.
294:

2000 found at line 495:
493:
494:     Instead, for this example, set the primary’s serial number to
494(continued):
495:     2000000000, and wait for the secondary servers to update to t
495(continued): hat
496:     zone. The value 2000000000 is chosen as a value a lot bigger
496(continued): than
497:     the current value, but less that 2^31 bigger (2^31 is 2147483
497(continued): 648).

2000 found at line 496:
494:     Instead, for this example, set the primary’s serial number to
494(continued):
495:     2000000000, and wait for the secondary servers to update to t
495(continued): hat
496:     zone. The value 2000000000 is chosen as a value a lot bigger
496(continued): than
497:     the current value, but less that 2^31 bigger (2^31 is 2147483
497(continued): 648).
498: This is then an increment of the serial number [RFC1982].

2000 found at line 502:
500: Next, after all servers needing updating have the zone with t
500(continued): hat
501: serial number, the serial number can be set to 4000000000.
502: 4000000000 is 2000000000 more than 2000000000 (fairly clearly
502(continued): ), and
503:
504:

century found at line 587:
585: Rens Troost
586: New Century Systems
587: 324 East 41st Street #804
588: New York, NY, 10017 USA

century found at line 593:
591: Phone: +1 (212) 557-2050
592: Fax: +1 (212) 557-2049
593: EMail: rens@century.com
594:
595:

yy' on a line without 'yyyy' found at line 131:
129: C: A0001 AUTHENTICATE CRAM-MD5
130: S: +PDE4OTyuNjkh3MTcwOTUyQHBvc3RvZzY2UucmVzdG9uLmljaS5uZX
130(continued): Q+
131: C: dGl1TIG5MTNhNjAyZzd1ZGJ3YTQ5NW10ZTlNzNGQzODkw
132: S: A0001 OK CRAM authentication successful
133:

yy' on a line without 'yyyy' found at line 161:
159:        AUTHENTICATE command (or the similar POP3 AUTH command), y
159(continued):         ielding
160:
161:             dGltIGI5MTNhNjAyYzdlZGE3YTQ5NWI0ZTZlNzMzNGQzODkw
162:
163:

'yy' on a line without 'yyyy' found at line 2118:
2116:                                         The text version is sent.
2116(continued):
2117:
2118:           file /ftp/rfc/rfcnnnn.yyy     where 'nnnn' is the RFC n
2118(continued):              umber.
2119:                   and 'yyy' is 'txt' or 'ps
2119(continued):                '.
2120:

'yy' on a line without 'yyyy' found at line 2119:
2117:
2118:           file /ftp/rfc/rfcnnnn.yyy     where 'nnnn' is the RFC n
2118(continued):              umber.
2119:                   and 'yyy' is 'txt' or 'ps
2119(continued):                '.
2120:
2121:           help                          to get information on how
2121(continued):                 to use

2000 found at line 9:
7:  Network Working Group                        Internet Architectu
7(continued):           re Board
8:  Request for Comments: 2200                             J. Postel
8(continued):                , Editor
9(continued):                 une 1997
10:  1720, 1610, 1600, 1540, 1500, 1410, 1360,                       J
11:  1280, 1250, 1200, 1140, 1130, 1100, 1083
12:  1000
13:  920:
15:  921(continued):                9
16:  922:
17:  923:        This is an information document and does not spec
18:  923(continued):                 y any

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2000 found at line 1096:
1094:        GSS_S_GAP_TOKEN                 0x00000010
1095:        GSS_S_BAD_MECH                  0x00010000
1096:        GSS_S_BAD_NAME                  0x00020000
1097:        GSS_S_BAD_NAMETYPE              0x00030000
1098:        GSS_S_BAD_BINDINGS              0x00040000

2000 found at line 1113:
1111:        GSS_S_UNAVAILABLE               0x00100000
1112:        GSS_S_DUPLICATE_ELEMENT         0x00110000
1113:        GSS_S_NAME_NOT_MN               0x00120000
1114:        GSS_S_CALL_INACCESSIBLE_READ   0x00130000
1115:        GSS_S_CALL_INACCESSIBLE_WRITE  0x00140000
1116:        GSS_S_CALL_BAD_STRUCTURE        0x00150000

2000 found at line 1115:
1113:        GSS_S_NAME_NOT_MN               0x00120000
1114:        GSS_S_CALL_INACCESSIBLE_READ   0x00130000
1115:        GSS_S_CALL_INACCESSIBLE_WRITE  0x00140000
1116:        GSS_S_CALL_BAD_STRUCTURE        0x00150000

(yy) on a line without ‘yyyy’ found at line 292:
290:     Date stamp (YMMDD)
291:
292:     available for transmission.
293:
294:     A file qualifier indicating the date the Virtual File was made

(yy) on a line without ‘yyyy’ found at line 1866:
1864: | 1 | SFIDDSN | Virtual File Dataset Name | V
1864(continued): | X(26) |
1865: | 27 | SFIDRSV1 | Reserved | F
1865(continued): | X(9) |
1866: | 36 | SFIDDATE | Virtual File Date stamp, (YYMMDD) | V
1866(continued): | X(6) |
1867: | 42 | SFIDTIME | Virtual File Time stamp, (HHMMSS) | V
1867(continued): | X(6) |
1868: | 48 | SFIDUSER | User Data | V
1868(continued): | X(8) |

(yy) on a line without ‘yyyy’ found at line 1895:
1893:     SFIDDATE  Virtual File Date stamp
1893(continued): | tring(6) |
1894:     Format: ‘YYMMDD’ 6 decimal digits representing the year, m
onth and day respectively [ISO-8601].

EERPDSN Virtual File Dataset Name | V
X(26) |

Reserved | F
X(9) |

Virtual File Date stamp, (YYMMDD) | V
X(6) |

Virtual File Time stamp, (HHMMSS) | V
X(6) |

User Data | V
X(8) |

‘yy’ on a line without ‘yyyy’ found at line 2394:

Format: ’YYMMDD’ 6 decimal digits representing the year, month

and day respectively [ISO-8601].

Since the ODETTE-FTP only uses this information to identify a particular Virtual File it will continue to operate correctly in the year 2000 and beyond.

The User Monitor may use the Virtual File Date attribute in local processes involving date comparisons and calculations. Any such use falls outside the scope of this protocol and year 2000 handling is a local implementation issue.
1947(continued):    s is a
1948:         draft paper, currently available at http://
1949(continued):     html.
1950:         Cited by permission of the author; do not quote or cite w
1950(continued):     ithout
1951:             permission.

2-digit found at line 424:
422:
423:     That is, exactly <N> occurrences of <element>. Thus 2DIGIT
423(continued):     is a
424:     2-digit number, and 3ALPHA is a string of three alphabetic
425:     characters.
426:

2digit found at line 423:
421:     <n>*<n>element
422:
423:     That is, exactly <N> occurrences of <element>. Thus 2DIGIT
423(continued):     is a
424:     2-digit number, and 3ALPHA is a string of three alphabetic
425:     characters.

2000 found at line 862:
860:
861:   1997
863:
864:   71,618 mailing lists registered at Liszt, a mailing list di
864(continued):    rectory

2digit found at line 3555:
3553: ;; Timestamp in UTC
3554:
3555:     time-day     = 2DIGIT ;; 01-31
3556:
3557:     time-hour    = 2DIGIT ;; 00-23

2digit found at line 3557:
3555:     time-day     = 2DIGIT ;; 01-31
3556:
3557:     time-hour    = 2DIGIT ;; 00-23
3558:
3559:     time-minute  = 2DIGIT ;; 00-59

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2digit found at line 3559:
3557:     time-hour          = 2DIGIT ;; 00-23
3558:
3559:     time-minute        = 2DIGIT ;; 00-59
3560:
3561:     time-month         = 2DIGIT ;; 01-12
3562:
2digit found at line 3561:
3559:     time-minute        = 2DIGIT ;; 00-59
3560:
3561:     time-month         = 2DIGIT ;; 01-12
3562:
3563:     time-second        = 2DIGIT ;; 00-60
2digit found at line 3563:
3561:     time-month         = 2DIGIT ;; 01-12
3562:
3563:     time-second        = 2DIGIT ;; 00-60
3564:
3565:     time-subsecond     = *DIGIT

2000 found at line 2217:
2215:         criteria):  
2216:             AND COMPARE "modtime" "+i;octet" "19951206103400"
2217:             COMPARE "modtime" "-i;octet" "19960112000000"
2218:     refers to all entries modified between 10:34 December 6 19
2218(continued):                95 and
2219:     midnight January 12, 1996 UTC.

 UTCTime found at line 1300:
1298:     Values in this syntax are encoded as if they were printable s
1299(continued):                trings
1300:     with the strings containing a UTCTime value.  This is histori
1300(continued):                cal; new
1301:     attribute definitions SHOULD use GeneralizedTime instead.
1302:

2000 found at line 1923:
1921:     snmpFrameworkMIB MODULE-IDENTITY
1923:         LAST-UPDATED "97112000000Z"            -- 20 November 1997
1923(continued):
1924:         ORGANIZATION "SNMPv3 Working Group"
1925:         CONTACT-INFO "WG-email:   snmpv3@tis.com"
RFC 2626  The Internet and the Millennium Problem (Year 2000)  June 1999

+++++++== File rfc2262.txt ++++===
2000  found at line 818:
816:
817:   snmpMPDMIB MODULE-IDENTITY
818:     LAST-UPDATED "97112000002Z"  -- 20 November 1997
818(continued):
819:     ORGANIZATION "SNMPv3 Working Group"
820:     CONTACT-INFO "WG-email: snmpv3@tis.com"

+++++++== File rfc2264.txt ++++===
2000  found at line 1715:
1713:
1714:   snmpUsmMIB MODULE-IDENTITY
1715:     LAST-UPDATED "97112000002Z"  -- 20 Nov 1997, midnight
1715(continued):
1716:     ORGANIZATION "SNMPv3 Working Group"
1717:     CONTACT-INFO "WG-email: snmpv3@tis.com"

+++++++== File rfc2265.txt ++++===
2000  found at line 554:
552:
553:   snmpVacmMIB MODULE-IDENTITY
554:     LAST-UPDATED "97112000002Z"  -- 20 Nov 1997, midnight
554(continued):
555:     ORGANIZATION "SNMPv3 Working Group"
556:     CONTACT-INFO "WG-email: snmpv3@tis.com"

+++++++== File rfc2271.txt ++++===
2000  found at line 1923:
1921:
1922:   snmpFrameworkMIB MODULE-IDENTITY
1923:     LAST-UPDATED "97112000002Z"  -- 20 November 1997
1923(continued):
1924:     ORGANIZATION "SNMPv3 Working Group"
1925:     CONTACT-INFO "WG-email: snmpv3@tis.com"

+++++++== File rfc2272.txt ++++===
2000  found at line 818:
816:
817:   snmpMPDMIB MODULE-IDENTITY
818:     LAST-UPDATED "97112000002Z"  -- 20 November 1997
818(continued):
819:     ORGANIZATION "SNMPv3 Working Group"
820:     CONTACT-INFO "WG-email: snmpv3@tis.com"

+++++++== File rfc2274.txt ++++===
2000  found at line 1715:
1713:

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2000 found at line 554:
552: snmpUsmMIB MODULE-IDENTITY
553: LAST-UPDATED "9711200000Z" -- 20 Nov 1997, midnight
554: ORGANIZATION "SNMPv3 Working Group"
555: CONTACT-INFO "WG-email: snmpv3@tis.com"

+++++++ File rfc2280.txt ++++++++ 2000 found at line 2119:
2117: missing, they default to:
2118: flap_damp(1000, 2000, 750, 900, 900, 20000)
2120: That is, a penalty of 1000 is assigned at each route flap, then
2121: (continued): e route

2000 found at line 2122:
2120: That is, a penalty of 1000 is assigned at each route flap, then
2121: (continued): e route
2122: is suppressed when penalty reaches 2000. The penalty is reduced
2123: (continued): in half after 15 minutes (900 seconds) of stability regardless of
2124: whether the route is up or down. A suppressed route is reused
2125: (continued): when

+++++++ File rfc2281.txt ++++++++ 1900 found at line 854:
852: Santa Clara, CA 95054
853: Phone: (408) 327-1900
855: EMail: tli@juniper.net
856:
861: Santa Clara, CA 95054
862: Phone: (408) 327-1900
864: EMail: cole@juniper.net

1900 found at line 863:
861:     Santa Clara, CA 95054
862:     Phone: (408) 327-1900
864:     EMail: cole@juniper.net
865:

+=+=+=+=+= File rfc2287.txt +=+=+=+=+=

1437: DESCRIPTION
1438:     "The full path and filename of the process.
1440:     be returned for process ‘myyproc’ whose execution
1441:     path is ‘/opt/MYYpkg/bin/myyproc’.”

1442: ::= { sysApplElmtRunEntry 7 }

1443:

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For example, "/opt/MYYpkg/bin/myyproc" would be returned for process ‘myyproc’ whose execution path was "/opt/MYYpkg/bin/myyproc.

 ::= { sysApplElmtPastRunEntry 6 }

#define ND_NA_FLAG_ROUTER 0x80000000
#define ND_NA_FLAG_SOLICITED 0x40000000
#define ND_NA_FLAG_OVERRIDE 0x20000000
else /* BYTE_ORDER == LITTLE_ENDIAN */
#define ND_NA_FLAG_ROUTER 0x00000080

Date: Wed, 20 Sep 1995 00:19:00 (EDT) -0400
From: Joe Recipient <Joe_Recipient@mega.edu>
Message-Id: <199509200019.12345@mega.edu>
Subject: Disposition notification
To: Jane Sender <Jane_Sender@huge.com>

Network Working Group                        Internet Architectu
Request for Comments: 2300                             J. Postel
1780, 1720, 1610, 1600, 1540, 1500, 1410,
1360, 1280, 1250, 1200, 1140, 1130, 1100, 1083

NS2.XX.EXAMPLE.  600 IN NXT XX.EXAMPLE. NXT A NXT
SIG
NS2.XX.EXAMPLE.  600 IN SIG NXT ... XX.EXAMPLE. ...
EXAMPLE.       65799 IN NS NS1.YY.EXAMPLE.
EXAMPLE. 65799 IN NS NS2.YY.EXAMPLE.
EXAMPLE. 65799 IN SIG NS XX.EXAMPLE. ...

'yy' on a line without 'yyyy' found at line 874:
NS2.XX.EXAMPLE. 600 IN SIG NXT XX.EXAMPLE. ...

'yy' on a line without 'yyyy' found at line 879:
XX.EXAMPLE. 65800 IN KEY 0x4100 1 1 ...
XX.EXAMPLE. 65800 IN SIG KEY XX.EXAMPLE. ...

'yy' on a line without 'yyyy' found at line 880:
NS1.YY.EXAMPLE. 65799 IN A 10.100.0.1
NS2.YY.EXAMPLE. 65799 IN A 10.100.0.2
NS3.YY.EXAMPLE. 65799 IN A 10.100.0.2

'yy' on a line without 'yyyy' found at line 881:
NS1.YY.EXAMPLE. 65799 IN A 10.100.0.1
NS2.YY.EXAMPLE. 65799 IN A 10.100.0.2
NS3.YY.EXAMPLE. 65799 IN A 10.100.0.2

'yy' on a line without 'yyyy' found at line 882:
NS1.YY.EXAMPLE. 65799 IN A 10.100.0.2
NS2.YY.EXAMPLE. 65799 IN A 10.100.0.2
NS3.YY.EXAMPLE. 65799 IN A 10.100.0.2

'yy' on a line without 'yyyy' found at line 883:

2000 found at line 805:
$ORIGIN XX.EXAMPLE.
@ IN SOA NS1.XX.EXAMPLE. HOSTMATER.XX.EXA
MPLE. ( 1997102000 ; serial
1800 ; refresh (30 mins)
900 ; retry (15 mins)
Sending agents MUST encode signing time through the year 2049 as UTCTime; signing times in 2050 or later MUST be encoded as GeneralizedTime. Agents MUST interpret the year field (YY) as follows: if YY is greater than or equal to 50, the year is interpreted as 19YY; if YY is less than 50, the year is interpreted as 20YY.

GeneralizedTime. Agents MUST interpret the year field (YY) as follows: if YY is greater than or equal to 50, the year is interpreted as 19YY; if YY is less than 50, the year is interpreted as 20YY.

2.5.2 S/MIME Capabilities Attribute

UTCTime found at line 268:

Sending agents MUST encode signing time through the year 2049 as UTCTime; signing times in 2050 or later MUST be encoded as GeneralizedTime. Agents MUST interpret the year field (YY) as follows: if YY is greater than or equal to 50, the year is interpreted as 19YY; if YY is less than 50, the year is interpreted as 20YY.

1900 found at line 1972:
1970: Mountain View, CA  94043
1971:
1972:     Phone: (415) 254-1900
1973:     EMail: repka@netscape.com
1974:

1900 found at line 1049:
1047:     Mountain View, CA  94043
1048:
1049:     Phone: (415) 254-1900
1050:     EMail: jsw@netscape.com
1051:

Examples:

2digit found at line 906:
904:     smpte-type   =   "smpte" | "smpte-30-drop" | "smpte-25"
905:           ; other timecodes may be added
905(continued):   d
906:     smpte-time   =   1*2DIGIT ":" 1*2DIGIT ":" 1*2DIGIT [ ":" 1*2
906(continued):     DIGIT ]
907:           [ "." 1*2DIGIT ]
908:

Examples:

2digit found at line 940:
938:     npt-hhmmss   =   npt-hh ":" npt-mm ":" npt-ss [ "." *DIGIT ]
939:     npt-hh       =   1*DIGIT     ; any positive number
940:     npt-mm       =   1*2DIGIT    ; 0-59
941:     npt-ss       =   1*2DIGIT    ; 0-59
942:

Examples:
native IP DLC, this field is not used to convey a port number
replies; moreover, the zero setting is not used. IANA has re
port numbers 12000 through 12004 for use in these two fields
by the
native IP DLC; use of these port numbers allows prioritization
n in the
IP network. For more details of the use of these fields, see
2.6.1,

At an intermediate HPR node, link activation failure can be re
with sense data X’080100000’ or X’800200000’. At a node with route-
selection responsibility, such failure can be reported with sense
data X’80140001’.

The 5 UDP port numbers, 12000-12004 (decimal), have been assi
The Internet Assigned Number Authority (IANA). Four of these numbers are used for ANR-routed network layer packets (NLPs) and correspond to the APPN transmission priorities (network, 1200; high, 12002; medium, 12003; and low, 12004), and one port number (12004) is used for a set of LLC commands (i.e., XID, TEST, DISC, and DM) and function-routed NLPs (i.e., XID_DONE_RQ and XID_DONE_RSP). The source port number is not relevant. That is, the firewall should accept traffic with the IP addresses of the HPR/IP nodes and destination port numbers in the range 12000 to 12004. Second, the possibility exists for an attack using forged UDP datagrams; such attacks could cause the RTP connection to fail or even introduce delays.

```
0x00           Command Reject        0x10030000
0x01        Intervention Required    0x08020000
0x02           Operation Check       0x10050000
```

* video/vnd.avi; codec=XXX identifies a specific video codec (i.e., XXX) within the AVI Registry.

* audio/vnd.wave; codec=YYY identifies a specific audio codec (i.e., YYY) within the WAVE Registry.
'yy' on a line without 'yyyy' found at line 31:
29:       XXX) within the AVI Registry.
30:     * audio/vnd.wave; codec=YYY identifies a specific audio codec
30(continued):
31:       (i.e., YYY) within the WAVE Registry.
32:
33:     Appendix A and Appendix B provides an authoritative reference
33(continued):  for the

2000 found at line 354:
352:     Compaq Computer Corporation
353:       20555 SH 249
354:     Houston, TX 77269-2000 USA
355:
356:     A.6 IBM CVSD

2000 found at line 1474:
1472:     PO Box 582
1473:     Stellenbosch Stellenbosch South Africa
1474:       27 21 888 2000
1475:
1476:     A.75 DF GSM610

2000 found at line 1487:
1485:     PO Box 582
1486:     Stellenbosch 7600 South Africa
1487:       27 21 888 2000
1488:
1489:     A.76 ISIAudio

2000 found at line 1545:
1543:     4900 Old Ironsides Drive
1544:     Santa Clara, California 95054 USA
1545:       (408) 492-2000
1546:
1547:     A.79 Dolby AC3 SPDIF

2000 found at line 1993:
1991:     A.104 DVM
1992:
1993:       WAVE form Registration Number (hex): 0x2000
1994:       Codec ID in the IANA Namespace: audio/vnd.wave;codec=2
1994(continued):       000
1995:       WAVE form wFormatTag ID: WAVE_FORMAT_DVM

2000 found at line 1994:
1992:
1993:       WAVE form Registration Number (hex): 0x2000
1994: Codec ID in the IANA Namespace: audio/vnd.wave;codec=2
1994(continued): 000
1995: WAVE form wFormatTag ID: WAVE_FORMAT_DVM
1996: Contact:

2000 found at line 3180:
3178: 707 California Street
3179: Mountain View, California 94041 USA
3180: 650-526-2000
3181:
3182:

2000 found at line 3211:
3209: 707 California Street
3210: Mountain View, California 94041 USA
3211: 650-526-2000
3212:
3213: 8.83 TrueMotion 2.0

2000 found at line 3239:
3237: 707 California Street
3238: Mountain View, California 94041 USA
3239: 650-526-2000
3240:
3241:

File rfc2368.txt

Two-digit found at line 240:
238: scheme is not a problem: those characters may appear in mailt
238(continued): o URLs,
239: they just may not appear in unencoded form. The standard URL
239(continued): encoding
240: mechanisms ("%" followed by a two-digit hex number) must be u
240(continued): sed in
241: certain cases.
242:

File rfc2373.txt

Digit found at line 1192:
1190: IPv4address = 1*3DIGIT "." 1*3DIGIT "." 1*3DIGIT "." 1*3DI
1190(continued): GIT
1191:
1192: IPv6prefix = hexpart "/" 1*2DIGIT
1193:
1194: hexpart = hexseq | hexseq "::" [ hexseq ] | "::" [ hexseq
1194(continued): ]
2digit found at line 1078:
1076:     response = code [index] [field] text CRLF
1077:     code = [-] LDIG 2DIGIT ":"
1079:     index = number ""
1080:     field = 1*SPACE attribute "":" 1*SPACE

2digit found at line 133:
131:     error-response = error-code SP *TCHAR CRLF
133:     error-code = ("4" / "5") 2DIGIT
134:     Note that in ABNF, strings literals are case insensitive. Th
135(continued): at

(yy' on a line without 'yyyy' found at line 107:
105:      a/TPg7JpJhxyendzWTBEX0cxOnKpJgBzi4diinWGdkF8kjdFncQZxZeYGejm
105(continued): JL
106:     ZeGl9i2icVqau1T6F5iJ90m6mvuTS4K05M0vDkQ4XUtwwK0zrcd3iq9u
106(continued): is
107:     F81M10IcR71EewwcLp7tuNnkM3uNna3F2JQFo97Vriy/X14/f1cf5Wwz+yym7
107(continued): PH
108:     hhx4dbgYKAAA7"
109:     ALT="Larry">

(yy found at line 9:
7:  Network Working Group Informational
7(continued): re Board
8(continued): . Postel
9(continued): Reynolds
10:  1800, 1780, 1720, 1610, 1600, 1540, 1500, 1410, Editors
10(continued): September
11:  1360, 1280, 1250, 1200, 1140, 1130, 1100, 1083
11(continued): ber 1998

2000 found at line 832:
830:
831:     Attribute #2:
832: 0x00020004 (AF = 0, type = SA Duration, length = 4 bytes)
832(continued):
833: 0x00015180 (value = 0x15180 = 86400 seconds = 24 hours)
834:

2000 found at line 848:
846:
847: Attribute #4:
848: 0x00020004 (AF = 0, type = SA Duration, length = 4 bytes)
848(continued):
849: 0x000186A0 (value = 0x186A0 = 100000KB = 100MB)
850:

+++ File rfc2409.txt +++
2000 found at line 1257:
1255: Field Size: 185
1256: Group Prime/Irreducible Polynomial:
1257: 0x020000000000000000000000000000200000000000
1257(continued): 000001
1258: Group Generator One: 0x18
1259: Group Curve A: 0x0

+++ File rfc2412.txt +++
2000 found at line 1689:
1687: As of early 1996, it appears that for 90 bits of cryptography
1687(continued): c
1688: strength, one should use a modular exponentiation group modulus
1688(continued): of
1689: 2000 bits. For 128 bits of strength, a 3000 bit modulus is required.
1690:
1691: 3. Specifying and Deriving Security Associations

2000 found at line 2761:
2759: Length (32 bit words): 6
2760: Data (hex):
2761: 02000000 00000000 00000000 00000020 00000000 00000000
2761(continued): 1
2762: Generator:
2763: X coordinate: 22 (decimal)

2000 found at line 2976:
2974:
2975: [Stinson] Stinson, Douglas, Cryptography Theory and Practice,
2975(continued): CRC
2-digit found at line 372:
370: and minutes (e.g., +hh:mm). The time is specified as a 24-hour clock.
370(continued):  r clock.
371: Hour values are from 00 to 23, and minute values are from 00
371(continued): to 59.
372: Hour and minutes are 2-digits with high order zeroes required
372(continued): to
373: maintain digit count. The extended format for ISO 8601 UTC of
373(continued): fsets
374: MUST be used. The extended format makes use of a colon charac
374(continued): ter as a
The value is defined by the following notation:

```
2digit found at line 379:
377:     The value is defined by the following notation:
378:     time-hour = 2DIGIT ;00-23
379:     time-minute = 2DIGIT ;00-59
380:     utc-offset = ("+" / "-") time-hour ":" time-minute
```

```
2digit found at line 380:
379:     time-hour = 2DIGIT ;00-23
380:     time-minute = 2DIGIT ;00-59
381:     utc-offset = ("+" / "-") time-hour ":" time-minute
382:
```

```
2digit found at line 2051:
2049:     utc-offset-value = ("+" / "-") time-hour ":" time-minute
2050:     time-hour = 2DIGIT ;00-23
2051:     time-minute = 2DIGIT ;00-59
2052:
2053:
2054:     5. Differences From vCard v2.1
```

```
+++ File rfc2440.txt +++
2000 found at line 3225:
3225:     Encryption Standard. This algorithm will work with (at least)
3225(continued):                 128,
3226:     192, and 256-bit keys. We expect that this algorithm will be
3226(continued): selected
3227:     from the candidate algorithms in the year 2000.
3228:
3229:     12.8. OpenPGP CFB mode
```

```
+++ File rfc2445.txt +++
'yy' on a line without 'yyyy' found at line 2234:
2232:       ( ";" "BYDAY" "=" bywdaylist ) /
2233:       ( ";" "BMONTHDAY" "=" bymodaylist ) /
2234:       ( ";" "BYYEARDAY" "=" byyrdaylist ) /
2235:       ( ";" "BYWEEKNO" "=" bywknoist ) /
2236:       ( ";" "BMONTH" "=" bymloist ) /

'yy' on a line without 'yyyy' found at line 2288:
2286:       ordmoday = 1DIGIT / 2DIGIT ;1 to 31
```
byyrdaylist = yeardaynum / ( yeardaynum *("","" yeardaynum) )
(continued):

yeardaynum = ([plus] ordyrday) / (minus ordyrday)

'yy' on a line without 'yyyy' found at line 2388:
the month.

2387:
2388: The BYYEARDAY rule part specifies a COMMA character (US-ASCII
decimal 44) separated list of days of the year. Valid values are 1 to
366 or

-366 to -1. For example, -1 represents the last day of the ye
(continued):

'yy' on a line without 'yyyy' found at line 2461:
specified FREQ and INTERVAL rule parts, the BYxxx rule parts
(continued): are
(continued): applied to the current set of evaluated occurrences in the fo
allowing
order: BYMONTH, BYWEEKNO, BYYEARDAY, BYMONTHDAY, BYDAY, BYHOUR
(continued): R,
BYMINUTE, BYSECOND and BYSETPOS; then COUNT and UNTIL are eva
(continued): luated.

'yy' on a line without 'yyyy' found at line 6804:
(2000 9:00 AM EDT)June 10;July 10
(continued):
Note: Since none of the BYDAY, BYMONTHDAY or BYYEARDAY comp
(continued): onents
are specified, the day is gotten from DTSTART

'yy' on a line without 'yyyy' found at line 6820:
(2001 9:00 AM EDT)June 10;July 10
(continued):
Note: Since none of the BYDAY, BYMONTHDAY or BYYEARDAY comp
(continued): onents
are specified, the day is gotten from DTSTART

(continued):
Note: Since none of the BYDAY, BYMONTHDAY or BYYEARDAY comp
(continued): onents
are specified, the day is gotten from DTSTART

(2000 9:00 AM EDT)June 10;July 10
(continued):
Note: Since none of the BYDAY, BYMONTHDAY or BYYEARDAY comp
(continued): onents
are specified, the day is gotten from DTSTART

(1997 9:00 AM EST)January 1
(continued):
Note: Since none of the BYDAY, BYMONTHDAY or BYYEARDAY comp
(continued): onents
are specified, the day is gotten from DTSTART

two-digit found at line 1919:
of values. The format for the value type is expressed as the
(continued):
[ISO
8601] complete representation, basic format for a calendar da
t. The
textual format specifies a four-digit year, two-digit month,
and

two-digit day of the month. There are no separator characters between
the year, month and day component text.

two-digit found at line 1920:


two-digit found at line 1920:


two-digit found at line 1920:


two-digit found at line 2610:


two-digit found at line 2610:


two-digit found at line 2610:


two-digit found at line 4583:


Values for latitude and longitude shall be expressed as decimal fractions of degrees. Whole degrees of latitude shall be represented...
by a two-digit decimal number ranging from 0 through 90. Whol

degrees of longitude shall be represented by a decimal number
 ranging
from 0 through 180. When a decimal fraction of a degree is sp

cified,

2digit found at line 1911:
1909:
1910:
1911:   date-month = 2DIGIT ;01-12
1912:   date-mday = 2DIGIT ;01-28, 01-29, 01-30, 01
1912(continued):   -31
1913: ;based on month/year

2digit found at line 1912:
1910:
1911:   date-month = 2DIGIT ;01-12
1912:   date-mday = 2DIGIT ;01-28, 01-29, 01-30, 01
1912(continued):   -31
1913: ;based on month/year
1914:

2digit found at line 2258:
2256: bysecclist = seconds / ( seconds *(""," seconds) )
2257: seconds = 1DIGIT / 2DIGIT ;0 to 59
2259: byminlist = minutes / ( minutes *(""," minutes) )

2digit found at line 2262:
2260: byminlist = minutes / ( minutes *(""," minutes) )
2261: minutes = 1DIGIT / 2DIGIT ;0 to 59
2263: byhrlist = hour / ( hour *(""," hour) )

2digit found at line 2266:
2264: byhrlist = hour / ( hour *(""," hour) )
2265: hour = 1DIGIT / 2DIGIT ;0 to 23
2267: bywdaylist = weekdaynum / ( weekdaynum *(""," weekdaynum) )

2digit found at line 2276:
2274: minus = "-"
2275: ordwk = 1DIGIT / 2DIGIT ;1 to 53
weekday = "SU" / "MO" / "TU" / "WE" / "TH" / "FR" / "SA"

monthdaynum = ([+]|-|ordmoday) / ([+]|-|ordmoday)

ordmoday = 1DIGIT / 2DIGIT ; 1 to 31

byyrdaylist = yeardaynum / ( yeardaynum * ("," yeardaynum) )

yeardaynum = ([+]|-|ordyrday) / ([+]|-|ordyrday)

ordyrday = 1DIGIT / 2DIGIT / 3DIGIT ; 1 to 366

bywknolist = weeknum / ( weeknum * ("," weeknum) )

bymolist = monthnum / ( monthnum * ("," monthnum) )

monthnum = 1DIGIT / 2DIGIT ; 1 to 12

bysplist = setposday / ( setposday * ("," setposday) )

time = time-hour time-minute time-second [time-utc]

time-hour = 2DIGIT ; 00-23

time-minute = 2DIGIT ; 00-59

time-second = 2DIGIT ; 00-60

; The "60" value is used to account for "leap" seconds.

; The "60" value is used to account for "leap" seconds.
1900 found at line 2988:
2986:       DTSTAMP:19970901T1300Z
2987:       DTSTART:19970903T163000Z
2988:       DTEND:19970903T190000Z
2989:       SUMMARY:Annual Employee Review
2990:       CLASS:PRIVATE

2000 found at line 1716:
1714:     The following are examples of this property parameter:
1715: 
1716:       DTSTART;TZID=US-Eastern:19980119T020000
1717: 
1718:       DTEND;TZID=US-Eastern:19980119T030000

2000 found at line 2029:
2027:     New York on January 19, 1998:
2028: 
2029:       DTSTART;TZID=US-Eastern:19980119T020000
2030: 
2031:     Example: The following represents July 14, 1997, at 1:30 PM in New
2031(continued):

2000 found at line 2822:
2820:     Property names, parameter names and enumerated parameter valu
2820(continued):  es are
2821:     case insensitive. For example, the property name "DUE" is the
2821(continued):  same as
2822:     "due" and "Due", DTSTART;TZID=US-Eastern:19980714T120000 is t
2822(continued):  he same
2823:     as DtStart;TzID=US-Eastern:19980714T120000.
2824:

2000 found at line 2823:
2821:     case insensitive. For example, the property name "DUE" is the
2821(continued):  same as
2822:     "due" and "Due", DTSTART;TZID=US-Eastern:19980714T120000 is t
2822(continued):  he same
2823:     as DtStart;TzID=US-Eastern:19980714T120000.
2824:
2825:     4.6 Calendar Components

2000 found at line 3566:
3564:     Time took effect in Fall 1967 for New York City:
3565: 
3566:       DTSTART:19671029T020000
3567: 
3568:       TZOFFSETFROM:-0400
2000 found at line 3631:
3629:       LAST-MODIFIED:19870101T000000Z
3630:       BEGIN:STANDARD
3631:       DTSTART:19971026T020000
3632:       RDATE:19971026T020000
3633:       TZOFFSETFROM:-0400

2000 found at line 3632:
3630:       BEGIN:STANDARD
3631:       DTSTART:19971026T020000
3632:       RDATE:19971026T020000
3633:       TZOFFSETFROM:-0400
3634:       TZOFFSETTO:-0500

2000 found at line 3638:
3636:       END:STANDARD
3637:       BEGIN:DAYLIGHT
3638:       DTSTART:19971026T020000
3639:       DTSTAMP:19971026T020000
3640:       TZOFFSETFROM:-0500
3641:       TZOFFSETTO:-0400

2000 found at line 3647:
3645:       RDATE:19970406T020000
3646:       TZOFFSETFROM:-0500
3647:       TZOFFSETTO:-0400

2000 found at line 3665:
3664:       BEGIN:STANDARD
3665:       DTSTART:19671029T020000
3666:       RRULE:FREQ=YEARLY;BYDAY=-1SU;BYMONTH=10
3667:       TZOFFSETFROM:-0400

2000 found at line 3672:
3670:       END:STANDARD
3671:       BEGIN:DAYLIGHT
3672:       DTSTART:19870405T020000
3673:       RDATE:19870405T020000
3674:       RRULE:FREQ=YEARLY;BYDAY=1SU;BYMONTH=4
3675:       TZOFFSETFROM:-0500

2000 found at line 3688:
3686:       LAST-MODIFIED:19870101T000000Z
3687:       BEGIN:STANDARD
3688:       DTSTART:19671029T020000
3689:       RRULE:FREQ=YEARLY;BYDAY=-1SU;BYMONTH=10
3690:       TZOFFSETFROM:-0400
RFC 2626  The Internet and the Millennium Problem (Year 2000)  June 1999

2000 found at line 3704:
3702:       BEGIN:DAYLIGHT
3703:       DTSTART:19870405T020000
3704:       RRULE:FREQ=YEARLY;BYDAY=1SU;BYMONTH=4;UNTIL=19980404T070000
3705(continued):                Z
3706:       TZOFFSETFROM:-0500

2000 found at line 3721:
3719:       LAST-MODIFIED:19870101T000000Z
3720:       BEGIN:STANDARD
3721:       DTSTART:19671029T020000
3722:       RRULE:FREQ=YEARLY;BYDAY=-1SU;BYMONTH=10
3723:       TZOFFSETFROM:-0400

2000 found at line 3728:
3726:       END:STANDARD
3727:       BEGIN:DAYLIGHT
3728:       DTSTART:19870405T020000
3729:       RRULE:FREQ=YEARLY;BYDAY=1SU;BYMONTH=4;UNTIL=19980404T070000
3729(continued):                Z
3730:       TZOFFSETFROM:-0500

2000 found at line 3735:
3733:       END:DAYLIGHT
3734:       BEGIN:DAYLIGHT
3735:       DTSTART:19990424T020000
3736:       RRULE:FREQ=YEARLY;BYDAY=-1SU;BYMONTH=4
3737:       TZOFFSETFROM:-0500

2000 found at line 5352:
5350:       FREEBUSY;FBTYPE=BUSY-UNAVAILABLE:19970308T160000Z/PT8H30M
5351:       FREEBUSY;FBTYPE=FREE:19970308T160000Z/PT3H,19970308T200000Z
5352(continued):                /PT1H
5353:       FREEBUSY;FBTYPE=FREE:19970308T160000Z/PT3H,19970308T200000Z
5354(continued):                /PT1H,

2000 found at line 5354:
5352:       FREEBUSY;FBTYPE=FREE:19970308T160000Z/PT3H,19970308T200000Z
5352(continued):                /PT1H
5353:       FREEBUSY;FBTYPE=FREE:19970308T160000Z/PT3H,19970308T200000Z
5354(continued):                /PT1H,
5355:       19970308T230000Z/19970309T000000Z
5356:       FREEBUSY;FBTYPE=FREE

Nesser                       Informational                    [Page 257]
2000 found at line 6069:
6067:       RECURRENCE-ID;VALUE=DATE:19960401
6068:       RECURRENCE-ID;RANGE=THISANDFUTURE:19960120T120000Z
6070:  4.8.4.5 Related To
2000 found at line 6507:
6505:       RDATE;TZID=US-EASTERN:19970714T083000
6506:       RDATE;VALUE=PERIOD:19960403T020000Z/19960403T040000Z,
6508:        19960404T010000Z/PT3H
6509:  2000 found at line 6623:
6621:       DTSTART;TZID=US-Eastern:19980101T090000
6623:       RRULE:FREQ=YEARLY;UNTIL=20000131T090000Z;
6624:        BYMONTH=1;BYDAY=SU,MO,TU,WE,TH,FR,SA
6625:       or
6626:       RRULE:FREQ=DAILY;UNTIL=20000131T090000Z;BYMONTH=1
6627:  2000 found at line 6628:
6628:       ==> (1998 9:00 AM EDT)January 1-31
6629:       (1999 9:00 AM EDT)January 1-31
6630:       (2000 9:00 AM EDT)January 1-31
6631:  2000 found at line 6632:
6632:       Weekly for 10 occurrences
2000 found at line 6802:
6800:       (1998 9:00 AM EDT)June 10;July 10
6801:       (1999 9:00 AM EDT)June 10;July 10
6802:       (2000 9:00 AM EDT)June 10;July 10
6803:       (2001 9:00 AM EDT)June 10;July 10
6804:       Note: Since none of the BYDAY, BYMONTHDAY or BYYEARDAY comp
6804(continued):    onents
2000 found at line 6824:
6822:       ==> (1997 9:00 AM EST)January 1
6823:       (1997 9:00 AM EDT)April 10;July 19
2000 found at line 7641:
7639:       BEGIN:STANDARD
7640:       DTSTART:19981025T020000
7641:       RDATE:19981025T020000
7642:       TZOFFSETFROM:-0400
7643:       TZOFFSETTO:-0500

2000 found at line 7647:
7645:       END:STANDARD
7646:       BEGIN:DAYLIGHT
7647:       DTSTART:19990404T020000
7648:       RDATE:19990404T020000
7649:       TZOFFSETFROM:-0500
7650:       TZOFFSETTO:-0400

2000 found at line 7648:
7646:       BEGIN:DAYLIGHT
7647:       DTSTART:19990404T020000
7648:       RDATE:19990404T020000
7649:       TZOFFSETFROM:-0500
7650:       TZOFFSETTO:-0400

2000 found at line 7740:
7738:       BEGIN:VALARM
7739:       ACTION:AUDIO
7740:       TRIGGER:19980403T120000
7741:       ATTACH;FMTTYPE=audio/basic:http://host.com/pub/audio-
7742:        files/ssbanner.aud

2000 found at line 7755:
7753:       PRODID:-//ABC Corporation//NONSGML My Product//EN
7754:       BEGIN:VJOURNAL
7755:       DTSTAMP:19970324T120000Z
7756:       UID:uid5@host1.com
7757:       ORGANIZER:MAILTO:jsmith@host.com

------------- File rfc2446.txt -------------
1900 found at line 3347:
3345:       ORGANIZER:mailto:a@example.com
3346:       DTSTART:19970701T200000Z
3347:       DTSTAMP:19970611T190000Z
3348:       SUMMARY:ST. PAUL SAINTS -VS- DULUTH-SUPERIOR DUKE
3349:       UID:0981234-1234234-23@example.com

1900 found at line 3373:
3371:       BEGIN:VEVENT
3372:       ORGANIZER:mailto:a@example.com
3373:       DTSTAMP:19970612T190000Z
1900 found at line 3659:
3657:     UID:calsrv.example.com-873970198738777@example.com
3658:     SEQUENCE:1
3659:     DTSTAMP:19970613T190000Z
3660:     STATUS:CONFIRMED
3661:     END:VEVENT

1900 found at line 3680:
3678:     ATTENDEE;RSVP=TRUE;TYPE=INDIVIDUAL:Mailto:B@example.com
3679:     ATTENDEE;RSVP=TRUE;TYPE=INDIVIDUAL:Mailto:C@example.com
3680:     DTSTART:19970701T190000Z
3681:     DTEND:19970701T200000Z
3682:     SUMMARY:Discuss the Merits of the election results

1900 found at line 3686:
3684:     UID:calsrv.example.com-873970198738777a@example.com
3685:     SEQUENCE:0
3686:     DTSTAMP:19970611T190000Z
3687:     STATUS:CONFIRMED
3688:     END:VEVENT

1900 found at line 3713:
3711:     ATTENDEE;RSVP=TRUE;TYPE=INDIVIDUAL:Mailto:C@example.com
3712:     DTSTART:19970701T160000Z
3713:     DTEND:19970701T190000Z
3714:     DTSTAMP:19970612T190000Z
3715:     SUMMARY:Discuss the Merits of the election results

1900 found at line 3714:
3712:     DTSTART:19970701T160000Z
3713:     DTEND:19970701T190000Z
3714:     DTSTAMP:19970612T190000Z
3715:     SUMMARY:Discuss the Merits of the election results
3716:     LOCATION:Green Conference Room

1900 found at line 3721:
3719:     UID:calsrv.example.com-873970198738777a@example.com
3720:     SEQUENCE:0
3721:     DTSTAMP:19970611T190000Z
3722:     END:VEVENT
3723:     END:VCALENDAR

1900 found at line 3738:
3736:     ATTENDEE;RSVP=TRUE;TYPE=INDIVIDUAL:Mailto:B@example.com
3737:     ATTENDEE;RSVP=TRUE;TYPE=INDIVIDUAL:Mailto:C@example.com
3738:     DTSTART:19970613T190000Z
3739:     DTEND:19970701T160000Z
3740:     DTEND:19970701T190000Z
1900 found at line 3740:
3738:     DTSTAMP:19970613T190000Z
3739:     DTSTART:19970701T160000Z
3740:     DTEND:19970701T190000Z
3741:     SUMMARY:Discuss the Merits of the election results - changed
3741(continued):                to
3742:       meet B’s schedule

1900 found at line 3769:
3767:     UID:calsrv.example.com-873970198738777@example.com
3768:     SEQUENCE:0
3769:     DTSTAMP:19970614T190000Z
3770:     END:VEVENT
3771:     END:VCALENDAR

1900 found at line 3884:
3882:     SEQUENCE:0
3883:     REQUEST-STATUS:2.0;Success
3884:     DTSTAMP:19970611T190000Z
3885:     END:VEVENT
3886:     END:VCALENDAR

1900 found at line 3906:
3904:     SEQUENCE:0
3905:     STATUS:CONFIRMED
3906:     DTSTAMP:19970611T190000Z
3907:     END:VEVENT
3908:     END:VCALENDAR

1900 found at line 3936:
3934:     SEQUENCE:0
3935:     REQUEST-STATUS:2.0;Success
3936:     DTSTAMP:19970614T190000Z
3937:     END:VEVENT
3938:     END:VCALENDAR

1900 found at line 3967:
3965:     SEQUENCE:0
3966:     REQUEST-STATUS:2.0;Success
3967:     DTSTAMP:19970614T190000Z
3968:     END:VEVENT
3969:     END:VCALENDAR

1900 found at line 4072:
4070:     SEQUENCE:1
4071:     STATUS:CANCELLED
4072:     DTSTAMP:19970613T190000Z
4073:     END:VEVENT
found at line 5193:
5191: to each of the start of each recurring instance. Hence, if th
5191(continued): e
5192: initial "VTODO" calendar component specifies a "DTSTART" prop
5192(continued): erty
5193: value of "19970701T190000Z" and a "DUE" property value of
5194: "19970801T190000Z" the interval of one day which is applied t
5194(continued): o each
5195: recurring instance of the "VTODO" calendar component to deter
5195(continued): mine the

found at line 5194:
5192: initial "VTODO" calendar component specifies a "DTSTART" prop
5192(continued): erty
5193: value of "19970701T190000Z" and a "DUE" property value of
5194: "19970801T190000Z" the interval of one day which is applied t
5194(continued): o each
5195: recurring instance of the "VTODO" calendar component to deter
5195(continued): mine the
5196: "DUE" date of the instance.

found at line 3346:
3344: BEGIN:VEVENT
3345: ORGANIZER:mailto:a@example.com
3346: DTSTART:19970701T200000Z
3347: DTSTAMP:19970611T190000Z
3348: SUMMARY:ST. PAUL SAINTS -VS- DULUTH-SUPERIOR DUKES

found at line 3437:
3435: TZURL:http://zones.stds_r_us.net/tz/America-Chicago
3436: BEGIN:STANDARD
3437: DTSTART:19671029T020000
3438: RRULE:FREQ=YEARLY;BYDAY=-1SU;BYMONTH=10
3439: TZOFFSETFROM:-0500

found at line 3444:
3442: END:STANDARD
3443: BEGIN:DAYLIGHT
3444: DTSTART:19870405T020000
3445: RRULE:FREQ=YEARLY;BYDAY=1SU;BYMONTH=4
3446: TZOFFSETFROM:-0600

found at line 3595:
3593: ATTENDEE;ROLE=NON-PARTICIPANT;RSVP=FALSE:Mailto:E@example.com
3593(continued):
2000 found at line 4194:
4192:   ATTENDEE;TYPE=INDIVIDUAL:Mailto:D@example.com
4193:   DTSTAMP:19970611T190000Z
4194:   DTSTART:19970701T200000Z
4195:   DTEND:19970701T203000Z
4196:   RRULE:FREQ=WEEKLY

2000 found at line 4233:
4231:   DTEND:19980107T124200Z
4232:   FREEBUSY:19980101T180000Z/19980101T190000Z
4233:   FREEBUSY:19980103T020000Z/19980103T050000Z
4234:   FREEBUSY:19980107T020000Z/19980107T050000Z
4235:   FREEBUSY:19980113T000000Z/19980113T010000Z

2000 found at line 4234:
4232:   FREEBUSY:19980101T180000Z/19980101T190000Z
4233:   FREEBUSY:19980103T020000Z/19980103T050000Z
4234:   FREEBUSY:19980107T020000Z/19980107T050000Z
4235:   FREEBUSY:19980113T000000Z/19980113T010000Z
4236:   FREEBUSY:19980115T190000Z/19980115T200000Z

2000 found at line 4236:
4234:   FREEBUSY:19980107T020000Z/19980107T050000Z
4235:   FREEBUSY:19980113T000000Z/19980113T010000Z
4236:   FREEBUSY:19980115T190000Z/19980115T200000Z
4237:   FREEBUSY:19980115T220000Z/19980115T230000Z
4238:   FREEBUSY:19980116T013000Z/19980116T043000Z

2000 found at line 4237:
4235:   FREEBUSY:19980113T000000Z/19980113T010000Z
4236:   FREEBUSY:19980115T190000Z/19980115T200000Z
4237:   FREEBUSY:19980115T220000Z/19980115T230000Z
4238:   FREEBUSY:19980116T013000Z/19980116T043000Z
4239:   END:VFREEBUSY

2000 found at line 4290:
4288:   DTSTAMP:19970613T190000Z
4289:   DTSTART:19970701T080000Z
4290:   DTEND:19970701T200000
4291:   UID:calsrv.example.com-873970198738777@example.com
4292:   END:VFREEBUSY

2000 found at line 4308:
4306:   ATTENDEE:Mailto:B@example.com
4307:   DTSTART:19970701T080000Z
4308:   DTEND:19970701T200000Z
4309:   UID:calsrv.example.com-873970198738777@example.com
4310:   FREEBUSY:19970701T090000Z/PT1H,19970701T140000Z/PT30M
found at line 4340:
4338:     TZURL:http://zones.stds_r_us.net/tz/America-SanJose
4339:     BEGIN:STANDARD
4340:     DTSTART:19671029T020000
4341:     RRULE:FREQ=YEARLY;BYDAY=-1SU;BYMONTH=10
4342:     TZOFFSETFROM:-0700

found at line 4347:
4345:     END:STANDARD
4346:     BEGIN:DAYLIGHT
4347:     DTSTART:19870405T020000
4348:     RRULE:FREQ=YEARLY;BYDAY=1SU;BYMONTH=4
4349:     TZOFFSETFROM:-0800

found at line 4446:
4444:     SUMMARY:IETF Calendaring Working Group Meeting
4445:     DTSTART:19970601T210000Z
4446:     DTEND:19970601T220000Z
4447:     LOCATION:Conference Call
4448:     DTSTAMP:19970526T083000Z

found at line 4473:
4471:     SUMMARY:IETF Calendaring Working Group Meeting
4472:     DTSTART:19970703T210000Z
4473:     DTEND:19970703T220000Z
4474:     LOCATION:Conference Call
4475:     DTSTAMP:19970626T093000Z

found at line 4565:
4563:     SUMMARY:IETF Calendaring Working Group Meeting
4564:     DTSTART:19970901T210000Z
4565:     DTEND:19970901T220000Z
4566:     LOCATION:Building 32, Microsoft, Seattle, WA
4567:     DTSTAMP:19970526T083000Z

found at line 4601:
4599:     SUMMARY:IETF Calendaring Working Group Meeting
4600:     DTSTART:19970715T210000Z
4601:     DTEND:19970715T220000Z
4602:     LOCATION:Conference Call
4603:     DTSTAMP:19970629T093000Z

found at line 4631:
4629:     SUMMARY:Review Accounts
4630:     DTSTART:19980303T210000Z
4631:     DTEND:19980303T220000Z
4632:     LOCATION:The White Room
4633:     DTSTAMP:19980301T093000Z
<table>
<thead>
<tr>
<th>Line</th>
<th>Summary</th>
<th>Start Time</th>
<th>End Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>4662</td>
<td>SUMMARY: Review Accounts</td>
<td>19980303T210000Z</td>
<td>19980303T220000Z</td>
<td>The Usual conference room</td>
</tr>
<tr>
<td>4690</td>
<td>SUMMARY: Review Accounts</td>
<td>19980303T210000Z</td>
<td>19980303T220000Z</td>
<td>The White Room</td>
</tr>
<tr>
<td>4730</td>
<td>SUMMARY: Review Accounts</td>
<td>19980304T180000Z</td>
<td>19980304T200000Z</td>
<td>Conference Room A</td>
</tr>
<tr>
<td>4781</td>
<td>SUMMARY: Review Accounts</td>
<td>19980315T180000Z</td>
<td>19980315T200000Z</td>
<td>Conference Room A</td>
</tr>
<tr>
<td>4811</td>
<td>SUMMARY: Review Accounts</td>
<td>19980304T180000Z</td>
<td>19980304T200000Z</td>
<td>Conference Room A</td>
</tr>
<tr>
<td>4862</td>
<td>SUMMARY: IETF Calendaring Working Group Meeting</td>
<td>19970715T220000Z</td>
<td>19970715T230000Z</td>
<td>Conference Call</td>
</tr>
<tr>
<td>4903</td>
<td>SUMMARY: IETF Calendaring Working Group Meeting</td>
<td>19970601T210000Z</td>
<td>19970601T220000Z</td>
<td>Conference Call</td>
</tr>
</tbody>
</table>
2000 found at line 5018:
5016: UID:calsrv.example.com-873970198738777-00@example.com
5017: SEQUENCE:0
5018: DTSTAMP:19970717T200000Z
5019: STATUS:Needs Action
5020: END:VTODO

2000 found at line 5179:
5177: UID:calsrv.example.com-873970198738777-00@example.com
5178: SEQUENCE:0
5179: DTSTAMP:19970717T200000Z
5180: STATUS:NEEDS ACTION
5181: PRIORITY:1

2000 found at line 5236:
5234: VERSION:2.0
5235: BEGIN:VJOURNAL
5236: DTSTART:19971002T200000Z
5237: ORGANIZER:MAILTO:A@Example.com
5238: SUMMARY:Phone conference minutes

2000 found at line 5358:
5356: SEQUENCE:3
5357: RRULE:FREQ=WEEKLY
5358: RDATE;VALUE=PERIOD:19970819T210000Z/199700819T220000Z
5359: ORGANIZER:Mailto:A@example.com
5360: ATTENDEE;ROLE=CHAIR;PARTSTAT=ACCEPTED:Mailto:A@example.com

2000 found at line 5365:
5363: SUMMARY:IETF Calendaring Working Group Meeting
5364: DTSTART:19970801T210000Z
5365: DTEND:19970801T220000Z
5366: RECURRENCE-ID:19970809T210000Z
5367: DTSTAMP:19970726T083000

+++++++ File rfc2447.txt ++++++++
Since this object incorporates the Year 2000-unfriendly 2-digit year specified in SMI for the LAST-UPDATED field, and determining the level of the MIB supported by an agent.
Since this object incorporates the Year 2000-unfriendly 2-digit year specified in SMI for the LAST-UPDATED field, and

Default: 2592000 seconds (30 days), fixed (i.e., stays the same in consecutive advertisements).

In the absence of any other information, an implementation should use

The main IETF standards-track document on the HTTP protocol is RFC 2068 on HTTP 1.1. It notes that historically three different date formats have been used, and that one of them uses a two-digit year field. In section 3.3.1 it requires HTTP 1.1 implementations to generate this RFC 1123 format:

Sun, 06 Nov 1994 08:49:37 GMT ; RFC 822, updated by RFC 1123

instead of this RFC 850 format:

Sunday, 06-Nov-94 08:49:37 GMT ; RFC 850, obsoleted by RFC 1036

Unfortunately, many existing servers, serving on the order of one fifth of the current HTTP traffic, send dates in the ambiguous RFC 850 format.
Section 19.3 of the RFC2068 says this:

- HTTP/1.1 clients and caches should assume that an RFC-850 date which appears to be more than 50 years in the future is in fact in the past (this helps solve the "year 2000" problem).

This avoids a "stale cache" problem, which would cause the user to see out-of-date data.

But to avoid unnecessary delays and bandwidth indicated in Scenario 2 below, this should be extended to say that a date which appears to be more than 50 years in the past may be assumed to be in the future, if a future date is legal for that field.

Scenario 3 indicates that servers may also want to follow these rules.

Here is some more background and justification for these arguments.

The following headers use full dates:

HTTP/1.0:
- Date:
- Expires: # can be in the future
- If-Modified-Since: # required to be in the past
- Last-Modified: # required to be in the past
- Retry-After: # can be in the future, also takes
  # relative time - number of seconds

HTTP/1.1:
- If-Range:
- If-Unmodified-Since: # required to be in the past

Note that clock skew between hosts can lead to confusion here - see the RFC for details.

Here are some scenarios of the implications of RFC850 dates, which include stale caches, unnecessary requests for things, which are validly cached, delays for the user, extra bandwidth, and presenting incorrect information to the user.

Some cases involve comparisons with the current time, and others may involve comparisons between dates from different sources. The abbreviation "/99" is used to imply an RFC850 date with the value "99" for the year.
Scenario 1:
If a client gets an Expires /99 date after the year 2000, it should interpret it as 1999, to avoid ending up with a stale cache entry.

This is as already specified in RFC2068.

Scenario 2:
If a client gets an Expires /00 date before the year 2000, and subsequently is faced with a choice to either retrieve the document from its cache or look for an updated copy, it may interpret it as the year 2000, to avoid the unnecessary delay and bandwidth of an extra request.

Scenario 3:
If a server gets an If-Modified-Since /99 date from a client after the year 2000, it should interpret it as 1999 when comparing with the local modification date, in order to possibly avoid sending a full GET response rather than a HEAD response.

Note that an If-Modified-Since header must never be in the future.
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