

# **CABS Viewer<sup>tm</sup>**

Carrier Access Billing System  
BOS BDT File Format  
and Reporting Utility

## **User Guide**

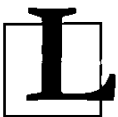
**Version 1.10.49.0**

# ***CABS Viewer*** <sup>*tm*</sup>

## **CABS BOS BDT File Format and Reporting Utility User's Guide**

**Version 1.10.49.0**

**Supporting BOS 49**



**Lymeware Corporation**  
Post Office Box 1027  
Old Lyme, Connecticut USA

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# Contents

<b>Welcome .....</b>	<b>7</b>
About this Guide .....	7
Who Should Read this Guide? .....	7
<b>Introducing CABS Viewer .....</b>	<b>8</b>
<b>Getting Started with CABS Viewer .....</b>	<b>10</b>
Before You Start .....	10
Technical Requirements .....	10
Installing CABS Viewer .....	12
Linux Package Installation .....	13
Sun Solaris Package Installation .....	13
Microsoft Windows Package Installation .....	13
Requesting a license key .....	17
About the CABS Viewer Product .....	18
Functional Description .....	18
Navigating the Output Formats .....	19
<b>Using CABS Viewer .....</b>	<b>22</b>
CABS Viewer From A Command Line .....	22
Command Line Switch Descriptions .....	22
Command Examples .....	24
<b>Output Formats .....</b>	<b>28</b>
The Text Output Format .....	29
Valid Text output format options .....	33
The CSV (Comma-Delimited) Output Format .....	34
Basic formatting of column widths .....	34
CSV Column Format .....	36
CSV Database Format .....	37
Valid CSV output format options .....	38
The XML Output Format .....	40
XML Field Name to Tag Name Translations .....	41
Valid XML output format options .....	42
The HTML Output Format .....	44
HTML Table Format .....	45
The --bodyonly Option .....	46
Valid HTML output format options .....	47
<b>CABS Viewer Utilities .....</b>	<b>48</b>
Utilities Overview .....	48
Wrapper scripts for custom reports .....	48
Customizing CABS Viewer internal filters .....	48
Batch Processor .....	48
Process an Entire Directory of Files .....	49
A Custom Report .....	50

<b>How to Get Help</b> .....	<b>53</b>
Scope of Support Services.....	53
Try this first.....	53
Contact Lymeware Product Support.....	54
<b>Appendix A - CONFIGURATION WORKSHEETS AND FORMS</b> .....	<b>55</b>
License Request Form.....	56
CABS Viewer License Request Form.....	56
CABS Viewer Problem Report Form.....	57
<b>Appendix B – CABS VIEWER REFERENCE DOCUMENTATION</b> .....	<b>58</b>
<b>Appendix C – SAMPLE BOS DATA</b> .....	<b>60</b>
<b>Appendix D - GLOSSARY</b> .....	<b>64</b>

## Figures

Figure 1: The Initial Windows Install window .....	14
Figure 2: The License Agreement Install window .....	14
Figure 3: The Install Location window.....	15
Figure 4: The Final Windows Install window.....	15
Figure 5: The Install Completion window .....	16
Figure 6: The CABS Viewer Data Flow Diagram .....	18
Figure 7: The Generic CABS Viewer Output Format.....	19
Figure 8: An HTML Output Format Example .....	20
Figure 9: An HTML Output Format Example (continued) .....	21
Figure 10: The Command Shell for CABS Viewer .....	26
Figure 11: A Simple CABS Viewer Example.....	26
Figure 12: An Example of the Summary Output .....	27
Figure 13: Standard Text Output Format .....	29
Figure 14: A Record Detail View (Text Format).....	30
Figure 15: A Resale Call Usage Detail Record (Text Format).....	31
Figure 16: A Resale Usage Detail Record (Text Format) .....	32
Figure 17: The Initial CSV Output Format.....	34
Figure 18: Detail Record (CSV format after reformat) .....	35
Figure 19: Another detail record (CSV Format) .....	36
Figure 20: Resale Call Detail Usage Records (in CSV Column Format).....	37
Figure 21: Resale Call Detail Usage Records (in CSV Database Format).....	37
Figure 22: A "Well-Formed" Detail Record (XML Format) .....	40
Figure 23: Detail Record (XML Format).....	41
Figure 24: Resale Call Detail Usage Record (XML Format).....	42
Figure 25: Example of HTML Output .....	44
Figure 26: A Detail Record (HTML Format) .....	45
Figure 27: Resale Call Detail Usage Records (HTML Table Format) .....	46
Figure 28: CSR Report in Excel.....	52

## Tables

Table 1. Command Line Options .....	22
Table 2. Command Line Options (continued) .....	23
Table 3. Standard Database Record Format.....	38
Table 4. XML Tag Name Translations .....	41
Table 5. HTML Standard Format Outline.....	46
Table 6. HTML Body-Only Format Outline.....	47
Table 7. CABS Viewer Product Worksheets.....	55
Table 8. Commercial or third party documentation used by this product or manual .....	58
Table 9. National, International, Internet, and Industry Standards used by this product.....	59

# Welcome

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Thank you for using CABS Viewer, created by Lymeware Corporation. The CABS Viewer product is designed to help you enable your organization to efficiently format, organize and display CABS billing information which is crucial to many aspects of your business.

Most importantly, the CABS Viewer product allows CLECs and other service providers to seamlessly blend their CABS billing data in to whatever OSS or billing system currently in use. The instructions in this guide will introduce you to some basic carrier billing concepts and help you get familiar with the fundamentals of using your CABS Viewer product.

## About this Guide

This guide is current with the details of operation for Lymeware's CABS Viewer, version 1.10.49.0. It is designed for users who are new to the CABS Viewer product or the areas of carrier billing management and PC applications generally.

The information in this guide describes how to use a PC and a command line interface to operate CABS Viewer in order to perform a broad range of billing data conversion and reporting tasks.

Readers are not required to have any programming or software development knowledge, but should be generally familiar with:

- The use of a personal computer,
- The use of a text editor such as Microsoft Wordpad, vi, or Vim
- Optionally the use of a spreadsheet program such as Microsoft Excel, StarOffice or OpenOffice,
- Optionally the use of an XML editor such as Altova XMLSpy, or XML Maker,
- Optionally the use of Internet browser software such as Microsoft Internet Explorer or Mozilla Firefox

## Who Should Read this Guide?

This *CABS Viewer User Guide* provides information for two groups of users – conventional users who wish to generate and view CABS output formats; and administrators who need to install and configure the system as part of its initial implementation.



# Introducing CABS Viewer

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Our CABS Viewer product line enables organizations to efficiently format, organize, and display information on all aspects of their carrier access billing data. This same billing data, once in a usable form, can now be inserted in to databases, used in spreadsheets to generate reports, or imported into existing accounting or billing systems.

The major benefits of the CABS Viewer products are:

## **Choice of Platform Support:**

- Supports the platforms you use; including Microsoft Windows, Sun Solaris, and several Linux distributions (including Red Hat Enterprise Linux)
- Operation is exactly the same, regardless of platform
- Simple to use and easy to operate

## **Enabling Downstream Billing Automation:**

- CABS Viewer output can be easily shared and processed
- Filter and format CABS data to your billing system's exact input requirements
- Special CSV-database format for import into most common enterprise database management systems, including Oracle, DB2, Informix, MySQL, Sybase, and MS SQL Server.
- Valid well-formed XML can support many standard Telecom billing systems

## **Useful for Revenue Assurance:**

- Create user-friendly output, easily manipulated with Microsoft Excel, OpenOffice Calc or several other spreadsheet products.
- CSV or XML data can support many standard Telecom billing systems

## **Display Custom Billing Reports:**

- CABS Viewer output is very easy to manipulate using many script languages, including Perl, Python, and Ruby – all of which can natively read CSV and XML data for further downstream processing or reporting.
- Lymeware is also available to deliver customer-specified custom reports as an additional service.

## **Display Bill Presentment Data:**

- CABS Viewer output can be used directly for end-user billing presentment, especially the HTML format.
- A custom CABS Viewer binary can be ordered with specific filters to display only the billing records and fields required to generate your end user bills, either printed or on-line.

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## CABS Viewer User's Guide

CABS Viewer is built on established server technologies and widely supported data and industry specific standards, including:

- **CABS BOS BDT**, or Carrier Access Billing System Billing Output Specifications Billing Data Tape record formats and data presentment formats, the industry standard billing record transport format.
- **CSV**, or Comma Separated Value or comma-delimited format, for use with most spreadsheet products and a common database import format,
- **XML**, or Extensible Markup Language, for input to other billing or accounting systems or for further XSLT and XML processing, and
- **HTML**, Hypertext Markup Language, for display either locally or on a web server with any standard web browser

CABS Viewer is supported on the Linux, Solaris and Windows operating systems.

# Getting Started with CABS Viewer

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## Before You Start

This guide assumes that the resources you need to access the system are available and that you are familiar with how to use them. If you are not sure whether your system meets the requirements or how to use required third-party tools (primarily a web browser), talk to your manager or system administrator.

## Technical Requirements

Before you begin using the system, ensure that you have the appropriate software installed and configured on your system. All you will need is –

- **One of the following platforms running one of these operating systems:**
  - Red Hat Enterprise Linux 4 or 5 on Intel IA32/x86 platforms. Other Linux distributions may also be supported
  - Sun Microsystems Solaris 10 on UltraSPARC platforms
  - Microsoft Windows 2000, XP or Vista on Intel IA32/x86 platforms

- **Optionally, a text editor running on your computer.**

CABS Viewer text output can be viewed, modified or printed with a variety of text editors. The following editors are known to work with it:

- Vim version 5.7 and higher - <http://www.vim.org/>
- The vi text editor
- Microsoft Notepad and Wordpad editors

- **Optionally, a spreadsheet program running on your computer.**

CABS Viewer CSV output has been tested with and supports a variety of spreadsheet programs. The following programs are known to work with it:

- OpenOffice version 1.1.4 and higher - <http://www.openoffice.org/>
- StarOffice version 6.0 and higher - <http://docs.sun.com/app/docs/coll/so7en>
- Microsoft Excel version 97 and higher – <http://www.microsoft.com>

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## CABS Viewer User's Guide

- ThinkFree Office 3.0 - <http://www.thinkfree.com>
- **Optionally, an XML editor running on your computer.**

CABS Viewer XML output has been tested with and supports a variety of XML editors, including:

  - Altova XMLSpy version 4.x and higher - <http://www.altova.com/>
  - Symbol Click XML Marker version 1.1 and higher - <http://symbolclick.com/>
- **Optionally, a current web browser running on your computer.**

CABS Viewer HTML output has been tested with and supports a variety of browsers. The following browsers are known to work with it:

  - Mozilla version 1.7 and higher - [www.mozilla.org/mozilla1.x](http://www.mozilla.org/mozilla1.x)
  - Firefox version 1.0 and higher - [www.mozilla.org/firefox](http://www.mozilla.org/firefox)
  - Konqueror version 3.2 and higher - [www.konqueror.org](http://www.konqueror.org)
  - Microsoft Internet Explorer version 6 and higher - [www.microsoft.com/ie](http://www.microsoft.com/ie)

You may encounter problems if you try to access HTML reports generated by CABS Viewer using older web browsers like Internet Explorer 4 or Netscape 4.x. If you are unsure about which web browser version you are using, click Help > About... or similar options on the menu bar in your browser. The version number will be displayed.

- **Network access to a server that is running the CABS Viewer software.**

Your system or network administrator will be able to provide you with an Internet address (URL) from which the system hosting the CABS Viewer product can be accessed, if necessary.

# Installing CABS Viewer

The CABS Viewer product is available for

- Linux on ia32/Intel x86 (reference platform is Red Hat Enterprise Linux 5 x86 version),
- Sun Microsystems Solaris on UltraSPARC (reference platform is Solaris 10 SPARC version), and
- Microsoft Windows on ia32/Intel x86 (reference platform is Windows XP Service Pack 3 x86 version)

A typical CABS Viewer product installation consists of three actions:

1. Download the correct install package from the Lymeware website or request the correct package from Lymeware Sales,
2. Perform the platform specific package installation tasks (as detailed below),
3. Request and install the license key

The pre-installation checklist consists of:

- Print out this manual
- Acquire the root or Administrator password for the target machine
- Be sure the target machine has Internet access or download the install package on another Internet-enabled machine
- Complete the License Request form (see Appendix A)

Additionally, proceed to the correct platform installation section below.



## Linux Package Installation

Linux users should download the RPM version of the CABS Viewer installation file, via FTP or HTTP. The specific URL to use will be provided by the Lymeware Sales staff.

This file can be installed with the RPM command (logged in as root):

```
rpm -i <rpmfile>
```

This will install the CABS Viewer files to `/opt/cabsviewer`.



## Sun Solaris Package Installation

Solaris users should download the PKG version of the CABS Viewer installation file, via FTP or HTTP. The specific URL to use will be provided by the Lymeware Sales staff.

This file can be unpacked with GZIP and TAR and installed with the ADDPKG command (logged in as root):

```
gzip -dc <tar.gz_file> | tar xvf -; pkgadd -d. <pkgname>
```

This will install the CABS Viewer files to `/opt/cabsviewer`.



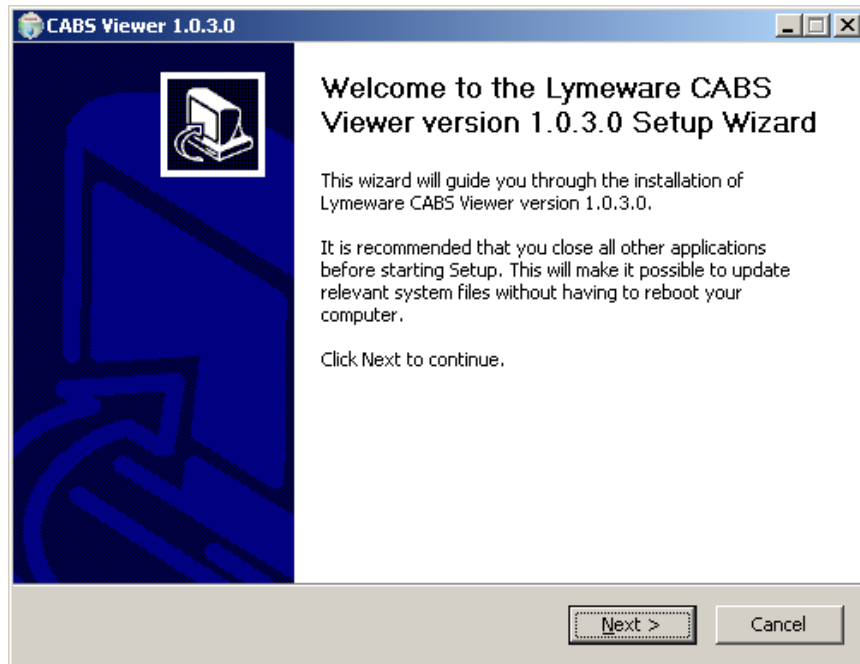
## Microsoft Windows Package Installation

Windows users should download the EXE version of the CABS Viewer installation file, via FTP or HTTP. The specific URL to use will be provided by the Lymeware Sales staff.

This file can be installed by executing it (logged in as Administrator or a user with Administrator Group privileges). You should see a screen similar to the one shown in Figure 1.

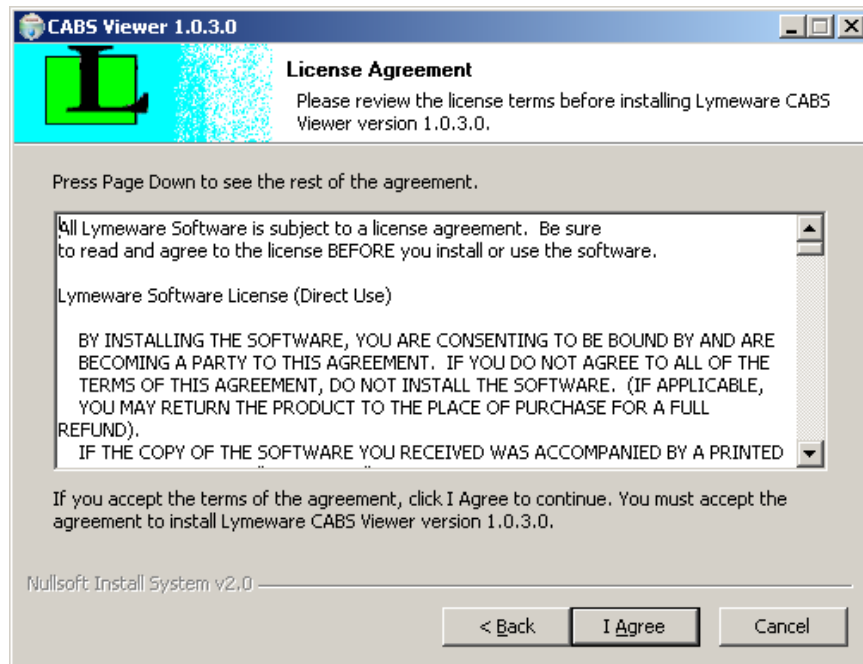
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## CABS Viewer User's Guide



**Figure 1: The Initial Windows Install window**

Click on **Next** to continue the installation process or **Cancel** to exit the installation.

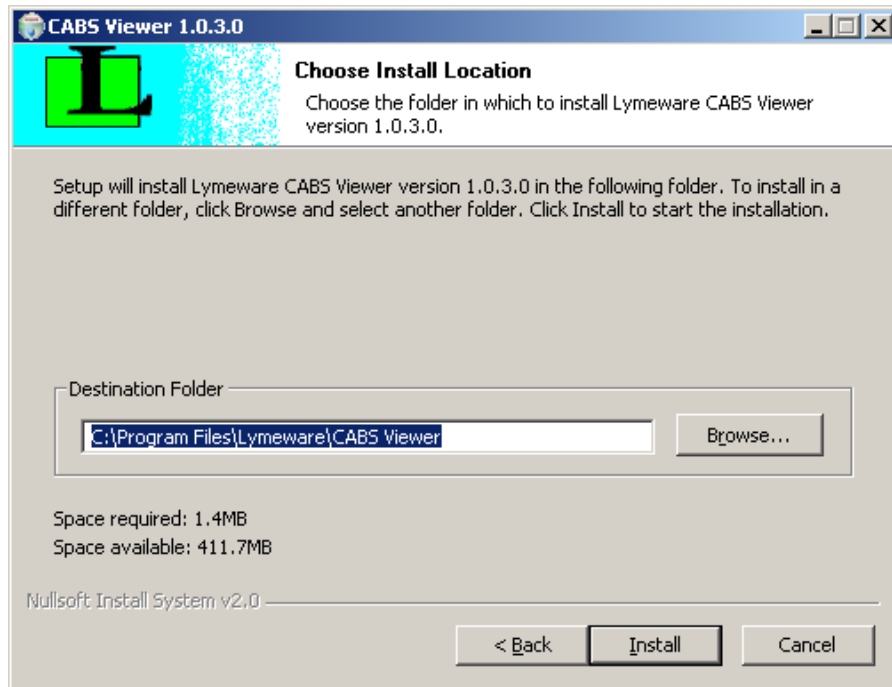


**Figure 2. The License Agreement Install window**

The license must be agreed to (click on the **I Agree** button) to continue installation.

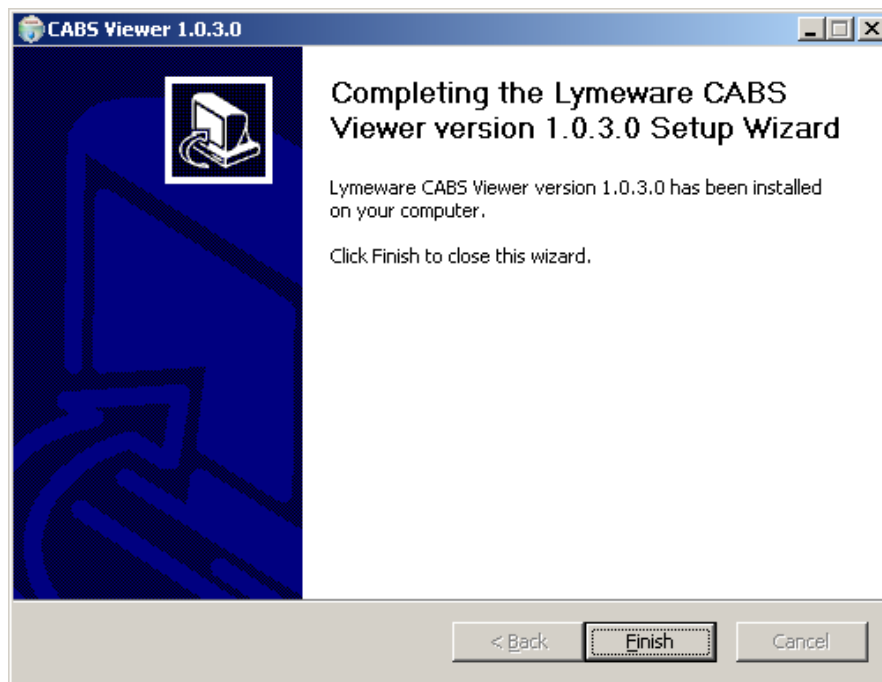
---

## CABS Viewer User's Guide



**Figure 3. The Install Location window**

The default install location may be changed here, but all examples in this manual assume that the default location is used. Press the **Install** button when ready to continue.



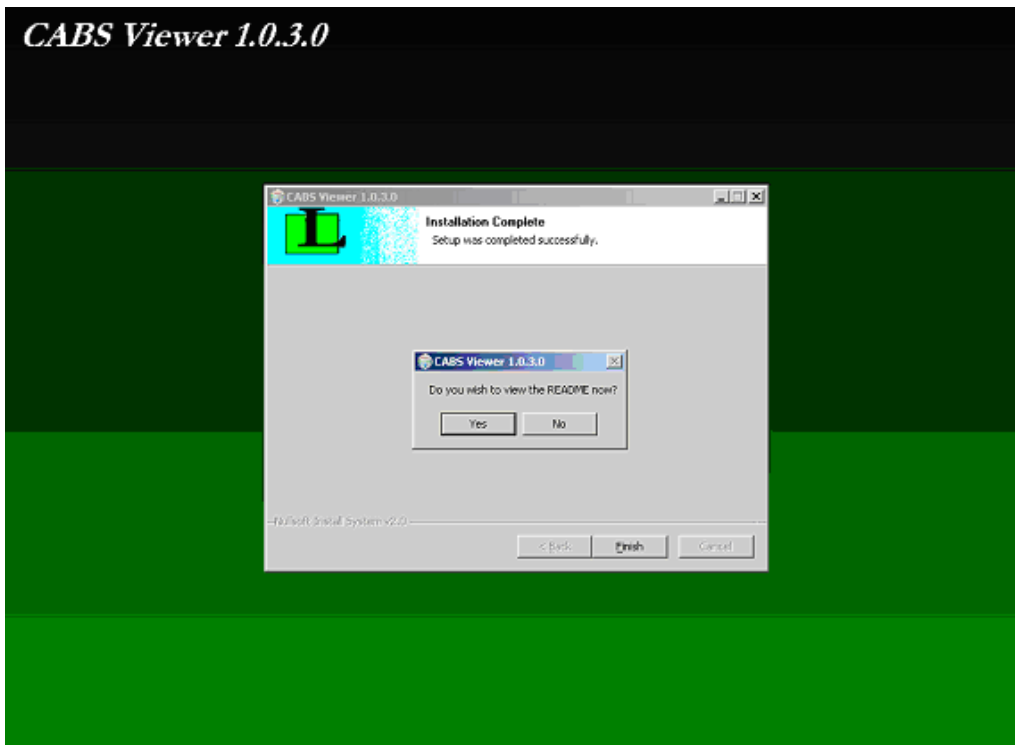
**Figure 4. The Final Windows Install window**



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## CABS Viewer User's Guide

At this point, the CABS Viewer product has been successfully installed. Click the **Finish** button.



**Figure 5. The Install Completion window**

Finally, the user is presented with the choice to view the README file on installation exit. If the Yes button is selected then a Notepad window will open up with the CABS Viewer README text file contents. If the No button is selected then the install will just exit successfully.

## Requesting a license key

All new users need to request a license key to operate CABS Viewer on any platform.

A specific license key file will be required to run the CABS Viewer program. Lymeware will supply this license file if the following information is supplied via email to Lymeware Sales (see Appendix A for the License Request form):

- Customer/Company Name:
- Product Name: **CABS Viewer**
- Platform: [either **Linux**, **Solaris**, or **Windows 2000/XP**]
- Target Machine IP Address:
- Target Machine Host ID: (only needed for Solaris machines)
- Contact Person:
- Contact Phone Number:
- Contact E-Mail Address:

A digital license request form is also available for completion and submission to Lymeware. The license file will be delivered to the Contact E-Mail Address. In all cases, regardless of platform, the license key should be renamed to **license.dat** and copied to the same location as the CABS Viewer binary (**cabsviewer** for Linux and Solaris or **cabsviewer.exe** for Windows).

A 30-day fully functional evaluation license is available from Lymeware's sales department. Lymeware Sales may be contacted at [sales@lymeware.com](mailto:sales@lymeware.com).

## About the CABS Viewer Product

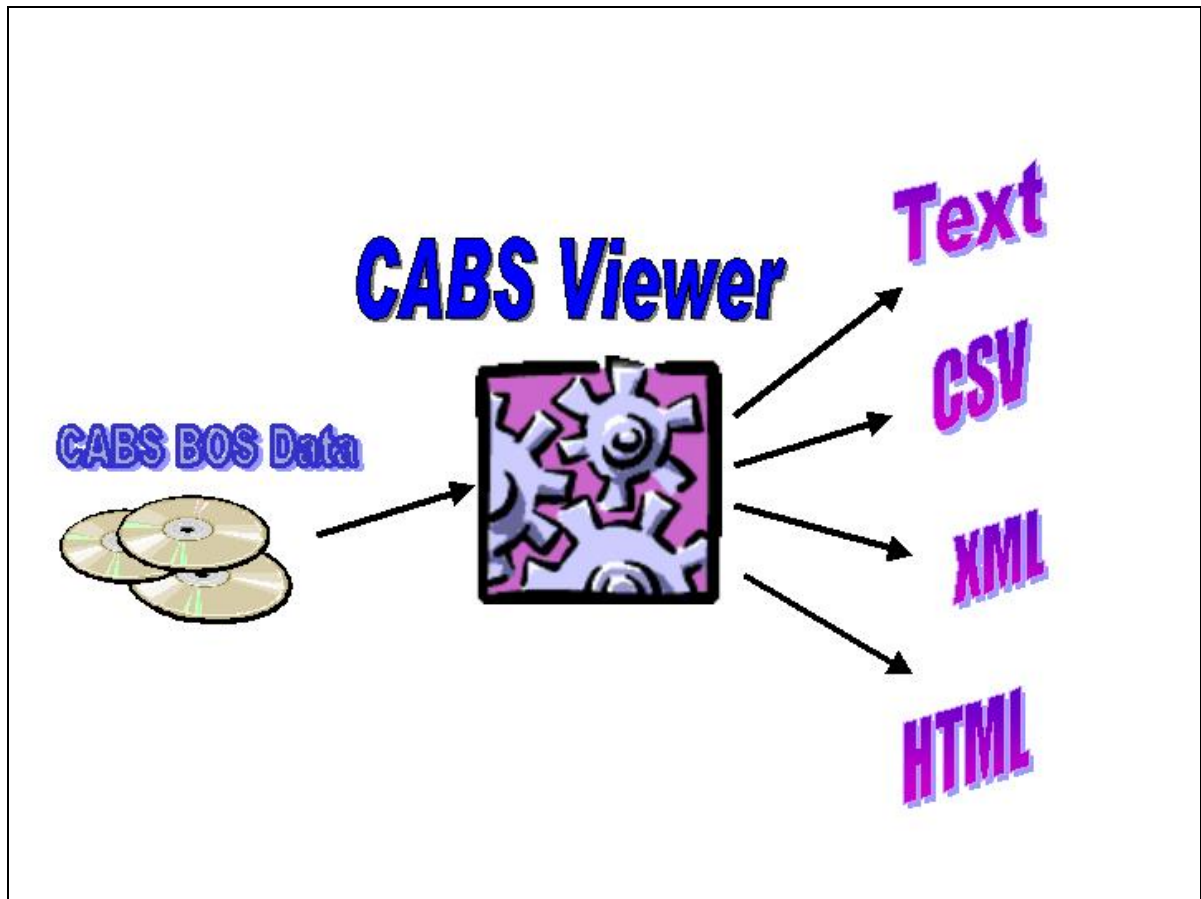


Figure 6. The CABS Viewer Data Flow Diagram

### Functional Description

- Supports CABS BOS telecom industry standard file formats
- Runs on Windows 2000/XP/Vista, Linux or Solaris
- Generates verbose text (human readable) output format reports
- Generates CSV (comma delimited) output format for use in standard spreadsheet programs or DBMS data import
- Generates valid XML output format reports
- Generates HTML output format reports for use with many popular web browsers
- Designed to handle very large (50 to 500 megabyte) BOS input files
- Can generate a summary output report for CABS BOS input file analysis

## Navigating the Output Formats

All of the output formats use the same basic layout – making it easy for you to move from one area of the output to the next. Figure 7 shows the common and **optional** elements of all output formats.



**Figure 7. The Generic CABS Viewer Output Format**

Figure 8 shows example CABS Viewer HTML output with the standard areas listed and described.

## CABS Viewer User's Guide

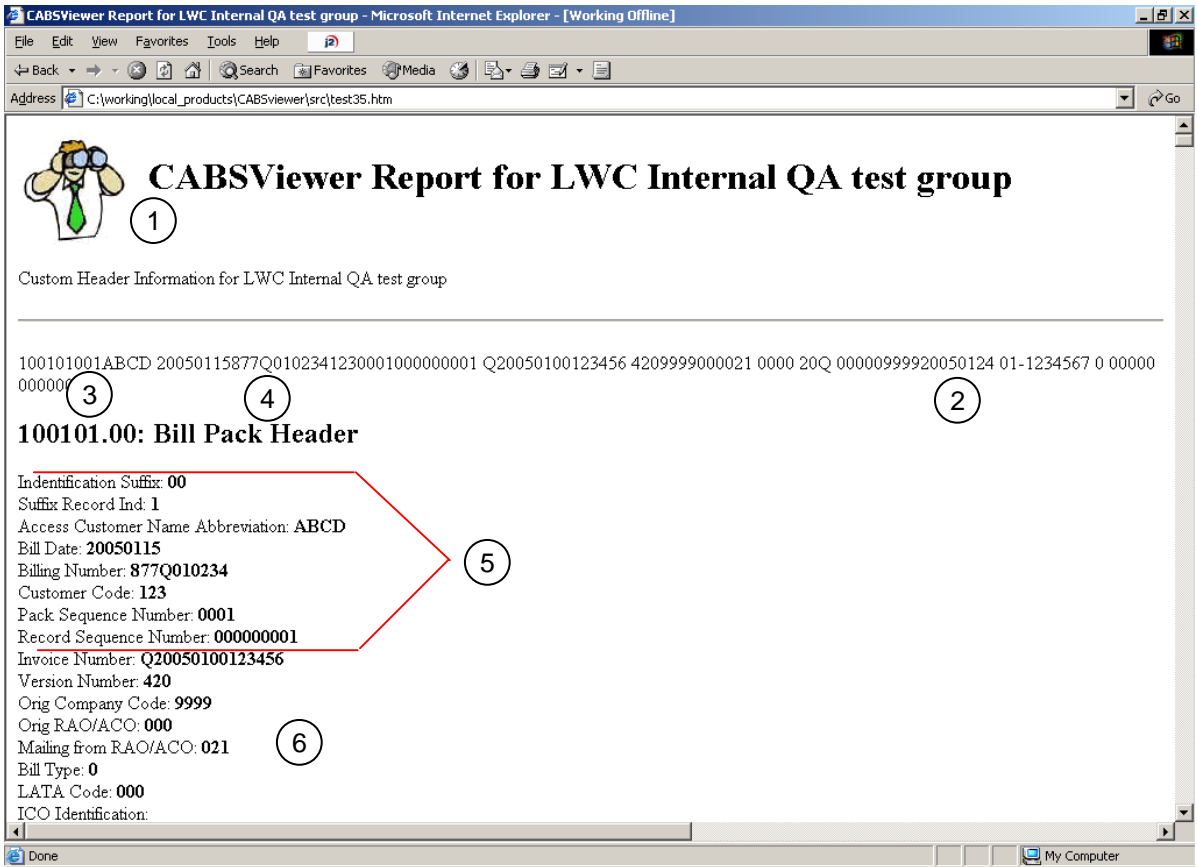


Figure 8. An HTML Output Format Example

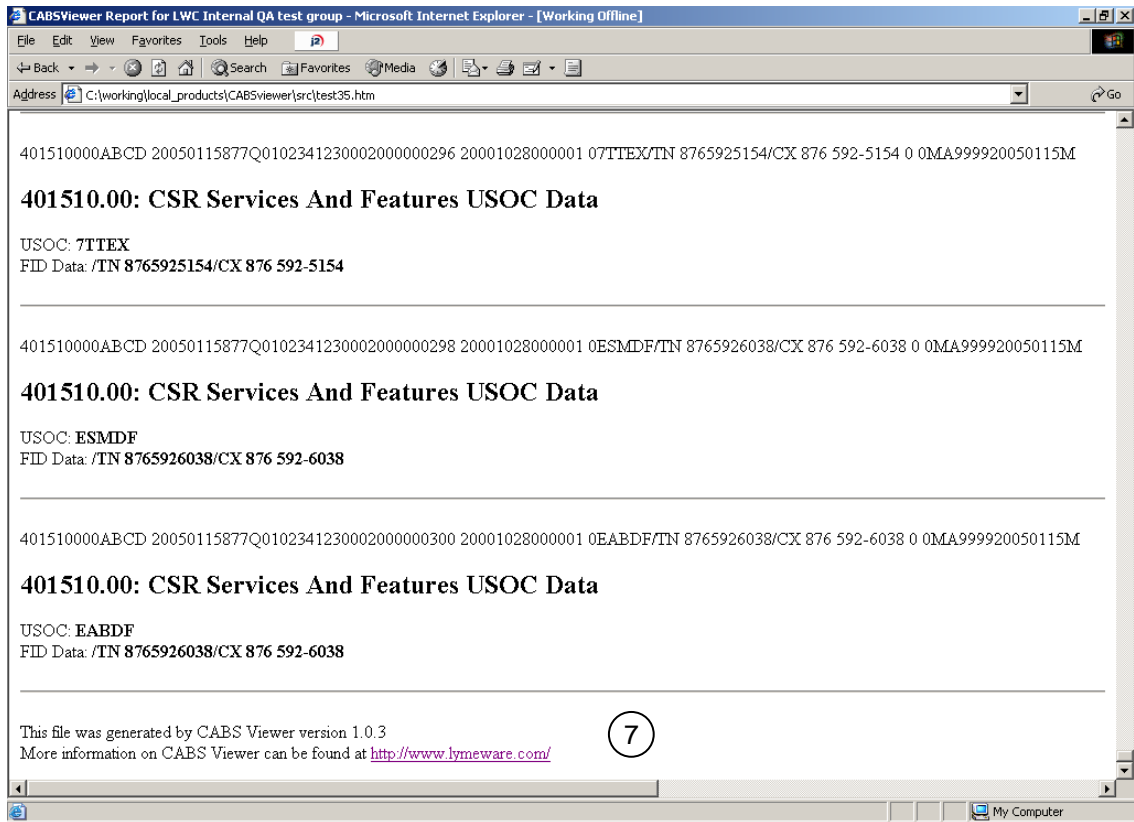
Various key elements of the generic output format layout are highlighted on Figure 8, as follows:

1. Optional Header (displayed by default, not displayed with the `-q` or `--noheader`)
2. Optional Raw BOS Input Record (not displayed by default, display with `-r` or `--raw`)
3. Optional BOS Record Number (not displayed by default, displayed with `-n` or `--recno`)
4. Optional BOS Record Name/Description (not displayed by default, display with `-T` or `--types`)
5. Optional BOS Record Common Block (not displayed by default, display with `-C` or `--common`). The common block is repeated in each standard BOS record (only not in the file trailer record) and consists of the first nine (9) fields of each standard record.
6. Standard BOS field display, usually in the form of: `<BOS Field Name>: <space><field value>`

### Tip

Not every output format will allow all display options to generate valid output. See the **Valid Options** table in each output section for specific command line options, which do support each specific output option.

# CABS Viewer User's Guide



**Figure 9. An HTML Output Format Example (continued)**

## 7. The standard trailer

# Using CABS Viewer

## CABS Viewer From A Command Line

CABS Viewer is run from a command line (or DOS Box/Command Shell or Windows).

The most common form is:

```
cabsviewer <cabs_file>
```

The full form is:

```
cabsviewer [-b] [--bodyonly] [-c] [--csv] [-C] [--common] [-d]
[--debug] [-D] [--database] [-n] [--recno] [-N] [--number] [-o
FILE] [--output=FILE] [-q] [--noheader] [-r] [--raw] [-s] [--
summary] [-S] [--summarydetail] [-t] [--text] [-T] [--types]
[-u] [--uppercase] [-w] [--html] [-x] [--xml] [-v] [--version]
[-h] [--help] <cabs_file> [ <cabs_file> [ . . . ] ]
```

## Command Line Switch Descriptions

The following table describes each of the CABS Viewer command line switches. Note that in most cases there are multiple ways of specifying the same thing, e.g. `-c` and `--csv` are synonymous.

h

Command line option values, which contain spaces, should be surrounded by double quotes.

Switch	Description
<code>-b</code> <code>--bodyonly</code>	Display only the <BODY> section of HTML output format.
<code>-c</code> <code>--csv</code>	Set output format to CSV (comma-delimited format).
<code>-C</code> <code>--common</code>	Print common block for each BDT record.
<code>-d</code> <code>--debug</code>	Display debug messages to standard out (screen).
<code>-D</code> <code>--database</code>	Display CSV records in database format.

**Table 1. Command Line Options**

---

## CABS Viewer User's Guide

-n --recno	Display BDT record numbers.
-N --number	Number the displayable field labels.
-o FILE --output=FILE	Send output to FILE.
-r --raw	Display raw BDT records.
-q --noheader	Do not display output header.
-s --summary	Print a BDT summary report.
-S --summarydetail	Print a BDT summary detail report.
-t --text	Set output format to ASCII text (default).
-T --types	Display BDT Record type descriptors.
-u --uppercase	Force field descriptions to UPPERCASE.
-w --html	Set output format to HTML (webpage).
-x --xml	Set output format to XML.
-v --version	Print the version information.
-h --help	Display the usage message and exit..
-1 --billrecords	Display only the Billing records (10-XX-XX)
-3 --detailrecords	Display only the Detail Billing records (30-XX-XX)
-4 --csrrecords	Display only the Customer Service Records (CSR) records (40-XX-XX)

**Table 2. Command Line Options (continued)**



## Command Examples

The following examples will be from a Windows platform, but the specific commands and command line options will be identical, regardless of the actual platform, you are using.

At the command shell prompt type:

```
cabsviewer test.cabs
```

The previous command will use `test.cabs` as the input CABS BDT file. The results will be sent to stdout or the screen. The format will be in text (default), with no raw, no types, no record numbers, and no summary.

```
cabsviewer --output=test.txt test.cabs
```

The previous command will also use `test.cabs` as the input CABS BDT file. The results will be saved in `test.txt`. The format will be in text (default), with no raw, no types, no record numbers, and no summary.

This next command is the same as the one above except the output format now will be comma-delimited (CSV).

```
cabsviewer --csv --output=test.csv test.cabs
```

This command is the same as the one above except using short command line options:

```
cabsviewer -c -o test.csv test.cabs
```

The next command will use `test.cabs` as the input CABS BDT file. The results will again be saved in `test.csv`. The format will be in CSV (comma delimited) format, and only the CSR (40-XX-XX) records will be displayed.

```
cabsviewer --csv --csrrecords --output=test.csv test.cabs
```

The next command will generate a standard report in the XML format to the output file `test.xml`.

```
cabsviewer --xml --output=test.xml test.cabs
```

This command is the same as the last one above except using short command line options:

---

## CABS Viewer User's Guide

```
cabsviewer -x -o test.html test.cabs
```

The next command will generate a report with record numbers and record descriptions in the HTML format to the output file `test.html`.

```
cabsviewer --html --recno --types --output=test.html test.cabs
```

This command is the same as the last one above except using short command line options:

```
cabsviewer -w -r -T -o test.html test.cabs
```

The final example will generate a report with record numbers and record descriptions, but without HTML header or trailer elements, in the HTML format to the output file `test.htm`.

```
cabsviewer --html --recno --types --bodyonly --output=test.htm  
test.cabs
```

---

## CABS Viewer User's Guide

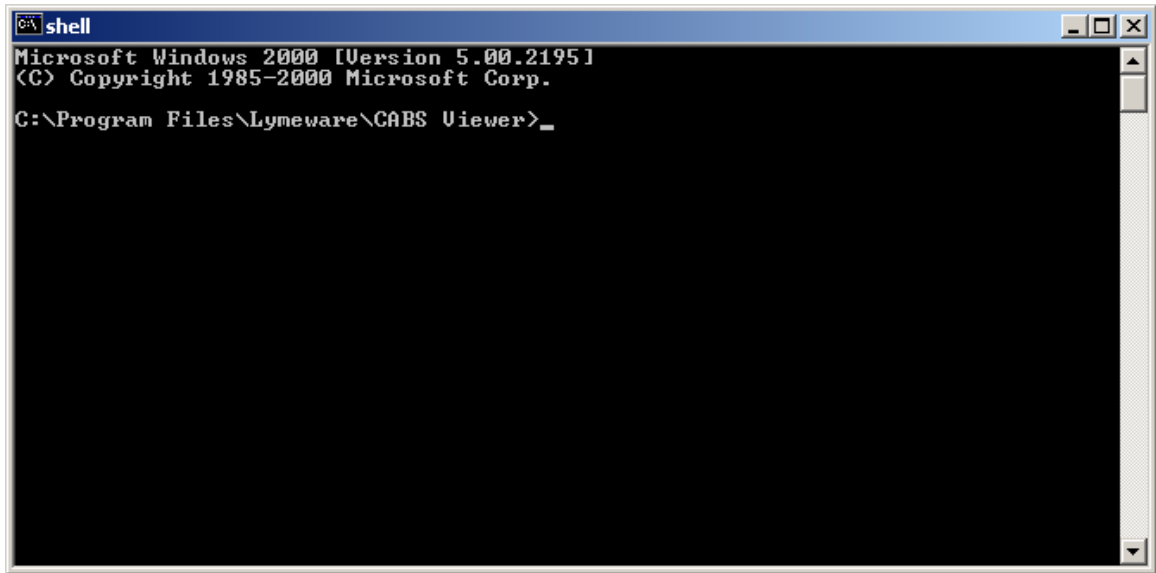


Figure 10. The Command Shell for CABS Viewer

On a Windows machine select **Start->Programs->Lymeware->CABS Viewer->shell** to open up a command shell in the CABS Viewer install directory (see Figure 10).

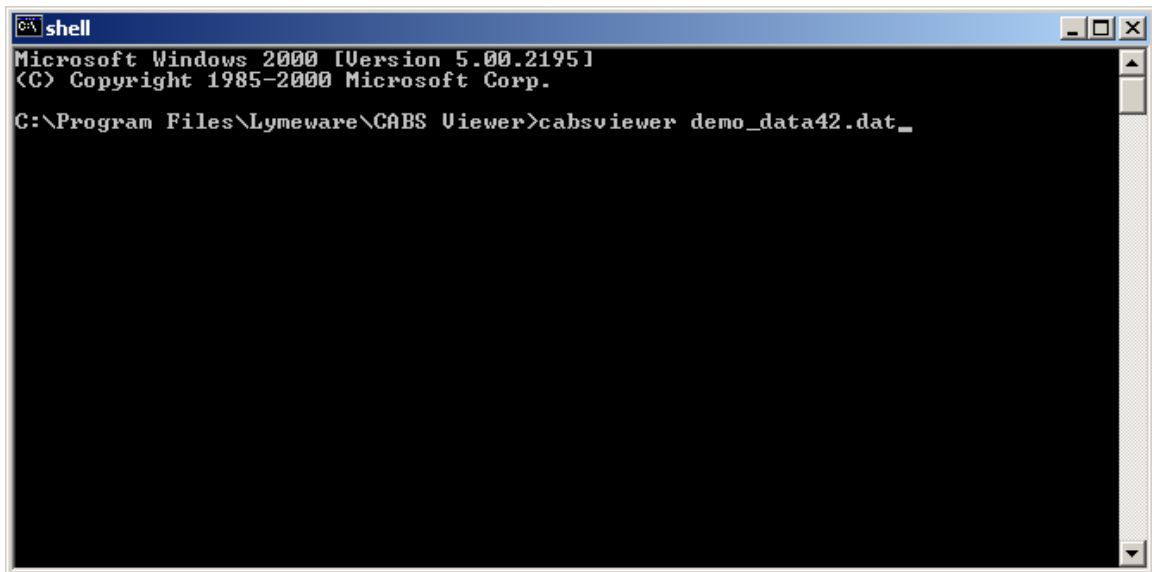
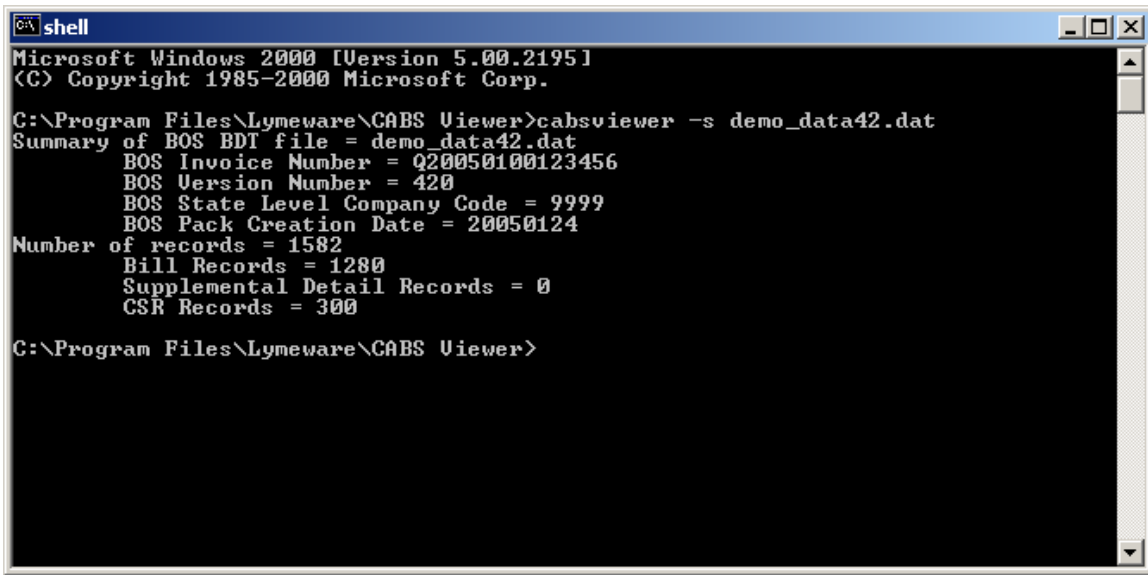


Figure 11. A Simple CABS Viewer Example

A simple example of running CABS Viewer on Windows is shown in Figure 11.



```
Microsoft Windows [Version 5.00.2195]
(C) Copyright 1985-2000 Microsoft Corp.

C:\Program Files\Lymeware\CABS Viewer>cabsviewer -s demo_data42.dat
Summary of BOS BDT file = demo_data42.dat
  BOS Invoice Number = Q20050100123456
  BOS Version Number = 420
  BOS State Level Company Code = 9999
  BOS Pack Creation Date = 20050124
Number of records = 1582
  Bill Records = 1280
  Supplemental Detail Records = 0
  CSR Records = 300

C:\Program Files\Lymeware\CABS Viewer>
```

Figure 12. An Example of the Summary Output

A summary report (generated with a `-s` or `--summary` option) will list the following information for the specific CABS BOS input file:

- Invoice Number
- BOS Version
- State Level Company Code
- BDT File or Pack Creation Date

### Tip

Not all BOS records may be supported by your version of CABS Viewer.

Contact Lymeware Sales for custom reports designed to your exact specifications.

It will also list the total number of BOS records found in the file and a breakdown by record category.

A summary detail report (generated with a `-S` or `--summarydetail` option) will list all of the above summary report information and a breakdown of the number of records by record number. This report can be very valuable in determining the types and majority of records in use and provided by the CABS carrier.

# Output Formats

---

CABS Viewer's core functionality is the ability to:

- Parse CABS BOS data, and
- Save/Display this data in useful formats

CABS Viewer contains a huge database of all of the CABS BOS record formats and field definitions. It also contains standard record and field selection filters, as selected by Lymeware.

Custom output reports can be developed by Lymeware engineering filters in a custom binary or by additional post CABS Viewer processing.

The basic output formats are:

Text – can be read by any standard text editor or word processor,

CSV – can be imported into and processed by all standard spreadsheet programs,

Database – can be imported into many common database programs,

XML – can be processed by any program that can import XML, including several standard Telecom billing systems, and

HTML – can be displayed by any standard web browser

Lymeware can support other formats or modification of these standard formats as custom work.

## The Text Output Format

The text output format is the default CABS Viewer format and is easily read and understood by most people. The output is simply a list of CABS BOS record blocks, each which displays all unfiltered fields (as field name / value pairs). The field name / value pairs are tab-delimited. The field names will be as located in the CABS BOS standard documents. The displayed values will be exactly as presented in your raw CABS BOS input files. The single exception to this rule is the presentation of numeric data values, which are encoded in the CABS BOS records. No other CABS BOS input file data values will be modified by the CABS Viewer product.

The specific definitions and particular usage of the BOS field names is explicitly defined in Telcordia Technologies' CABS Billing Output Specifications (BOS) standard documents (as listed in Appendix B).

```

CABS Viewer version 1.0.3
  Licensed to: LWC Internal QA test group SerialNumber: test2005-
0003 License Expires on :Fri Feb 3 15:43:30 2006

=====

100101.00:
Bill Pack Header
  Invoice Number      Q20050100123456
  Version Number     420
  Orig Company Code  9999
  Orig RAO/ACO       000
  Mailing from RAO/ACO 021
  Bill Type          0
  LATA Code          000
  ICO Identification
  Account Structure Ind 2
  Abbreviated Bill Ind 0
  Type of Account    Q
  Feature Group
  Carrier Identification Code-Account 00000
  State Level Company Code      9999
  Pack Creation Date      20050124
  Account Manager Code
  Tax Identification      01-1234567
  Subscriber Authorization No
  
```

Figure 13: Standard Text Output Format

A standard text output is displayed in Figure 13. This example output file was generated with the `--recno` option (which displayed the “100101.00” record number) and the `--types` option (which displays the “Bill Pack Header” record name). This example does not show the “common

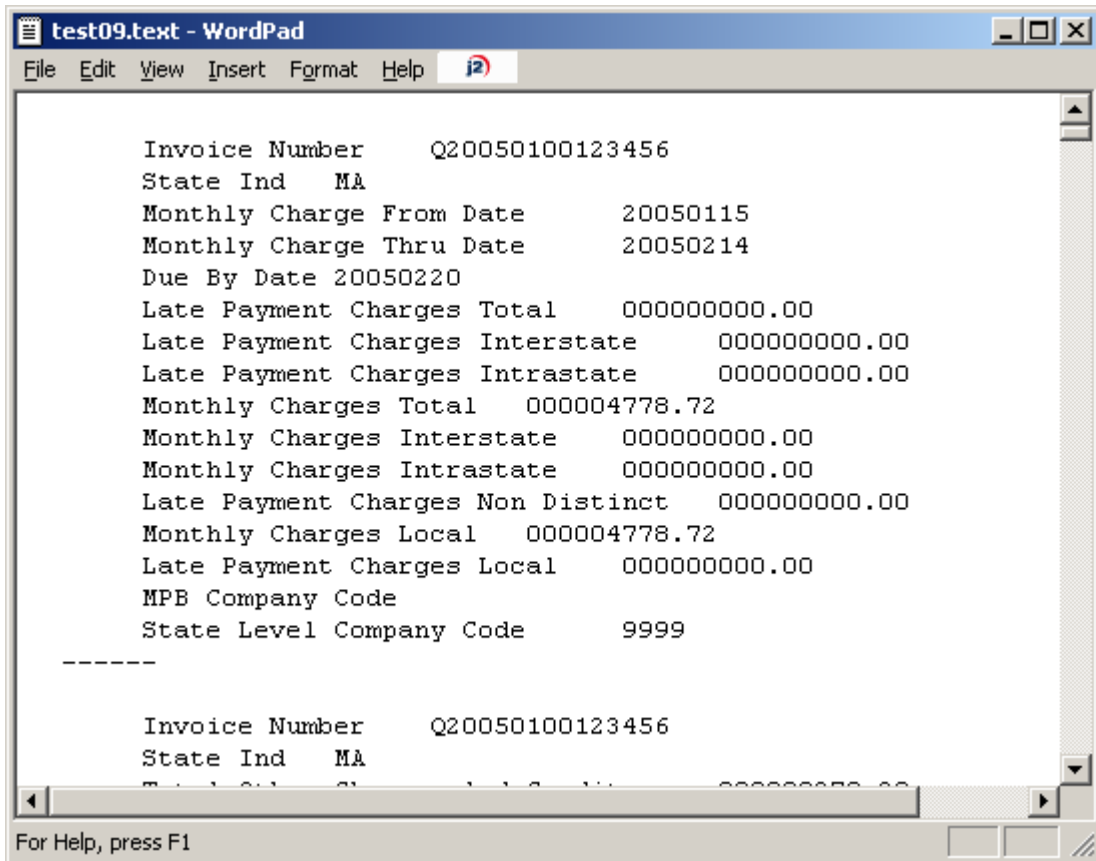
**Note**

In CABS Viewer record numbers are displayed as AABBC.NN which translates in to a record ID of AA-BB-CC with a record ID suffix of NN in CABS BOS documents.

---

## CABS Viewer User's Guide

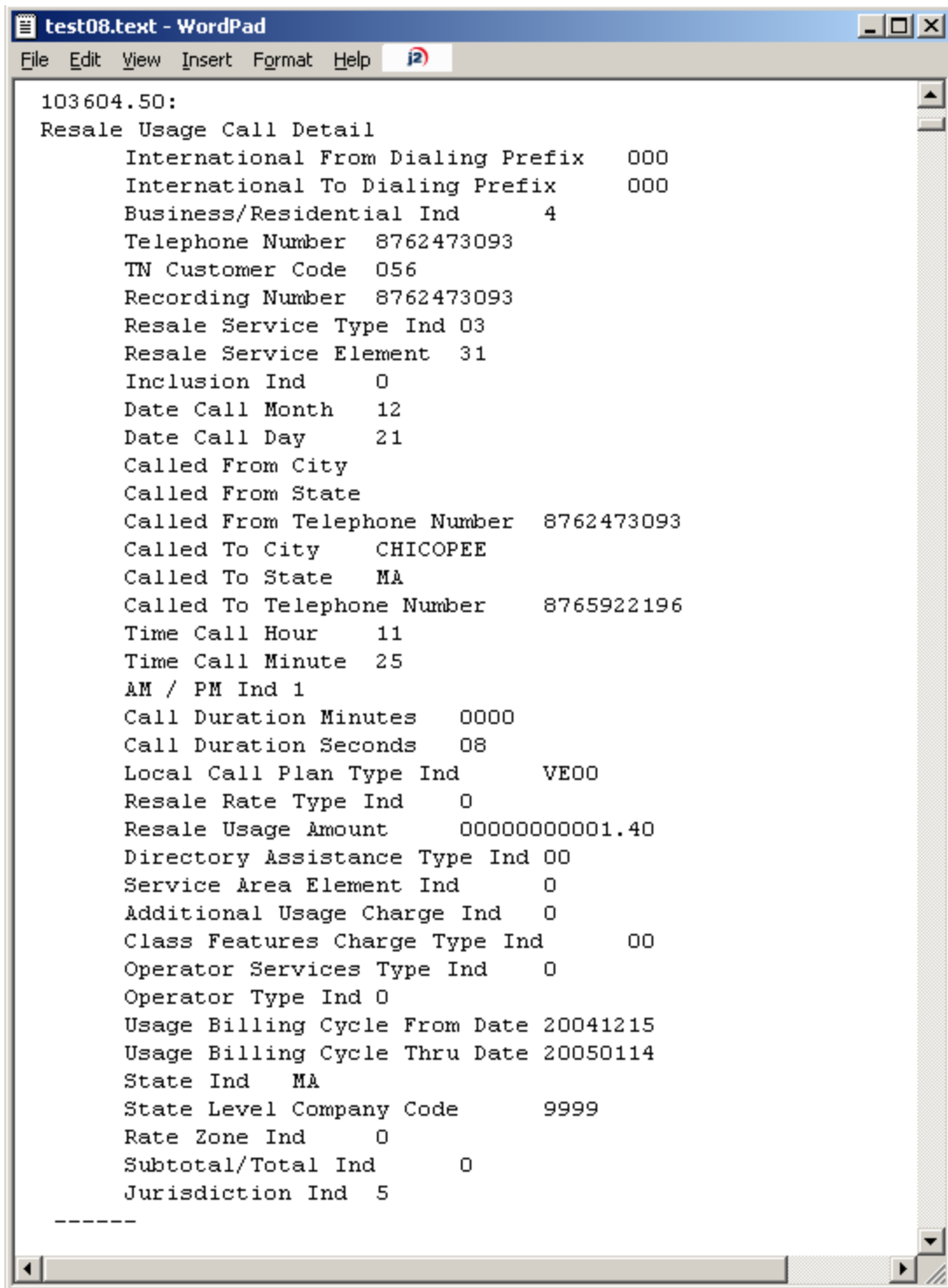
fields”, which repeat the same exact data for each record. Display of the “common fields” is off by default.



**Figure 14: A Record Detail View (Text Format)**

A Record Detail View in text format is shown in Figure 14. This file was generated without any command line options. This information is the high level summary of monthly charges for this company (State Level Company Code = 9999). Again, the specific definitions of each of the fields must be determined by the CABS BOS standards.

## CABS Viewer User's Guide

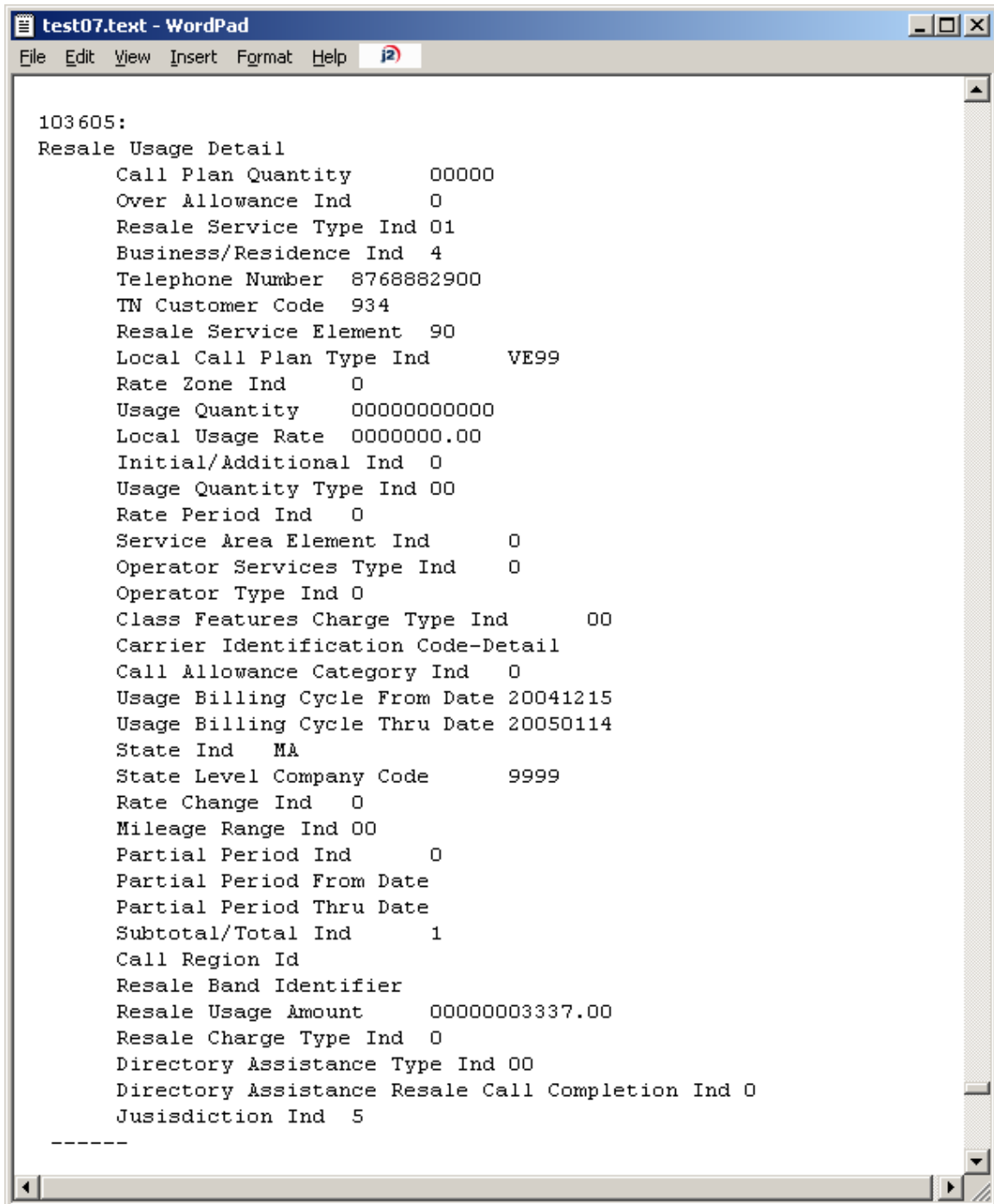


**Figure 15: A Resale Call Usage Detail Record (Text Format)**

Figure 15 shows a Resale Call Usage Detail Record in text format. This information is the detailed description of a single customer call. There are additional BOS indicator fields for this specific record that are filtered out by CABS Viewer.



## CABS Viewer User's Guide



```
test07.txt - WordPad
File Edit View Insert Format Help

103605:
Resale Usage Detail
  Call Plan Quantity      00000
  Over Allowance Ind      0
  Resale Service Type Ind 01
  Business/Residence Ind  4
  Telephone Number 8768882900
  TN Customer Code  934
  Resale Service Element  90
  Local Call Plan Type Ind    VE99
  Rate Zone Ind      0
  Usage Quantity      000000000000
  Local Usage Rate  0000000.00
  Initial/Additional Ind  0
  Usage Quantity Type Ind 00
  Rate Period Ind      0
  Service Area Element Ind    0
  Operator Services Type Ind  0
  Operator Type Ind      0
  Class Features Charge Type Ind    00
  Carrier Identification Code-Detail
  Call Allowance Category Ind  0
  Usage Billing Cycle From Date 20041215
  Usage Billing Cycle Thru Date 20050114
  State Ind      MA
  State Level Company Code      9999
  Rate Change Ind  0
  Mileage Range Ind 00
  Partial Period Ind      0
  Partial Period From Date
  Partial Period Thru Date
  Subtotal/Total Ind      1
  Call Region Id
  Resale Band Identifier
  Resale Usage Amount      00000003337.00
  Resale Charge Type Ind  0
  Directory Assistance Type Ind 00
  Directory Assistance Resale Call Completion Ind 0
  Jusisdiction Ind  5
-----
```

**Figure 16: A Resale Usage Detail Record (Text Format)**

Figure 16 shows a Resale Usage Detail Record or monthly summary by end user subscriber (originating telephone number) in text format.

## Valid Text output format options

The following options will still generate valid Text output

--billrecords	--raw
--common	--recno
--csrrecords	--summary**
--debug*	--summarydetail**
--detailrecords	--text
--noheader	--types
--number	--uppercase
--output	

The following options will not generate valid Text output

--bodyonly	--help
--csv	--html
--database	--version
--debug*	--xml

\* Debug will generate valid output only if the `--output` option is used or stdout is redirected to a file. All debug data is written to stderr.

\*\* A summary report is in text format but will not produce a valid text output format containing any CABS BOS values.

## The CSV (Comma-Delimited) Output Format

Another output format that CABS Viewer supports is the Comma Separated Values (or CSV) file format.

CSV files can be opened by Microsoft Excel or OpenOffice Calc for viewing or by Notepad, Wordpad, and other text editors – and can easily be parsed as input files by most database software and spreadsheet products.

	A	B																		
	CABS Viewer version 1.0.3 Licensed to: LWC Internal QA test group SerialNumber: test2005-0003 License Expires on :Fri Feb 3 15:43:30 2006																			
1	CABS Viewer version 1.0.3 Licensed to: LWC Internal QA test group SerialNumber: test2005-0003 Licen																			
2																				
3	100101.00:																			
4		Invoice Num	Q20050100123456																	
5		Version Nu	420																	
6		Orig Comp	9999																	
7		Orig RAO/	0																	
8		Mailing fro	21																	
9		Bill Type	0																	
10		LATA Code	0																	
11		ICO Identif																		
12		Account S	2																	
13		Abbreviate	0																	
14		Type of Ac Q																		
15		Feature Gr																		
16		Carrier Ider	0																	
17		State Leve	9999																	
18		Pack Crea	20050124																	
19		Account M																		

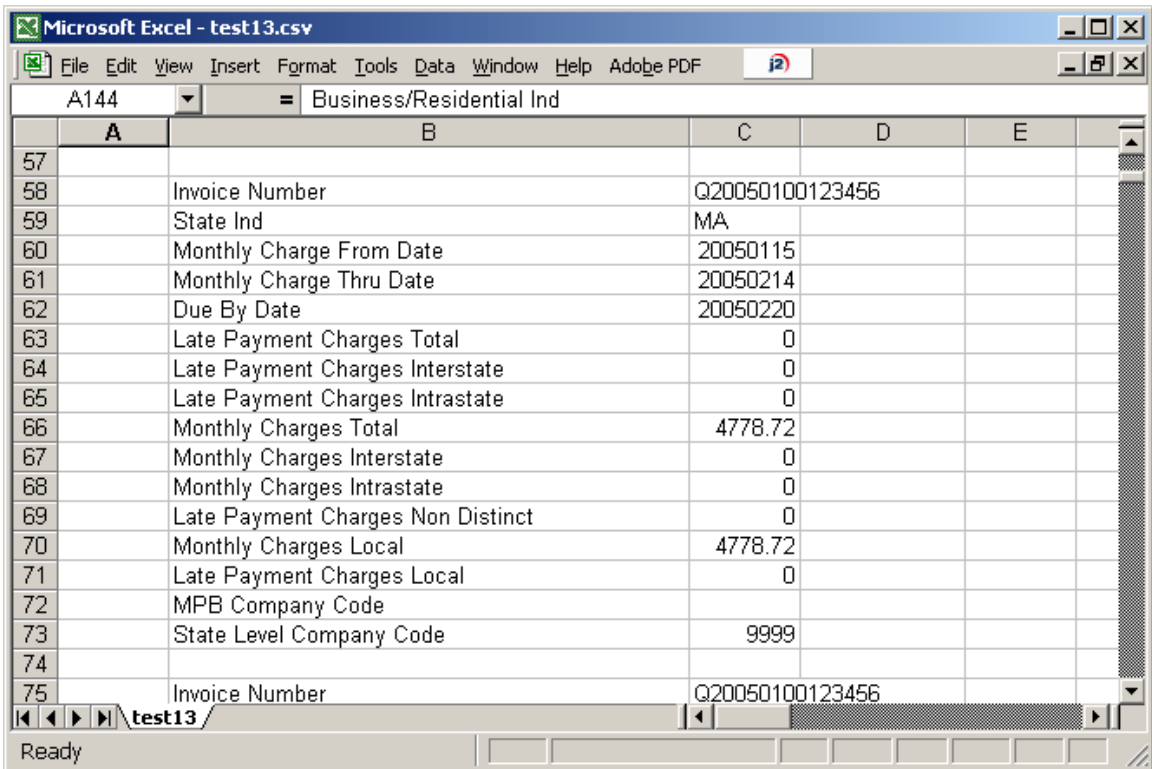
Figure 17: The Initial CSV Output Format

Figure 17 shows the initial view of a CSV output file as displayed by Microsoft Excel.

### Basic formatting of column widths

The single downside of CSV as a spreadsheet format is that no formatting data is included within the CSV file. We suggest that the second (B) column be auto-sized to a reasonable width. Be sure to save the spreadsheet as a native spreadsheet format (like .xls for Excel format).

## CABS Viewer User's Guide



The screenshot shows a Microsoft Excel window titled "Microsoft Excel - test13.csv". The menu bar includes File, Edit, View, Insert, Format, Tools, Data, Window, Help, and Adobe PDF. The active cell is A144, containing the text "Business/Residential Ind". The spreadsheet displays the following data:

	A	B	C	D	E
57					
58		Invoice Number	Q20050100123456		
59		State Ind	MA		
60		Monthly Charge From Date	20050115		
61		Monthly Charge Thru Date	20050214		
62		Due By Date	20050220		
63		Late Payment Charges Total	0		
64		Late Payment Charges Interstate	0		
65		Late Payment Charges Intrastate	0		
66		Monthly Charges Total	4778.72		
67		Monthly Charges Interstate	0		
68		Monthly Charges Intrastate	0		
69		Late Payment Charges Non Distinct	0		
70		Monthly Charges Local	4778.72		
71		Late Payment Charges Local	0		
72		MPB Company Code			
73		State Level Company Code	9999		
74					
75		Invoice Number	Q20050100123456		

**Figure 18: Detail Record (CSV format after reformat)**

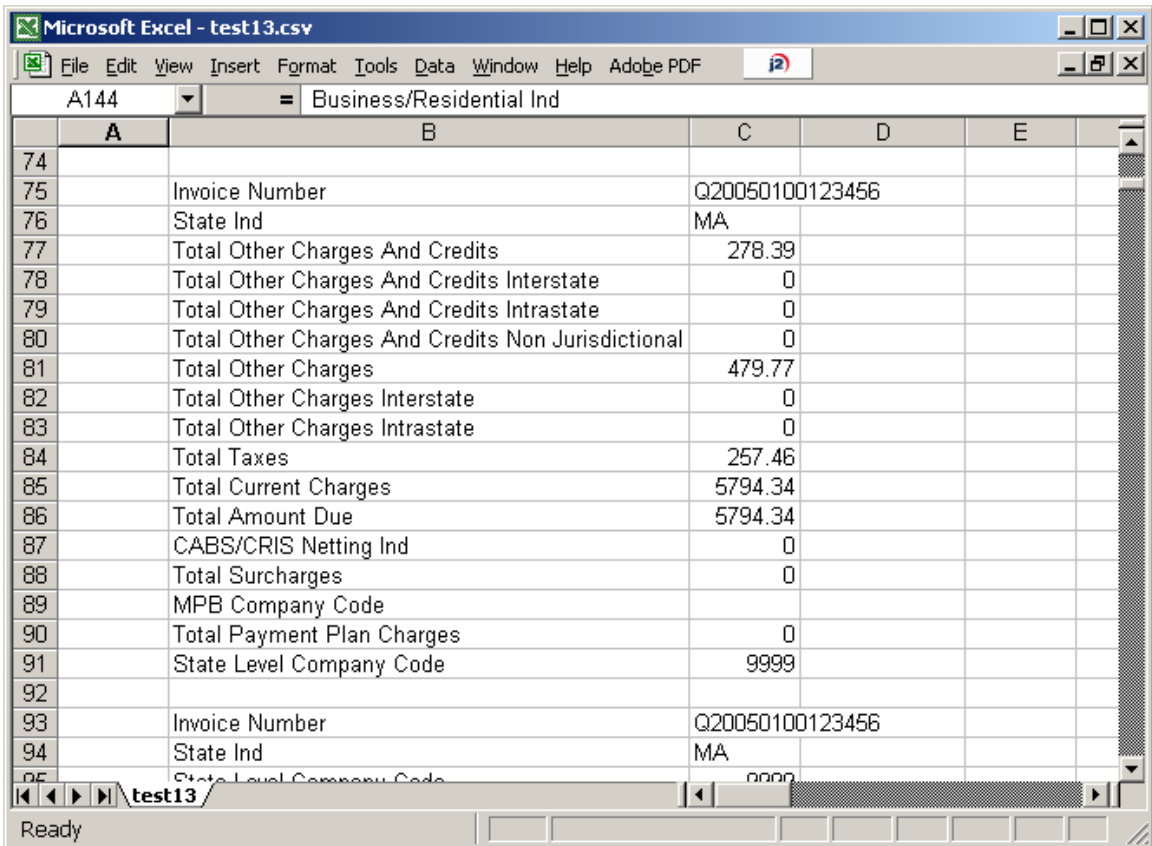
Figure 18 is an example of a standard CSV output file, after column B width had been auto-formatted for easier viewing.

The typical format for CSV BOS record field rows is:

```
<empty>    <Field Name>    <Field Values>
```

---

## CABS Viewer User's Guide



The screenshot shows a Microsoft Excel window titled 'Microsoft Excel - test13.csv'. The active cell is A144, containing the text '= Business/Residential Ind'. The spreadsheet displays a table with columns A through E. The data is as follows:

	A	B	C	D	E
74					
75		Invoice Number	Q20050100123456		
76		State Ind	MA		
77		Total Other Charges And Credits	278.39		
78		Total Other Charges And Credits Interstate	0		
79		Total Other Charges And Credits Intrastate	0		
80		Total Other Charges And Credits Non Jurisdictional	0		
81		Total Other Charges	479.77		
82		Total Other Charges Interstate	0		
83		Total Other Charges Intrastate	0		
84		Total Taxes	257.46		
85		Total Current Charges	5794.34		
86		Total Amount Due	5794.34		
87		CABS/CRIS Netting Ind	0		
88		Total Surcharges	0		
89		MPB Company Code			
90		Total Payment Plan Charges	0		
91		State Level Company Code	9999		
92					
93		Invoice Number	Q20050100123456		
94		State Ind	MA		
95		State Level Company Code	9999		

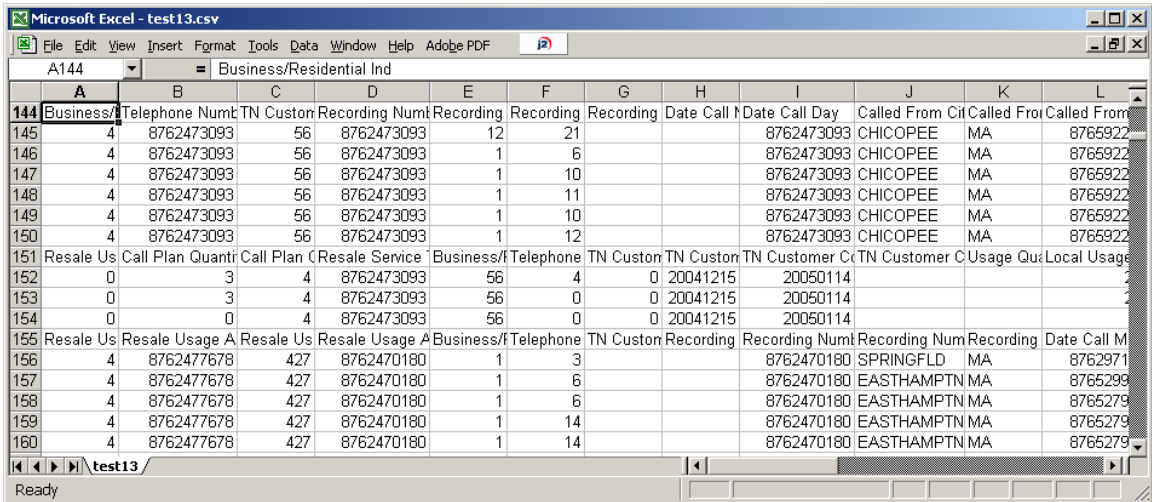
**Figure 19: Another detail record (CSV Format)**

Figure 19 is another example of a standard CSV output format. This CSV output displays the record in “row” format, the default CSV format for most BOS records.

## CSV Column Format

Several CABS BOS records are displayed in CSV “column” format for ease of display. The specific records selected for this display format has been encoded in internal CABS Viewer filters. Lymeware can specially modify this selection and a custom CABS Viewer binary delivered upon request.

## CABS Viewer User's Guide



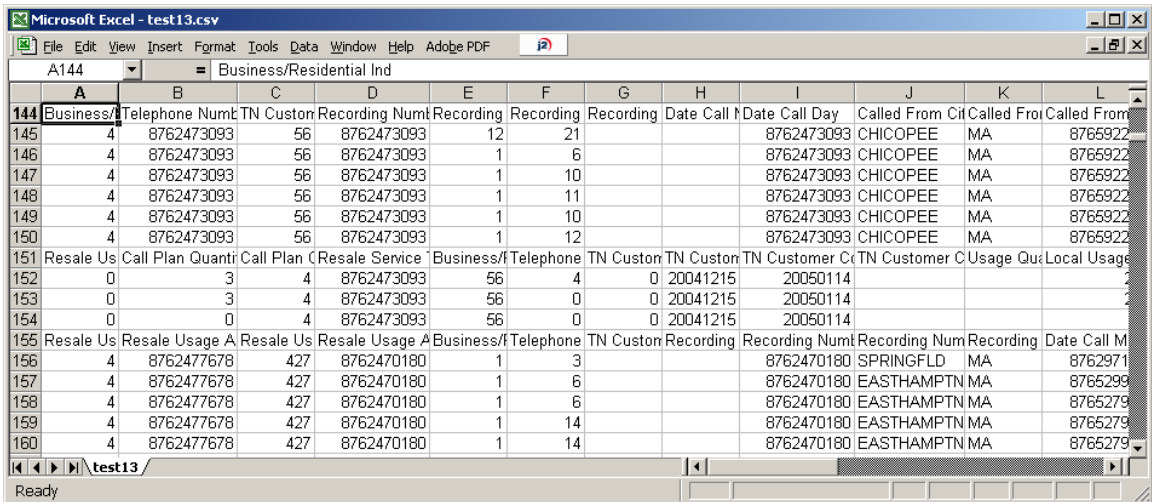
The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L
144	Business/	Telephone Num	TN Custom	Recording Num	Recording	Recording	Recording	Date Call	Date Call Day	Called From C	Called Fro	Called From
145	4	8762473093	56	8762473093	12	21			8762473093	CHICOPEE	MA	8765922
146	4	8762473093	56	8762473093	1	6			8762473093	CHICOPEE	MA	8765922
147	4	8762473093	56	8762473093	1	10			8762473093	CHICOPEE	MA	8765922
148	4	8762473093	56	8762473093	1	11			8762473093	CHICOPEE	MA	8765922
149	4	8762473093	56	8762473093	1	10			8762473093	CHICOPEE	MA	8765922
150	4	8762473093	56	8762473093	1	12			8762473093	CHICOPEE	MA	8765922
151	Resale Us	Call Plan Quanti	Call Plan C	Resale Service	Business/f	Telephone	TN Custon	TN Custon	TN Custome	C	Usage Qu	Local Usage
152	0	3	4	8762473093	56	4	0	20041215	20050114			
153	0	3	4	8762473093	56	0	0	20041215	20050114			
154	0	0	4	8762473093	56	0	0	20041215	20050114			
155	Resale Us	Resale Usage A	Resale Us	Resale Usage A	Business/f	Telephone	TN Custon	Recording	Recording Num	Recording Num	Recording	Date Call M
156	4	8762477678	427	8762470180	1	3			8762470180	SPRINGFLD	MA	8762971
157	4	8762477678	427	8762470180	1	6			8762470180	EASTHAMPTN	MA	8765299
158	4	8762477678	427	8762470180	1	6			8762470180	EASTHAMPTN	MA	8765279
159	4	8762477678	427	8762470180	1	14			8762470180	EASTHAMPTN	MA	8765279
160	4	8762477678	427	8762470180	1	14			8762470180	EASTHAMPTN	MA	8765279

Figure 20: Resale Call Detail Usage Records (in CSV Column Format)

This example in Figure 20 shows how column format is displayed in CSV output format. In column format all record data is displayed in a single line.

## CSV Database Format



The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L
144	Business/	Telephone Num	TN Custom	Recording Num	Recording	Recording	Recording	Date Call	Date Call Day	Called From C	Called Fro	Called From
145	4	8762473093	56	8762473093	12	21			8762473093	CHICOPEE	MA	8765922
146	4	8762473093	56	8762473093	1	6			8762473093	CHICOPEE	MA	8765922
147	4	8762473093	56	8762473093	1	10			8762473093	CHICOPEE	MA	8765922
148	4	8762473093	56	8762473093	1	11			8762473093	CHICOPEE	MA	8765922
149	4	8762473093	56	8762473093	1	10			8762473093	CHICOPEE	MA	8765922
150	4	8762473093	56	8762473093	1	12			8762473093	CHICOPEE	MA	8765922
151	Resale Us	Call Plan Quanti	Call Plan C	Resale Service	Business/f	Telephone	TN Custon	TN Custon	TN Custome	C	Usage Qu	Local Usage
152	0	3	4	8762473093	56	4	0	20041215	20050114			
153	0	3	4	8762473093	56	0	0	20041215	20050114			
154	0	0	4	8762473093	56	0	0	20041215	20050114			
155	Resale Us	Resale Usage A	Resale Us	Resale Usage A	Business/f	Telephone	TN Custon	Recording	Recording Num	Recording Num	Recording	Date Call M
156	4	8762477678	427	8762470180	1	3			8762470180	SPRINGFLD	MA	8762971
157	4	8762477678	427	8762470180	1	6			8762470180	EASTHAMPTN	MA	8765299
158	4	8762477678	427	8762470180	1	6			8762470180	EASTHAMPTN	MA	8765279
159	4	8762477678	427	8762470180	1	14			8762470180	EASTHAMPTN	MA	8765279
160	4	8762477678	427	8762470180	1	14			8762470180	EASTHAMPTN	MA	8765279

Figure 21: Resale Call Detail Usage Records (in CSV Database Format)

If the CSV output is used as import to a database, a special format (as displayed in Figure 21) should be used. This special format (selected by the `-D` or `--database` options) collapses the record number into the CSV row for each field displayed, and directly supports import to many major databases (including Microsoft Access, Microsoft SQL-Server, Oracle, MySQL, Informix, Sybase, and several others).

Currently the `-database` format builds a single CSV file, but a perl script is supplied which will spilt the single database file into multiple CSV files, one file for each

---

## CABS Viewer User's Guide

record type, each with a single header record (with field names), and all other records in the format:

Record Number,	Index Record Number,	<remaining CSV data>
----------------	----------------------	----------------------

**Table 3. Standard Database Record Format**

The Perl script is provided as a wrapper script, which calls the cabsviewer binary internally. It is used with the following options:

```
Usage: database_split [-hedvx] [-b <binary path>]
CABS_BOS_file [CABS_BOS_file [...]]
```

```
database_split-1.0.2
```

```
Process a CABS BOS input file and generates a split database
output format in multiple files, specifically for database
import use.
```

```
Display Options:
```

```
  -h Help -- just display this message and quit.
  -d Do display all debug messages to STDERR.
  -e Display all invalid log entries on STDERR.
  -v Verbose display (to STDERR) of each entry processed.
  -x Display all requests of nonexistent files to STDERR.
```

```
Input Options:
```

```
  -b <binary path> Force the use of <binary path> for
    CABS Viewer binary location.
  ... Process the sequence of CABS BOS files.
```

## Valid CSV output format options

The following options will still generate valid CSV output

--billrecords	--noheader
--common	--number
--csrrecords	--output
--csv	--recno
--database	--types
--debug*	--uppercase
--detailrecords	

---

## CABS Viewer User's Guide

The following options will not generate valid CSV output

--bodyonly	--summarydetail
--debug*	--text
--help	--version
--html	--xml
--raw	
--summary	

\* Debug will generate valid output only if the `--output` option is used or stdout is redirected to a file. All debug data is written to stderr.



## The XML Output Format

Extensible Markup Language (XML) is a simple, very flexible text format derived from SGML ([ISO 8879](#)). Originally designed to meet the challenges of large-scale electronic publishing, XML is also playing an increasingly important role in the exchange of a wide variety of data on the Web and elsewhere.

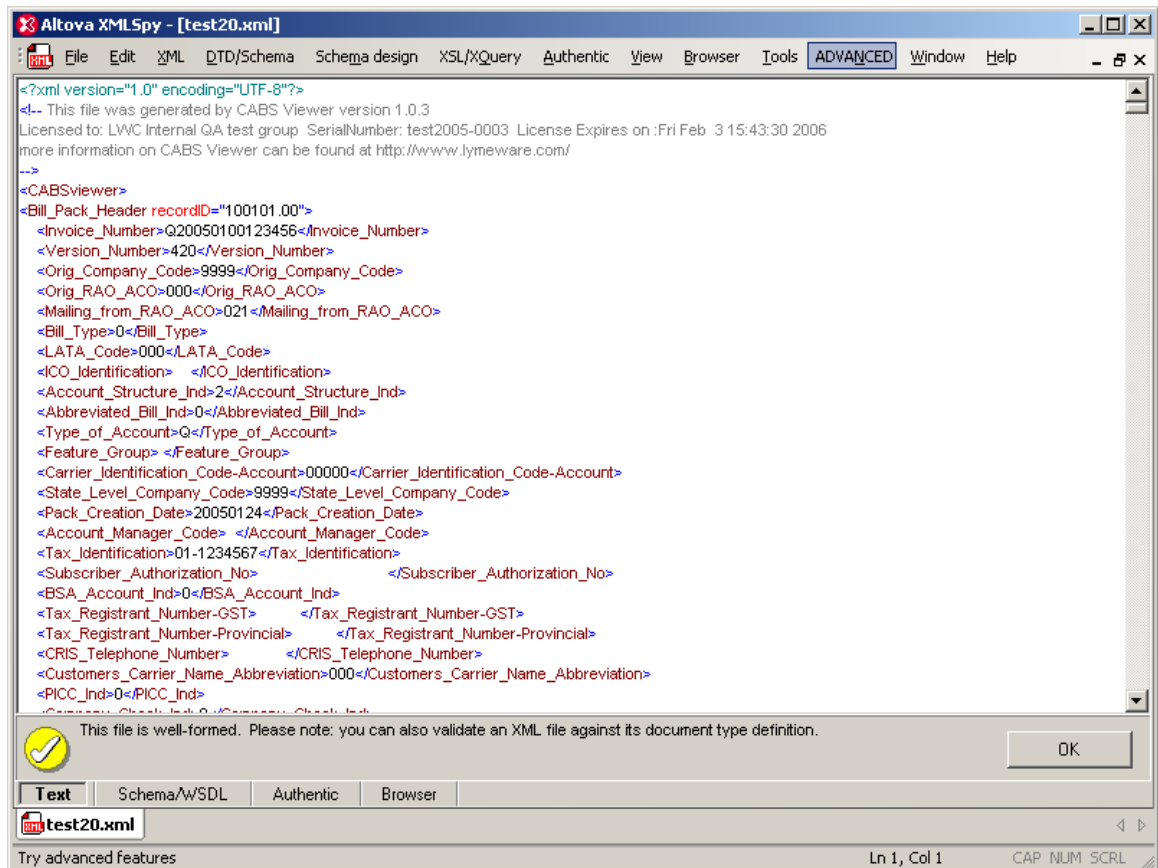
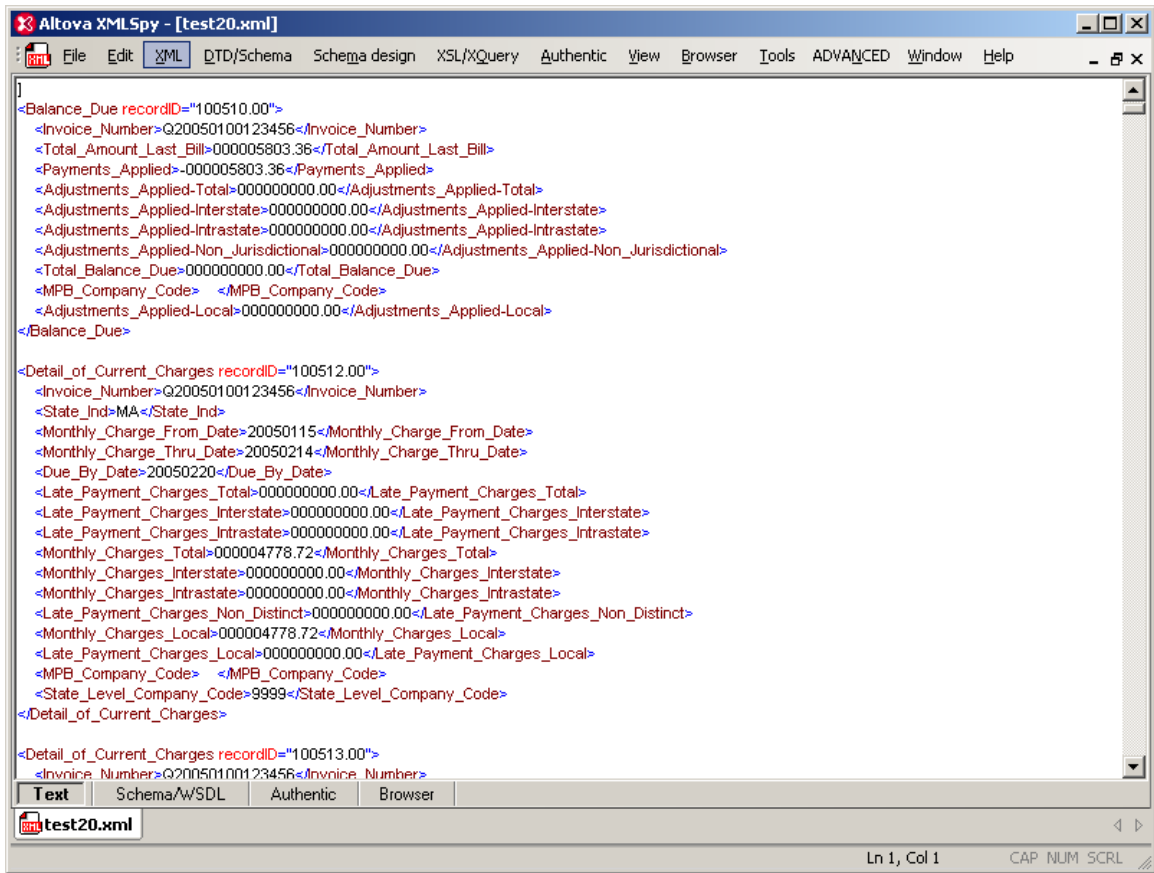


Figure 22: A “Well-Formed” Detail Record (XML Format)

Figure 22 shows a CABS Viewer XML output format file (as displayed by XMLSpy). Note the yellow check mark and the message “This file is well-formed.” Well-formed XML is correctly formatted as per the XML standards.

## CABS Viewer User's Guide



**Figure 23: Detail Record (XML Format)**

A Detail of Current Charges record in XML format is shown in Figure 23. This file was generated without any command line options. This information is the high level summary of monthly charges for this company (State Level Company Code = 9999).

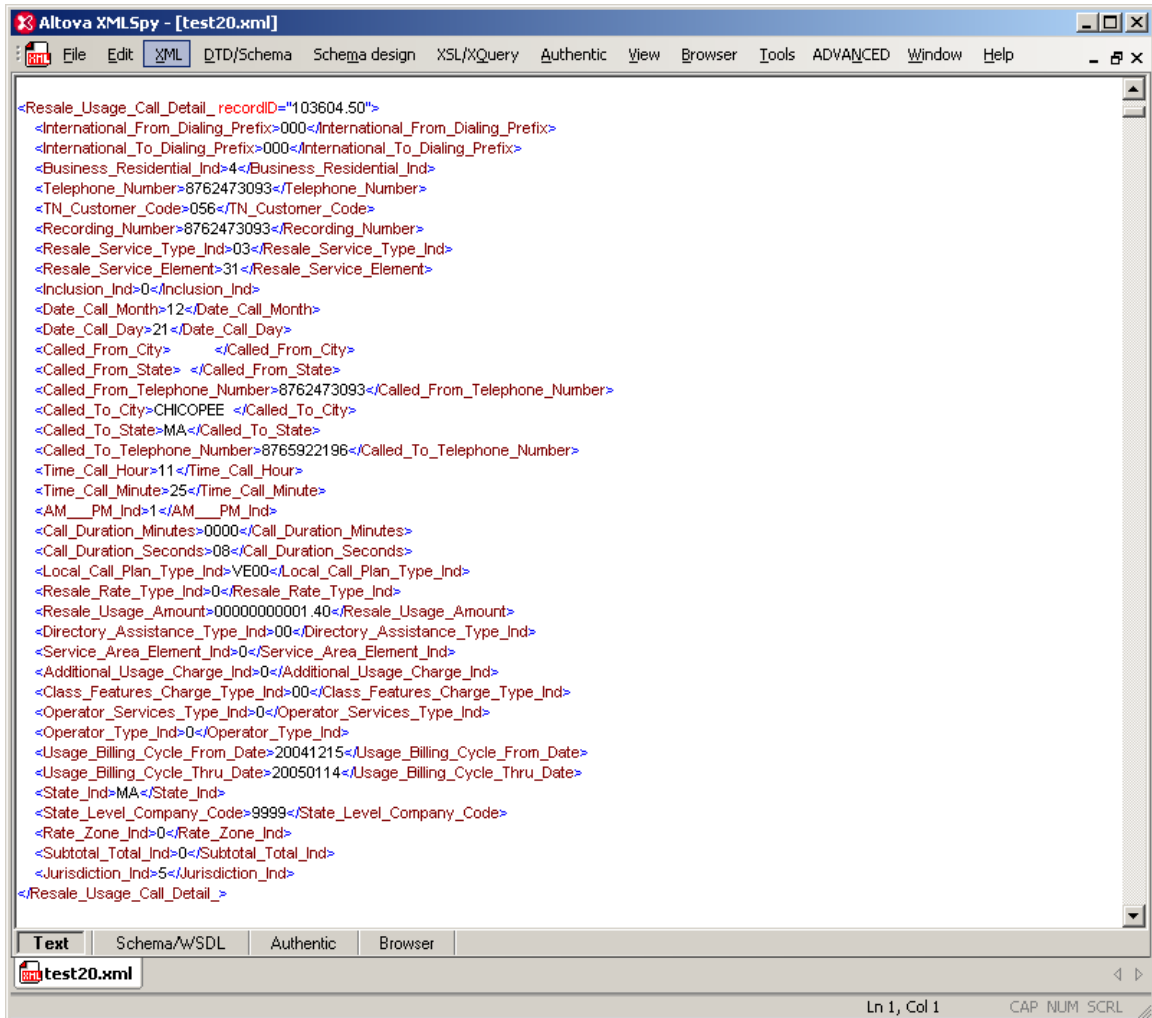
## XML Field Name to Tag Name Translations

CABS Viewer generates XML tag names on the fly from the BOS record field descriptions. Due to the nature of XML formatting, specific characters are not valid as tag name components. These translations are documented below:

Field Description Character	Tag Name Character
(space)	_ (underscore)
\ (back slash)	_ (underscore)
/ (forward slash)	_ (underscore)
< (less than)	_ (underscore)
> (greater than)	_ (underscore)
& (and sign)	_ (underscore)

**Table 4. XML Tag Name Translations**

Therefore the field description of "AM & PM Ind" is translated to "AM\_\_PM\_Ind".



**Figure 24: Resale Call Detail Usage Record (XML Format)**

Figure 24 shows a Resale Call Usage Detail Record in XML format. This information is the detailed description of a single customer call. There are additional BOS indicator fields for this specific record that are filtered out by CABS Viewer.

## Valid XML output format options

The following options will still generate valid XML output

--billrecords	--noheader
--common	--number
--csrrecords	--output
--debug*	--uppercase
--detailrecords	--xml

The following options will not generate valid XML output

--bodyonly	--recno
--csv	--summary
--database	--summarydetail
--debug*	--text
--help	--types
--html	--version
--raw	

\* Debug will generate valid output only if the `--output` option is used or stdout is redirected to a file. All debug data is written to stderr.

## The HTML Output Format

The final output format CABS Viewer supports is HyperText Markup Language (HTML) version 4, the publishing language of the World Wide Web. In addition to the text, multimedia, and hyperlink features of the previous versions of HTML (HTML 3.2 [\[HTML32\]](#) and HTML 2.0 [\[RFC1866\]](#)), HTML 4 supports more multimedia options, scripting languages, style sheets, better printing facilities, and documents that are more accessible to users with disabilities. HTML 4 also takes great strides towards the internationalization of documents, with the goal of making the Web truly World Wide.

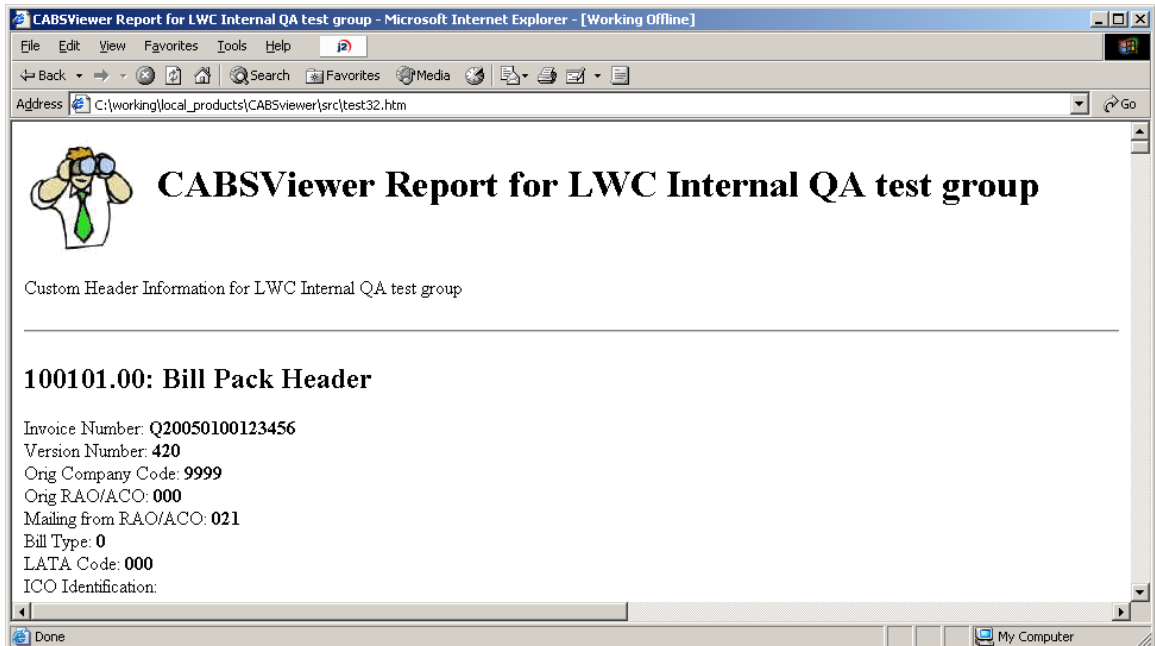
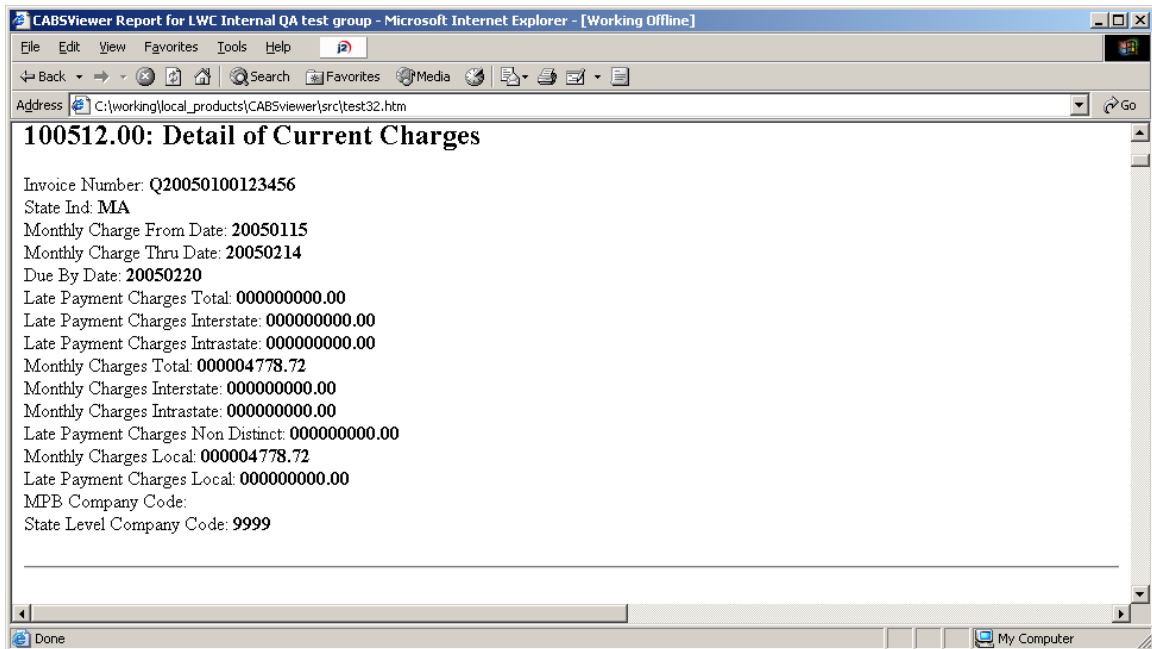


Figure 25: Example of HTML Output

Figure 25 is a standard example of CABS Viewer HTML output format. In this example the output file was generated with the `--recno` option (which displayed the “100101.00” record number) and the `--types` option (which displays the “Bill Pack Header” record name). This example does not show the “common fields”, which repeat the same exact data for each record. Display of the “common fields” is off by default.

---

## CABS Viewer User's Guide



**Figure 26: A Detail Record (HTML Format)**

A Detail of Current Charges record in HTML format is shown in Figure 26. This file was generated without any command line options. This information is the high level summary of monthly charges for this company (State Level Company Code = 9999).

## HTML Table Format

Several CABS BOS records are displayed in HTML “table” format for ease of display (similar to CSV’s “column” format). The specific records selected for this display format has been encoded in internal CABS Viewer filters. The HTML output table format does use HTML table tags.

## CABS Viewer User's Guide

Business/Residential Ind	Telephone Number	TN Customer Code	Recording Number	Date Call Month	Date Call Day	Date Call City	Date Call State	Called From Telephone Number	Called From City	Called To State	Called To Telephone Number	Time Call Hour	Time Call Minute	AM/PM
4	8762473093	056	8762473093	12	21			8762473093	CHICOPEE MA		8765922196	11	25	1
4	8762473093	056	8762473093	01	06			8762473093	CHICOPEE MA		8765922196	03	34	2
4	8762473093	056	8762473093	01	10			8762473093	CHICOPEE MA		8765922196	02	35	2
4	8762473093	056	8762473093	01	11			8762473093	CHICOPEE MA		8765922196	10	02	1
4	8762473093	056	8762473093	01	10			8762473093	CHICOPEE MA		8765922196	01	54	2
4	8762473093	056	8762473093	01	12			8762473093	CHICOPEE MA		8765922196	01	14	2

Figure 27: Resale Call Detail Usage Records (HTML Table Format)

This example in Figure 27 shows how table format is displayed in HTML output format. In table format all record data is displayed in a single line.

## The --bodyonly Option

You may want to customize the HTML output data to a standard corporate template or display format. To facilitate this, the `-b` or `--bodyonly` option is provided. Typical html pages have the following format:

```
<html>
<head>
  <title> title </title>
  header tags and data
</head>
<body>
  CABS Viewer header
  body tags and data
  CABS Viewer trailer
</body>
</html>
```

Table 5. HTML Standard Format Outline

But with the `--bodyonly` option only the following HTML code will be generated:

```
CABS Viewer header
```

---

## CABS Viewer User's Guide

body tags and data CABS Viewer trailer
---

**Table 6. HTML Body-Only Format Outline**

To allow the page to be correctly rendered, a HTML header and a HTML trailer portion will need to be provided.

Data, similar to this example, should be provided for the HTML header:

<pre>&lt;!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd"&gt;&lt;html&gt;&lt;head&gt;&lt;title&gt;CABSViewer Report for LWC Internal QA test group&lt;/title&gt;&lt;/head&gt;&lt;body&gt;&lt;a name="top"&gt;&lt;/a&gt;</pre>
---

In addition, data, similar to this example, should be provided for the HTML trailer:

<pre>&lt;/BODY&gt;&lt;/HTML&gt;</pre>
---------------------------------------

## Valid HTML output format options

The following options will still generate valid HTML output

--billrecords	--number
--bodyonly**	--output
--common	--raw
--csrrecords	--recno
--debug*	--types
--detailrecords	--uppercase
--html	
--noheader	

The following options will not generate valid HTML output

--csv	--summarydetail
--database	--text
--debug*	--version
--help	--xml
--summary	

\* Debug will generate valid output only if the --output option is used or stdout is redirected to a file. All debug data is written to stderr.

\*\* The --bodyonly option will generate valid HTML that will only comprise a portion of a valid page of HTML.



# CABS Viewer Utilities

---

## Utilities Overview

Although CABS Viewer can generate several output formats, some customers require additional functionality either to support their current processing stream or to generate specific required reports. Most processing stream requirements can be supported with wrapper scripts. A wrapper script is a (usually compiled Perl) script, which can do pre or post stream or data processing and directly call CABS Viewer from inside the script. Examples of two such processing stream scripts are illustrated below.

Lymeware has two methods of generating additional or custom reports:

- Wrapper scripts, or
- Customizing CABS Viewer directly

## Wrapper scripts for custom reports

Lymeware (or any other Perl or script expert) can take the raw CABS Viewer output (in any of the selected output formats) and modify/filter/process the data and generate specialized reports. An example of such a script is below.

## Customizing CABS Viewer internal filters

Lymeware can also take your custom report requirements and generate a custom CABS Viewer binary, with your requirements coded in to the internal filters. So, for example, if you only wanted to display **Resale Usage Call Detail** (10-36.04:50) Records and only the TN fields (**Called From Telephone Number** and **Called To Telephone Number** field values), this can be done. These specific records and fields can be un-filtered (and every other record and field can be filtered out) to create the report as needed.

Do contact Lymeware Sales if you have custom report needs. We can help.

## Batch Processor

The CABS Viewer system can process a list of files but cannot rename all the output files to unique and recognizable (and match-able to the original input filenames) output filenames.

---

## CABS Viewer User's Guide

This simple CABS Viewer wrapper script allows a single directory, as the only required argument.

```
perl processBatch.pl [options] <directory>
```

This script will take any input CABS BOS BDT file (e.g. `cabs.bos`), process it and save the output in a file called `cabs.bos.out`.

```
Usage: processBatch [-hdv] [-b <binary path>] [-e <extension>]
[-t <output format>] [-a <command line arguments>]
<CABS_BOS_directory>
```

```
processBatch-1.0.1
```

Process a single directory containing CABS BOS input files (with default extension of `.bos`) and run CABS Viewer (with arguments) on each.

Display Options:

- h Help -- just display this message and quit.
- d Do display all debug messages to STDERR.
- v Verbose display (to STDERR) of each entry processed.

Input Options:

- b <binary path> Force the use of <binary path> for CABS Viewer binary location.
- e <extension> Treat any files with this extension as an input file (default is `.bos`).
- t <output format> can be one of the following:  
text, csv, xml, html or database
- a <command line arguments> to pass to CABS Viewer for each file processed.

<CABS\_BOS\_directory> full path to directory of BOS files.

## Process an Entire Directory of Files

The CABS Viewer system can repeatedly process the contents of a single directory with the following utility. The only single requirement is that every CABS BOS BTD data file must have `.bos` as an extension. The resulting output files will have either `.text`, a `.csv`, a `.xml` or a `.htm` as extensions to the same base filename.

This simple CABS Viewer wrapper script allows a single directory, as the only required argument.

```
perl processDirectory.pl [options] <directory>
```

This script will poll the directory every 5 minutes for any new **.bos** files. Any processed **.bos** files will be renamed with a **.done** extension (so they will not be reprocessed on the next poll).

```
Usage: processDirectory [-hdv] [-b <binary path>] [-e  
<extension>] [-t <output format>] [-a <command line  
arguments>] <CABS_BOS_directory>
```

```
processDirectory-1.0.1
```

Process a single directory containing CABS BOS input files (with default extension of **.bos**) and run CABS Viewer (with args) on each, polling every 5 minutes.

Display Options:

- h Help -- just display this message and quit.
- d Do display all debug messages to STDERR.
- v Verbose display (to STDERR) of each entry processed.

Input Options:

- b <binary path> Force the use of <binary path> for CABS Viewer binary location.
- e <extension> Treat any files with this extension to an input file (default is **.bos**).
- t <output format> can be one of the following:  
text, csv, xml, html or database
- a <command line arguments> to pass to CABS Viewer for each file processed.

<CABS\_BOS\_directory> full path to directory of BOS files.

## A Custom Report

Lymeware can supply custom output report filters and formatters to produce specific required reports, including:

- FID/USOC reports,
- CSR Account reports,
- Detailed Usage reports,
- End User reports,
- And many others

---

## CABS Viewer User's Guide

An example of a custom report is the **genCSRreport** script. This report was requested by a CABS Viewer customer who wanted to have a specific Microsoft Excel output report format (as displayed in Figure 28). The report is generated with the following command:

```
perl genCSRreport.pl [options] <file>
```

With a usage of the following:

```
Usage: genCSRreport [-hedvx] [-b <binary path>] CABS_BOS_file  
[CABS_BOS_file [...]]
```

```
genCSRreport-1.0.1
```

```
Process a CABS BOS input file and output a CSR Report summary  
in CSV format, specifically for Excel use.
```

```
Display Options:
```

- h Help -- just display this message and quit.
- d Do display all debug messages to STDOUT.
- e Display all invalid log entries on STDERR.
- v Verbose display (to STDERR) of each entry processed.
- x Display all requests of nonexistent files to STDERR.

```
Input Options:
```

- b <binary path> Force the use of <binary path> for  
CABS Viewer binary location.
- ... Process the sequence of CABS BOS files.

# CABS Viewer User's Guide

Record Number	40 15 05	40 15 10	40 15 10	40 15 20	40 15 20	40 15 20	40 15 25	40 15 25
Field within Record	FID Data	USOC	FID Data	USOC Quantity	Local Unit Rate	Local Billed Amount	Services and Features Subtotal	Local Subtotal
Description	BTN	USOC	Line Number	USOC Quantity	Unit Rate	Total Rate	Usoc Sub Total	BTN Total
	5559011155	ZZOPL	/TN 5559011155					
		RMT1L	/TN 5559011155/CLS 65.BANA.28674..NE 0 PRIVATE LINE SPECIAL BILL NUMBER. OBTAIN COMMUNITY /CLS 65.BA					
		1L3AJ	/TN 5559011155/DES FR 258-4531	1	12.14	12.14		
							12.14	12.14
	5557437700	1FB	/TN 5557431253					
		1LB	/TN 5557431253	1	32.27	32.27		
		POR2X	/TN 5557431253/TN 555 743-1253	1	0.21	0.21		
		TTB	/TN 5557431253/TN 555 743-1253					
		1LB	/TN 5557431739	1	32.27	32.27		
		POR2X	/TN 5557431739/TN 555 743-1739	1	0.21	0.21		
		TTB	/TN 5557431739/TN 555 743-1739					
		PSEBO	/TN 5557431739/TN 555 743-1739/PROX C					
		1LB	/TN 5557432141	1	32.27	32.27		
		POR2X	/TN 5557432141/TN 555 743-2141	1	0.21	0.21		
		TTB	/TN 5557432141/TN 555 743-2141					
		PSEBO	/TN 5557432141/TN 555 743-2141/PROX C					
		1LB	/TN 5557435735	1	32.27	32.27		
		POR2X	/TN 5557435735/TN 555 743-5735	1	0.21	0.21		
		TTB	/TN 5557435735/TN 555 743-5735					
		1LB	/TN 5557437235	1	32.27	32.27		
		ESM	/TN 5557437235/TN 555 743-7235	1	4.5	4.5		
		POR2X	/TN 5557437235/TN 555 743-7235	1	0.21	0.21		
		TTB	/TN 5557437235/TN 555 743-7235					
		1LB	/TN 5557437302	1	32.27	32.27		
		POR2X	/TN 5557437302/TN 555 743-7302	1	0.21	0.21		
		TTB	/TN 5557437302/TN 555 743-7302					
		1LB	/TN 5557437367	1	32.27	32.27		

**Figure 28: CSR Report in Excel**

# How to Get Help

---

This chapter explains how to contact Lymeware Product Support if you need assistance with your CABS Viewer product.

## Scope of Support Services

Lymeware Product Support can provide assistance and information for the following:

- Installing the CABS Viewer product
- CABS Viewer product questions
- Software revisions and upgrades
- Implementing a specific feature
- How to use the CABS Viewer product
- The status of your support call
- Requests for product enhancement

Unfortunately, we cannot assist you with problems involving the following, but we may be able to suggest a next step or another vendor to call:

- Your hardware
- Your operating system or other system software
- Your application or user-written programs
- Software not developed by Lymeware Corporation
- Scripts written by Lymeware consultants, partners, or other third parties

## Try this first

Before you call Lymeware Product Support, use your software manuals (including this manual) to locate the section that documents the program or feature where you are having problems. The documentation may explain the software's behaviour or give you insight to help you solve the problem.

---

## Contact Lymeware Product Support

Two e-mail addresses are available for CABS Viewer product support or to report a potential bug in the software or documentation. Please use the following addresses:

[Support@lymeware.com](mailto:Support@lymeware.com) for all technical inquiries and problem reports, including documentation issues from customers with support contracts. Customers should include relevant contact details, including company name and phone number, in initial message to speed processing. Messages that are continuations of an existing problem report should include the problem report ID in the subject line. Customers without support contracts with Lymeware Corporation should not use this address, but should contact their distributor directly.

[Bugs@lymeware.com](mailto:Bugs@lymeware.com) for bug reports and documentation problems.

Bug reports on software releases are always welcome. These may be sent by any means, but e-mail to the bug reporting address listed above is preferred. Please send proposed fixes and successful workarounds with the report if possible. Additional useful information would include **CABS Viewer** software version, hardware description, operating system version and patches, screen dumps, relevant sections of logs and configuration files, and failed messages files. Any reports will be acknowledged, but further action is not guaranteed. Any changes resulting from bug reports may be included in future releases.

# Appendix A - CONFIGURATION WORKSHEETS AND FORMS

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This appendix contains worksheets that should be used to complete specific tasks during the installation, configuration and maintenance of your CABS Viewer product. The following table describes each worksheet.

<b>License Request Form</b>	This form is required for issuing of an evaluation or permanent license (required for product operation)
<b>Problem Reporting Form</b>	This form should be used for any problems encountered which can be reported back to Lymeware

**Table 7. CABS Viewer Product Worksheets**

These worksheets may be copied for use in maintaining your CABS Viewer product.



## License Request Form

A specific license data file will be required to run your CABS Viewer product. Lymeware or your distributor will be able to supply a valid license file if the following information is supplied:

<h1 style="margin: 0;">CABS Viewer License Request Form</h1> <p style="margin: 0; text-align: right;">Version 1.3</p>	
For requesting a valid commercial or evaluation CABS Viewer product license	
<b>Customer specific information</b>	
Customer (Company) Name:	
Lymeware Product Name: <b>CABS Viewer</b>	
Lymeware Product Version:	
Lymeware Product Options: <b>standard</b>	
Target Machine IP Address:	
Target Machine Host ID (only needed for Solaris):	
Target Machine Make and Model:	
Target Machine Operating System and Version:	
Contact Person:	
Contact Phone Number:	
Contact E-mail Address:	
This License Request Form may be faxed to Lymeware Corporation at (240) 218-7363 or the same information may be e-mailed to <a href="mailto:sales@lymeware.com">sales@lymeware.com</a> .	

Copyright © 2001-2006 Lymeware Corporation, All rights reserved  
 Permission to copy for use in CABS Viewer product installation is granted

The license file will be delivered to the Contact E-Mail Address. The license file must be installed in the CABS Viewer install directory as `license.dat` and must be owned by `root`.

# CABS Viewer Problem Report Form

Version 1.1

For reporting CABS Viewer product problems

**Customer specific information**

Your Name:

Your Company Name:

Your Telephone Number:

Your E-mail Address:

Your CABS Viewer product version:

Your CABS Viewer platform:

Any software add-ons to your CABS Viewer system:

A detailed description of the problem:

The sequence of steps that led to the problem:

Actions you have taken to diagnose or resolve the problem:

This Problem Report Form may be faxed to Lymeware Corporation at (240) 218-7363 or the same information may be e-mailed to [sales@lymeware.com](mailto:sales@lymeware.com).

Copyright © 2003-2006 Lymeware Corporation, All rights reserved  
Permission to copy for use in CABS Viewer product installation is granted

# Appendix B – CABS VIEWER REFERENCE DOCUMENTATION

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Telcordia Technologies	Special Report SR-1868 CABS (Carrier Access Billing System) Billing Output Specifications - Volume 1 Paper Bill and CSR, Feb 2004
Telcordia Technologies	Special Report SR-1869 CABS (Carrier Access Billing System) Billing Output Specifications - Volume 1A - Codes and Phrases, Feb 2009
Telcordia Technologies	Special Report SR-1871 CABS (Carrier Access Billing Specifications) Billing Output Specifications - Volume 2 - Service Exhibits, Mar 2000
Telcordia Technologies	Special Report SR-1872 CABS (Carrier Access Billing System) Billing Outputs Specifications - Volume 3 Billing Data Tape, Feb 2009
Telcordia Technologies	Special Report SR-1873 CABS (Carrier Access Billing System) Billing Output Specifications - Volume 3A Billing Data Tape Edits, Feb 2009
Telcordia Technologies	Special Report SR-1874 CABS (Carrier Access Billing System) Billing Output Specifications - Volume 4 - Data Elements, Feb 2009
Telcordia Technologies	Document Store <a href="http://telecom-info.telcordia.com/site-cgi/ido/index.html">http://telecom-info.telcordia.com/site-cgi/ido/index.html</a>
VIM	Vim User's Guide, <a href="http://vimdoc.sourceforge.net/">http://vimdoc.sourceforge.net/</a>
Microsoft	Excel User's Guide, <a href="http://www.microsoft.com/">http://www.microsoft.com/</a>
Sun Microsystems	StarOffice Manuals, <a href="http://docs.sun.com/app/docs/coll/so7en">http://docs.sun.com/app/docs/coll/so7en</a>
OpenOffice.org	OpenOffice User's Guides, <a href="http://download.openoffice.org/index.html">http://download.openoffice.org/index.html</a>
ThinkFree Office	ThinkFree Office User's Guides, <a href="http://www.thinkfree.com/">http://www.thinkfree.com/</a>
Altova	XMLSpy User's Guide, <a href="http://www.altova.com/">http://www.altova.com/</a>
Microsoft	Internet Explorer 6.0 User's Guide, <a href="http://www.microsoft.com/">http://www.microsoft.com/</a>
Mozilla.org	Mozilla User's Guide, <a href="http://www.mozilla.org/">http://www.mozilla.org/</a>
Mozilla.org	Firefox User's Guide, <a href="http://www.mozilla.org/">http://www.mozilla.org/</a>
Perl	Perl Documentation, <a href="http://www.perl.org/docs.html">http://www.perl.org/docs.html</a>
ActiveState	ActivePerl Documentation, <a href="http://aspn.activestate.com/ASPN/Reference/">http://aspn.activestate.com/ASPN/Reference/</a>
Red Hat	RPM User's Guide, <a href="http://www.redhat.com/docs/manuals/enterprise/">http://www.redhat.com/docs/manuals/enterprise/</a>

**Table 8. Commercial or third party documentation used by this product or manual**

<b>Standards Identification</b>	<b>Standards Body</b>	<b>Standards Title and Publication Date</b>
CSV	De facto	<a href="http://www.creativyst.com/Doc/Articles/CSV/CSV01.htm">http://www.creativyst.com/Doc/Articles/CSV/CSV01.htm</a>
XML	W3C	Extensible Markup Language (XML) 1.1 W3C Recommendation 04 February 2004 <a href="http://www.w3.org/TR/2004/REC-xml11-20040204/">http://www.w3.org/TR/2004/REC-xml11-20040204/</a>
HTML 3.2	W3C	HTML 3.2 Reference Specification W3C Recommendation 14-Jan-1997 <a href="http://www.w3.org/TR/REC-html32">http://www.w3.org/TR/REC-html32</a>
HTML 4.0.1	W3C	HTML 4.01 Specification W3C Recommendation 24 December 1999 <a href="http://www.w3.org/TR/html401">http://www.w3.org/TR/html401</a>

**Table 9. National, International, Internet, and Industry Standards used by this product**





103604500ABCD	20050115877Q0102341230001000000145	000007	000000	487624776784278762473249033100104	
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02004121520050114MA99990000	OZONE - 2	2	000000000099{0000	5	
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8765926038PITTSFIELDMA876442839012202000025	VEF30000000000028{	000000002004121520050114MA9999005			
103604500ABCD	20050115877Q01023412300010000000364	000009	000000	487659294110878765926038033100113	8765926038ADAMS
MA876743797702362000025	VEF300000000000028{	000000002004121520050114MA9999005			
103604500ABCD	20050115877Q01023412300010000000365	000009	000000	487659294110878765926038033100114	
8765926038PITTSFIELDMA876442839012252000026	VEF30000000000029{	000000002004121520050114MA9999005			
103604500ABCD	20050115877Q01023412300010000000366	000009	000000	487659294110878765926038033100113	8765926038ADAMS
MA876743797701162000026	VEF300000000000029{	000000002004121520050114MA9999005			
103604500ABCD	20050115877Q01023412300010000000367	000008	000000	487659294110878765926038033101221	8765926038ADAMS
MA876743797710071000030	VEF300000000000032{	000000002004121520050114MA9999005			
103604500ABCD	20050115877Q01023412300010000000368	000008	000000	487659294110878765926038033100103	8765926038ADAMS
MA876743797708131000031	VEF300000000000033{	000000002004121520050114MA9999005			
103604500ABCD	20050115877Q01023412300010000000394	000009	000000	487659294110878765926038033100114	
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103605000ABCD	20050115877Q01023412300010000000872	000000	0000000014876592941108790VE99000000000000{00000000{		000000000
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876743457211441000000	VE3600000000000560{	000003002004121520050114MA9999005			





# Appendix D - GLOSSARY

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**ANSI** - American National Standards Institute.

**ATIS** - Alliance for Telecommunications Industry Solutions.

**BDT** - Billing Data Tape.

**BOS** - Billing Output Specifications, details the specific record and data element format of the CABS standard.

**CABS** – Carrier Access Billing System, a telecom carrier billing standard, supported by many of the major national and regional carriers.

**CLEC** – Competitive Local Exchange Carrier.

**CSV** – Comma Separated Values (also called command-delimited format) usually supported by spreadsheet programs and as import formats for many databases.

**HTML** – The Hyper Text Mark-up Language. The data format used to build and describe web pages.

**ILEC** – Incumbent Local Exchange Carrier.

**International Standards Organization (ISO)** - creates international standards, including cryptography standards.

**Internet Engineering Task Force (IETF)** – creates Internet standards, including security and network standards.

**ITU-T** - International Telecommunications Union - Telecommunications standardization sector.

**OSS** – Operational Support System. In the Telecommunications Industry the OSS is the sum of all in-house provisioning and billing systems and databases.

**RBOC** – Regional Bell (system) Operating Company. The pieces of AT&T created to provide Local telephone service. Often referred to as the “Baby Bells”.

**URL** – Universal Resource Locator, typically a web browser address or location value.

**XML** – A open data format, defined by WC3 to allow data interchange between differing programs and platforms.



## CABS Viewer User Guide

Please send suggestions or corrections to:

support@lymeware.com  
Lymeware Corporation  
Box 1027  
Old Lyme, CT 06371 USA  
www.lymeware.com