

## **Billing Module**

### *User's Guide*

Ahsay Systems Corporation Limited  
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## 1. Getting started

### 1.1 Introduction

This manual contains instructions of how to install and use the AhsayOBS billing program provided by Ahsay. It is assumed that you have not modified the code or the structure of the program. Some instructions are applicable only to the raw resources provided by Ahsay.

Different symbols are used throughout this document to classify different types of values:

1. Double-Quoted: objects in the file system or special phrases
2. Square Bracketed: keywords in the Excel and Windows interfaces
3. Single-Quoted: existing cell values or values to be inputted on the Excel worksheet
4. Italic: programming code

### 1.2 Requirements

The program requires installation of other softwares, including the followings:

1. Microsoft Excel (version 2000 or above) installed in a Windows OS with VBA enabled. Please check the hardware/software requirements of Microsoft Excel in the website of Microsoft, <http://www.microsoft.com>.
2. AhsayOBS (version 5.2.4.0 or above) installed on any supported OS, with the billing module enabled. It is NOT necessary to have AhsayOBS installed on the same machine of the billing program. It just requires a few more steps to install the billing program on a machine other than one where AhsayOBS is installed. Please refer to the section of [Installation Instructions](#), step 5, for more details.
3. In order for the billing program to work, the corresponding AhsayOBS license must have an unexpired support date. If the AhsayOBS support date has expired, the billing program will stop working. Contact representatives of Ahsay (<https://forum.ahsay.com>) if you wish to extend the support expiry date.
4. Software, which can extract zip files, has to be installed. It can be installed on any machine.

### 1.3 Software Download

Partners can download the billing program from the following link.

<http://www.ahsay.com/download/customer/software/billing/current/billing.zip> .

Directly download the file as a zip file, and it will be ready for installation.

### 1.4 Installation Instructions

Please follow the procedures below to install the program:

1. Extract all files in the zip file provided with any software that can extract zip files. Keep the structure of folders and files, and put them in a folder, e.g. "C:\bill".
2. Run "msxml.msi" to install MS XML. Default settings are adequate to the billing program.
3. Add a postscript printer in Windows. To do this,
  - Open [Control Panel] from the [Start Menu]
  - Click on the icon of [Printers and Faxes]
  - Select [File] -> [Add a printer] from the menu
  - Choose [Local printer attached to this computer and then press [Next] to continue.
  - On the page of [Select a Printer Port], choose [FILE: (Print to File)] under [Use the following port]. Click [Next] to continue.
  - In the given list, choose any of the printers with the words [PS] at the end of their names, e.g., [HP Color LaserJet 8500 PS]. Then click [Next] to continue.
  - Accept all default settings, and the printer will be installed correctly.

4. Look in the directory where the unzipped files are extracted to, open "GPL\_Ghostscript.reg" with notepad and modify the paths according to where the unzipped files are extracted to. For example, if the path of the extracted files is "C:\bill", then the file should be modified as

```
"GS_DLL"="C:\\bill\\gs\\gs8.57\\bin\\gsdll32.dll"
```

```
"GS_LIB"="C:\\bill\\gs\\gs8.57\\lib;C:\\bill\\gs\\fonts;C:\\bill\\gs\\gs8.57\\Resource"
```

5. After saving the "GPL\_Ghostscript.reg", double-click it and Windows will ask if you want to install it to the registry. Press [Yes] to confirm.
6. If the billing program is going to be used in a machine other than the machine where AhsayOBS is installed, you will have to enable the billing module for external access. To do this,

- Open the path where AhsayOBS is installed.
- Open the file %OBS\_HOME%\webapps\obs\WEB-INF\web.xml with a text editor.
- In the file, find the tag of <filter-name>Bill</filter-name>, which is placed inside the tags of <filter> and </filter>. There are two IP ranges which specify the IP ranges which are allowed to have the access right of the billing module, inside the tags of <init-param> and </init-param>.
- Add/Change the IP ranges if necessary. For example, if you want to use the billing program in a machine with IP address of 192.168.1.1, append another set of <init-param> tags inside the tags of <filter> and </filter> like this:

```
<filter>
```

```
<filter-name>Bill</filter-name>
```

```
<filter-class>com.ahsay.obs.www.IPFilter</filter-class>
```

```
<init-param>
```

```
<param-name>Range1</param-name>
```

```
<param-value>localhost</param-value>
```

```
</init-param>
```

```
<init-param>
```

```
<param-name>Range2</param-name>
```

```
<param-value>127.0.0.1-127.0.0.1</param-value>
```

```
</init-param>
```

```
<init-param>
```

```
<param-name>Range3</param-name>
```

```
<param-value>192.168.1.1 – 192.168.1.1</param-value>
```

```
</init-param>
```

```
</filter>
```

- Save the file and restart the AhsayOBS service.



## 2. Understanding this software

### 2.1 File Structure

There are 5 files and 2 folders included in the program. They are included in the zip file provided.

#### 2.1.1 Files

There are 5 files contained in the root:

Files included	
"OBS-Records.xls"	The Excel workbook which stores the company information, user records and pricing plans
"OBS-Bill.xls"	The Excel workbook which generates bills and sends emails
"GPL_Ghostscripts.reg"	The registry information which is required for GPL Ghostscript. If you would like to install GPL Ghostscript by the wizard, you can download the whole GPL Ghostscript (version 8.57) program from the website <a href="http://pages.cs.wisc.edu/~ghost/">http://pages.cs.wisc.edu/~ghost/</a> . You may then delete this registry file since it is included in the installation wizard provided by GPL Ghostscript.
"msxml.msi"	The installer file of MS XML 4.0 SP2. Please read the license agreement carefully before installing, where the agreement is included in the installer. For more details about the MSXML 4.0 SP2 package, please visit the Microsoft download page <a href="http://www.microsoft.com/downloads/details.aspx?familyid=3144b72b-b4f2-46da-b4b6-c5d7485f2b42&amp;displaylang=en">http://www.microsoft.com/downloads/details.aspx?familyid=3144b72b-b4f2-46da-b4b6-c5d7485f2b42&amp;displaylang=en</a> or visit <a href="http://www.microsoft.com">http://www.microsoft.com</a> , the official website of Microsoft.
"Billing - User Guide.doc"	This user guide

The "OBS-Bill.xls" requires information of "OBS-Records.xls", and therefore "OBS-Records.xls" must be opened for "OBS-Bill.xls" to work. Although it is not a must, it is recommended to open "OBS-Records.xls" before opening "OBS-Bill.xls"; otherwise, some warning messages may pop up, though they are ignorable.

#### 2.1.2 Folders

There are 2 folders included:

Folders included	
"gs"	The folder which contains the installed files of GPL Ghostscript. If you would like to install it by the wizard, you can also download the full GPL Ghostscript program (version 8.57 or above) from the website <a href="http://pages.cs.wisc.edu/~ghost/">http://pages.cs.wisc.edu/~ghost/</a> . You may delete this "gs" folder if you choose to download the full program.
"PDF"	The folder which is used to store the PDF files generated by the program. If you have deleted it, the program will generate the folder again when generating PDF

### 2.2 Data model

This part gives you information about the data model of the billing program. It is important to understand the data model, in order to customize the program correctly.

There are mainly two models: [Company and User](#) model and [Condition, Condition Group, Pricing and Package](#) model.

#### 2.2.1 Company and User

The billing program is designed for billing companies. As there is no such information in AhsayOBS, you will have to define it in the billing program. The architecture is very simple: each company consists of a number of users.

### 2.2.1.1 Company

From the point of view of the billing program, a company is actually a group of users. Bills are subjected to companies instead of users. One bill can only be subjected to one company.

Each company should carry the following information:

Fields of company	
'Company ID'	The identity of a company. There is no restriction on what format the 'Company ID' should be, but it must be unique in the [Companies] worksheet.
'Start Date'	The starting date that the company has joined your plan.
'Company Name'	The name of the company.
'Package ID'	The pricing package assigned to the company. You may leave it blank and more details on creating pricing packages will be provided in the section of <a href="#">Package</a> .
'Charge'	True if the company is going to be charged. False if you want to stop charging that company.
'Address'	The company correspondence address.
'Country'	The country of the correspondence address.
'Contact Person'	The contact person of the company.
'Contact Email'	The email address of the company. It is important because the billing system will send bills to this email address. You can have multiple recipients, with names or without names, e.g. "account1"<account1@mycompany.com>, account2@mycompany.com.
'Phone'	The contact phone number of the company.
'Credit Card'	The credit card number of the company which is used for payment. Input if applicable.
'Exp Date'	The expiry date of the corresponding credit card. Input if applicable.
'Notes'	Anything you would like to record about the company, e.g. the status of the customer.

About assigning user to company, please refer to the [User](#) part.

### 2.2.1.2 User

Users in the billing program (called billing user below) are exactly the users in AhsayOBS. However, in order to separate the actual work of AhsayOBS and billing, some information of the user will not be exported to the Excel workbook directly.

Instead of using the imported information directly, a mapping worksheet will be given to map users in the billing program to the users of AhsayOBS. In other words, AhsayOBS users have the information of storage, bandwidth, modules details, etc., where billing users (users defined in the billing program) relate the AhsayOBS users to companies and pricing plans in the billing program.

AhsayOBS users will be mapped to billing users if their login names match.

## i. Billing User

The following information of billing users should be provided:

Fields of billing user	
'User ID'	Similar to 'Company ID' in [Companies], there is no restriction on the format, but the user ID must be unique in the [Users] worksheet.
'Company ID'	The 'Company ID' that the user belongs to. Choose the corresponding 'Company ID' from the drop-down box. By giving this value, the user is assigned to the company specified by the ID given.
'Company Name'	You don't have to input this value. The Excel formula will search the name for you. If you find that there is still nothing appeared after you have entered 'Company ID', try to copy the previous upper cell and paste it to the current cell.
'Login Name'	The login name of the user. It is essential to have a correct entry because this value will be used to map the list of users in AhsayOBS.
'Notes'	Anything you would like to record about the user, e.g. whether the user is inactive or not.

## ii. AhsayOBS User

The information of AhsayOBS users will be imported to the program. They are separated by months. Every month when it is time to bill, the list can be refreshed by clicking the refresh button provided.

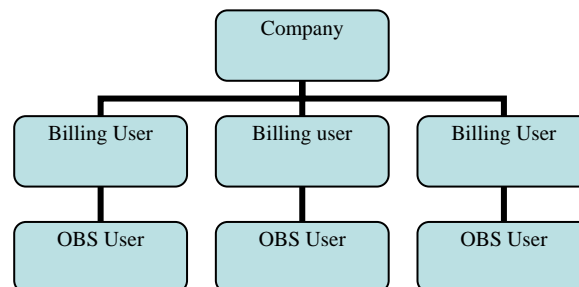
The following information of OBS User will be included after importing from AhsayOBS:

Fields of AhsayOBS user	
'Login Name'	the login name in AhsayOBS
'User Type'	Paid user or trial user
'Client Type'	AhsayOBM user or AhsayACB user
'Quota (MB)'	Storage quota of the user
'Bandwidth'	Upper speed limit of transferring data
'Max Data Size (MB)'	Maximum storage size in the month, excluding data in retention area
'Max Retain Size (MB)'	Maximum storage size in the month within the retention area
'Max Uploaded Size (MB)'	Maximum uploaded file size in one backup job in the month
'Average Data Size (MB)'	Average storage size in the month, excluding data in retention area
'Average Retain Size (MB)'	Average storage size in the month within the retention area

'Average Uploaded Size (MB)'	Average uploaded file size in the month
'Total Uploaded Size (MB)'	The total uploaded file size in the month
'Enable MSSQL'	True if Microsoft SQL module is enabled
'Enable MExchange'	True if Microsoft Exchange module is enabled
'Enable Oracle'	True if Oracle module is enabled
'Enable Lotus Domino'	True if Lotus Domino module is enabled
'Enable Lotus Notes'	True if Lotus Notes module is enabled
'Enable MySQL'	True if MySQL is module is enabled
'Enable In-File-Delta'	True if In-File-Delta module is enabled
'Enable Shadow Copy'	True if Shadow Copy module is enabled
'Enable Exchange Mailbox'	True if Exchange Mailbox module is enabled
'Exchange Mailbox Quota'	The number of exchange mailboxes assigned to the user
'Registration Date'	Registration Date of the user
'Status'	Enable or Suspend

### 2.2.1.3 Overview of the relationship between Companies and Users

To summarize, the relationship between [Companies] and [Users] is:



A company may consist of many billing users, but one billing user will only map to one AhsayOBS user.

The program will run several steps related to companies and users when it generates bills:

1. Loops through the billing users assigned to the company.
2. Gets the information from AhsayOBS user, which should already have been downloaded to the program.
3. Finds out the AhsayOBS information (e.g. storage, bandwidth) of the billing users, by matching for the login name of AhsayOBS users with that of billing users.

Then the program can use the information to generate bills.

## 2.2.2 Condition, Condition Group, Pricing and Package

Condition, condition group, pricing and package are components of a complete pricing plan. They are closely related and highly hierarchical.

If you find that it is difficult to understand the pricing setup, please refer to the [Case Studies](#) section for a better understanding.

### 2.2.2.1 Condition

The conditions are the basic elements for conditional pricing. The pricing will be chosen only if the corresponding conditions are true.

Each condition consists of 5 fields:

Fields of condition	
'Condition ID'	The identity of the condition.
'Field Name'	The name of the field to be compared.
'Comparator'	The comparison operations to be performed.
'Value'	The value to be compared. You may use an Excel formula if necessary.
'Notes'	Anything you would like to record about the condition.

### 2.2.2.2 Condition Group

Each condition group is made up of a number of conditions linked together with the logic of "AND". For example, if condition A and condition B are both assigned to the same condition group Group1, then Group1 means "condition A AND condition B".

This structure is useful when the pricing plan requires comparing multiple fields and values.

Fields of condition group	
'Condition Group ID'	The identity of the condition group.
'Condition ID'	The condition which is included in the specific condition group.
'Notes'	Anything you would like to record about the condition group.

### 2.2.2.3 Pricing

Pricing represents the price information of a condition group. Each pricing should carry a definite method of price calculation.

You can also treat pricing as the mapping of packages and condition groups. Please refer to the sections of [Package](#) and [Relationships between Condition, Condition Group, Pricing and Package](#) for more details.

Each pricing consists of the following fields:

Fields of pricing	
'Pricing ID'	The identity of the pricing.
'Pricing Name'	The short name of the pricing. It will be shown in the bill so that the client will know under what pricing scheme they are subjected to.
'Package ID'	The package it belongs to. Package definition will be discussed in the next section.
'Condition Group ID'	Condition group applied to this pricing.
'Priority'	The priority of condition groups. This is useful if more than one condition group are fulfilled. The highest priority of the fulfilled condition group will be chosen.

'Calculation Unit'	Treated as the unit of the unit price. If the value is 'Fixed', it will be the fixed price and not unit price anymore.
'Price'	The price under the corresponding condition group.
'Prorate by days'	If set to 'TRUE', this option allows pro-rated pricing when the company starting date or the user registration date is in the same month as the billing date. For example, if the user registers on 15 May 2007, and billing for May occurs on 31 May 2007, then the user will be charged for 16 days (16/31). The program still counts as 1 day if it is less than 1 day.
'Exchange Mailbox Rate'	The rate for each Exchange mailbox assigned to users.
'Exchange Mailbox Description'	The description for Exchange mailbox charge which will be displayed in the bill when the corresponding pricing is chosen.
'Notes'	Anything you would like to record about the condition.

#### 2.2.2.4 Package

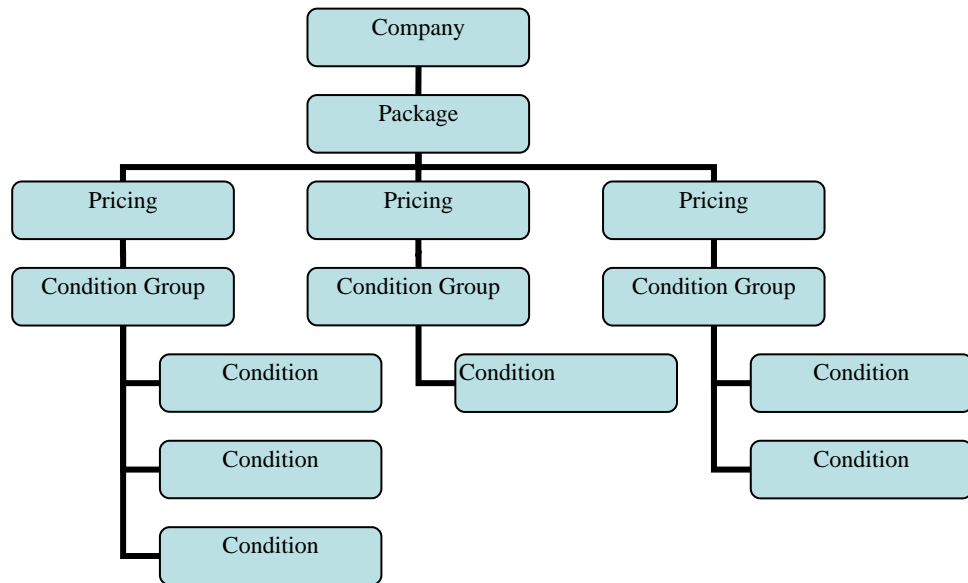
Each package is made up of a number of pricings. If the package is assigned to the company, the program will loop through the conditional groups of each pricing inside the package, and find the valid pricing with the highest priority. This structure enables conditional pricing.

Each company will be assigned with a package. Each package consists of the following fields:

Fields of package	
'Package ID'	The identity of the package.
'Group Package'	It defines if the package is a group package. It is applicable only if the pricing plan is designed such that: <ul style="list-style-type: none"> <li>- all users have the same unit rate,</li> <li>- the charge for the company is a fixed constant, or</li> <li>- conditions are subjected to the aggregate usage of the whole company instead of each user.</li> </ul>
'Package Description'	This description will not be displayed on the bill by default

#### 2.2.2.5 Relationships between Condition, Condition Group, Pricing and Package

To summarize, the relationship of condition, condition group, pricing and package can be depicted of as in the following diagram:



As shown in the diagram above, a package is assigned to a company, which consists of a number of pricings. Under each pricing there is a condition group, and under each condition group there are conditions.

When the program is triggered to generate bills, several steps related to the four elements occur:

1. Look up the package that the company is assigned with (please refer to the section [Company](#) about the relationship between packages and companies).
2. Loop through the layers of each pricing of the package and extract the information from conditions, the bottom layer.
3. To find out if a certain pricing is applicable, the program checks if the conditions of the condition group are true. To do this, the program joins all the conditions at the bottom layer by different condition groups, to form a condition statement (please refer to the section of [Condition Group](#) about how the conditions are joined). If the condition statement returns true after parsing, the corresponding pricing will be considered as applicable.

### 3. How to use this software

This part contains the instructions about how to setup and make use of the program. It is assumed that you have not modified any code or setting, and the environment is set as default.

If you find this part is too difficult, we can provide Hassle-free services, which help you to set up and put your business logic into the program. Please read the section of [Hassle-free Service](#) for more details.

On defining items or inputting data, you **cannot** jump any line. Otherwise the program will treat that the empty line as the end of the worksheet and stop searching the document.

#### 3.1 Setting up the environment

Please follow the instructions below to set up the basic environment for the program.

1. Open "OBS-Records.xls" with MS Excel.
2. Different security level of VBA have different effects to the program:

Effects of security Level of VBA	
High	It is the default value. Excel ignores all the macros and VBA functions. The billing program will not work, and no prompt will be displayed.
Medium	Excel will prompt to ask if you want to enable macros. You must choose [Enable Macros] to have the program works.
Low	Excel will not prompt for enabling macros and the program will be working. However, for security reasons, it is not recommended.

To set the VBA security level, select from the menu [Tools] -> [Macro] -> [Security], and then choose your preferred level of security ([Medium] is recommended). After changing the level of security, you may have to restart the MS Excel and re-open the file.

3. Open the worksheet [Constants].
4. In cell A2 (the cell under 'OBS Server Path'), enter the full path of your AhsayOBS server. Enter information on system user and system password as well. By default, the AhsayOBS server path is 'http://127.0.0.1', while system user is 'system' and system password is 'system' (the text-color has been set to white for security reason).
5. Open "OBS-Bill.xls" with MS Excel. Again, make sure the VBA security level is medium or low.
6. Open the worksheet [Constants] in "OBS-Bill.xls".
7. Column A contains some names about the worksheets in "OBS-Records.xls". Change these fields ONLY WHEN NECESSARY. For example, if you have renamed the worksheet [Condition Groups] in "OBS-Records.xls" to 'Group', you have to change the value of cell A12 in "OBS-Bill.xls" to 'Group' as well. Also, such a change also affects "OBS-Records.xls"; the drop-down list of 'Condition Group ID' in [Pricings] will be no longer functional. You will have to change the definition of the name of [CONDITION\_GROUP\_IDS] from the Excel menu [Insert] -> [Name] -> [Define]. Due to the complexities involved, it is NOT recommended to change those fields.
8. Cell A16 (under 'PDF\_FOLDER\_NAME') of the worksheet [Constants] in "OBS-Bill.xls" defines the name of the folder which is used to store PDF files generated from the billing program. Feel free to rename it to your desired folder name. The program will generate the folder if it does not exist.
9. Enter the name of the postscript printer driver installed before to cell B2 (under 'CONST\_PRINTER\_NAME'). If you have not installed a postscript printer driver, please refer to the section of [Installation Instructions](#) and install the printer driver.
10. Enter the full path of the "gswin23c.exe" file in cell B4 (under 'CONST\_GHOSTSCRIPT\_EXE'), where the exe file is put under the folder "gs\gs8.57\bin" by default. E.g., if you have installed the program in the "C:\bill" and the exe file is put under the folder "c:\bill\gs\gs8.57\bin", then you should enter "C:\bill\gs\gs8.57\bin\gswin23c.exe" to the cell B4.
11. Enter the SMTP mail server name (e.g. smtp.yourcompany.com) in cell B6 (under CONST\_MAIL\_SERVER) and its port (e.g. 25) in cell B8 (under CONST\_MAIL\_SERVER\_PORT). In normal cases, port 25 will be used for SMTP mail server.



## 3.2 Defining companies and assigning users

Before continuing, please make sure you have read the section of [Company and User](#) and have understood the model.

It is recommended to do the following steps sequentially.

### 3.2.1 Getting usage data from AhsayOBS to the billing program

To get information from AhsayOBS server to the program, please follow the procedures below:

1. Open "OBS-Records.xls"
2. Make sure that your AhsayOBS is running, the billing module is enabled and the information in "OBS-Records.xls" is correct.
3. Create a new sheet for the AhsayOBS users. Let's call it "billing user list" for convenience. To do this,
  - a. Right click on the tab of the [Template] worksheet (near the bottom) and click [Move or Copy].
  - b. A dialog box will pop up. Make sure you have chosen the correct workbook (i.e. OBS-Records.xls" and have the [Create a Copy] option checked.
  - c. Right-click the tab of the newly created worksheet, click [Rename] and type the name of the worksheet. By default the name is in the format of 'MMM-YYYY', e.g. 'Jun-2007'. If you would like to have other format of names, please also modify the values in the worksheet [Constants] of "OBS-Invoice.xls", as mentioned in the [Setting up environment](#) part before.
  - d. In the [Constants] worksheet, if the record does not exists on the lists of "BILL\_MONTH\_DISPLAY" (Column D) and "BILL\_MONTH\_WS" (Column E), it is necessary to add a new record. For example, if you have 'Jan-2008' as both the billing month display and the record worksheet name, add 'Jan-2008' to cell D14 and E14, assuming that D14 and E14 are empty and are the end of the lists. Then the list would become:

BILL_MONTHS_DISPLAY	BILL_MONTHS_WS
Jan-2007	Jan-2007
Feb-2007	Feb-2007
Mar-2007	Mar-2007
Apr-2007	Apr-2007
May-2007	May-2007
Jun-2007	Jun-2007
Jul-2007	Jul-2007
Aug-2007	Aug-2007
Sep-2007	Sep-2007
Oct-2007	Oct-2007
Nov-2007	Nov-2007
Dec-2007	Dec-2007
Jan-2008	Jan-2008

However, it is recommended to start over a new workbook every single year. Then you do not have to insert a new record, but replace values of year 2007 with year 2008.

BILL_MONTHS_DISPLAY	BILL_MONTHS_WS
Jan-2008	Jan-2008
Feb-2008	Feb-2008
Mar-2008	Mar-2008
Apr-2008	Apr-2008
May-2008	May-2008
Jun-2008	Jun-2008
Jul-2008	Jul-2008
Aug-2008	Aug-2008
Sep-2008	Sep-2008

Oct-2008	Oct-2008
Nov-2008	Nov-2008
Dec-2008	Dec-2008

4. Change the value of Cell A1 of the renamed sheet to the specific month in the format of 'MMM-YYYY', e.g. 'Jun-2007'. You cannot use other date formats in this cell.
5. Press the [Refresh] button and a popup will show up. It is the filter of users.
6. Check the boxes to indicate that the users with that particular option should be included in the billing list. Uncheck the options if you want to filter the users with these options. For example, if you are not going to charge the trial users, uncheck the box [Trial] and then press [Filter]. The trial users will not appear on the list after all. [Registration Date] is a little bit different from the others. The checkbox indicates if the registration date of the user fulfills one of the filtering criteria, and the value in the textbox on the right-hand-side indicates that the registration date should not be later than the given value.
7. Check [Save as default] if you want to use the current filter as the default filter. The information will be saved in the worksheet [Default\_Filter]. Please do not modify the [Default\_Filter] worksheet manually.
8. Click [Ok] to close the filter and you will then have the list imported automatically.
9. A message will prompt you the number of new users which are not defined before. The new uses will be added to the [Users] worksheet directly, without assigning company and user ID.

Best practice tips: As time goes by, you will have increasing number of worksheets named 'MMM-YYY'. To keep down file size, please back up the excel file and work on a fresh excel file (with extra tabs deleted) yearly.

### 3.2.2 Define companies

To define companies, please follow the procedures below:

1. Open "OBS-Records.xls".
2. Open the [Companies] worksheet.
3. Starting from the second row input the information of the company. Please refer to the section of [Company](#) for more details about the fields. The 'Company ID' field cannot be left blank.

### 3.2.3 Assign users to companies

To assign users to companies, please follow the procedures below:

4. Open "OBS-Records.xls"
5. Open the [Users] worksheet.
6. Starting from the second row, input the information of the user. Please refer to the section of [User](#) for more details about the fields. The 'User ID' field cannot be left blank. After inputting the 'Company ID' for the user, the corresponding company name is displayed. A drop down box is provided to minimize typos.

### 3.2.4 Link billing users to AhsayOBS users

Before linking billing users to AhsayOBS users, make sure you have finished assigning users to companies and every user has a non-blank user ID.

To link billing users to AhsayOBS users, please follow the procedures below:

1. Open "OBS-Records.xls"
2. Open the data usage worksheet created before, e.g. [Jun-2007].
3. Press the [Refresh] button and apply the same filter used in getting AhsayOBS data usage.
4. If there is no message prompt and there is no blank in the company ID, package ID and user ID fields, the setting of users is completed. Otherwise, follow the instructions provided by the message prompt and try it again.

### 3.3 Defining pricing packages

Before continuing, design your pricing plan after fully understanding the model. This is very important, because if the logic is wrong, the program will not work and no error will be reported. It will be very difficult to troubleshoot later on. Please refer to the section of [Condition, Condition Group, Pricing and Package](#) for more details.

If you find that it is difficult to understand the pricing setup, please refer to the [Case Studies](#) section, which shows you some practical examples of pricing packages. You may also go to the [Hassle-free Service](#) section if you do not want to spend time on setting up the packages.

It is recommended to do the following steps sequentially.

#### 3.3.1 Define conditions

To define conditions, please follow the procedures below:

1. Open "OBS-Records.xls"
2. Open the [Conditions] worksheet.
3. Assign an ID for the condition.
4. Choose the field to be compared, the comparator and enter the value to be compared. For storage and quota, the unit is megabyte (MB) and for bandwidth, the unit is kilobits/second (Kb/s).

Please refer to the section of [Condition](#) for more details about the fields.

#### 3.3.2 Define condition groups

To define condition groups, please follow the procedures below:

1. Open "OBS-Records.xls"
2. Open the [Condition Groups] worksheet.
3. Assign an ID for the condition group.
4. Select the 'Condition ID' of the corresponding conditions. If you want to assign the conditions to the same group, assign the same ID to the conditions like this:

Condition Group ID	Condition ID
ConditionGroup1	Condition1
ConditionGroup1	Condition2

Please refer to the section of [Condition Group](#) for more details about the fields.

#### 3.3.3 Define packages

To define packages, please follow the procedures below:

1. Open "OBS-Records.xls"
2. Open the [Packages] worksheet.
3. Assign an ID for the package.
4. Choose if the package is a group package, and enter the 'Package Description' and the 'Exchange Mailbox Description'.

Please refer to the section of [Package](#) for more details about the fields.

#### 3.3.4 Define pricings

To define pricings, please follow the procedures below:

1. Open "OBS-Records.xls"
2. Open the [Pricings] worksheet.
3. Assign an ID for the pricing. Input the pricing name (optional).

4. Select the appropriate 'Condition Group ID' and 'Package ID'. Similar as in [Condition Groups], if you want to assign different pricing to the same package, assign the same 'Package ID' to the pricing like this:

Pricing ID	Pricing Name	Package ID	Condition Group ID
Pricing1	My pricing 1	Package1	ConditionGroup1
Pricing2	My pricing 2	Package1	ConditionGroup2

5. If there are more than one pricing structure in the same package, assign a priority to the pricing. The larger the number, the higher the priority.
6. Select the 'Calculation Unit', which is the unit to calculate the amount, and then input the corresponding unit price. If the 'Calculation Unit' is fixed, it will not be the unit price but a fixed price, and a fixed amount should be input under the 'Price' column.
7. Decide if 'Prorate by Days' is applicable.
8. Input the rate for each Exchange mailbox in the 'Exchange Mailbox Rate' column.

Please refer to the section of [Pricing](#) for more details about the fields.

### 3.3.5 Assign packages to companies

To assign packages to companies, please follow the procedures below:

1. Open "OBS-Records.xls"
2. Open the [Companies] worksheet.
3. After entering the details of the companies, you can then assign packages to companies, by selecting the corresponding 'Package ID'. Please note that there can only be one package for each company. The same package can be re-used by other companies. You may also divide a company in the real world into more than one "companies", so that the company in the real world can have two packages, by assigning the packages to the "companies" in the program.

Please refer to the section of [Relationships between Conditions, Condition Groups, Pricings and Packages](#) for more details.

## 3.4 Customizing bills

Open the [Bill] worksheet in "OBS-Bill.xls". The white part on the left is the default layout of the bill, where the grey part on the right is for programming use only. You MUST keep the "OBS-Records.xls" opened when generating bills.

The following instructions are based on the workbook of "OBS-Bill.xls" if no workbook is specified.

### 3.4.1 Layout

The layout part is divided into two parts: "Client Information" and "Content". By default, it is defined that the area between row 5 and 13 is "Client Information" and the area between 15 and 21 is "Content".

	A	B	C	D	E	F
1						
2						My Company Limited
3						Website: www.ahsay.com
4						Email: admin@ahsay.com
5						Fax: 12345678910
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

In the picture above, the parts highlighted with red are customizable. However, there are some restrictions. Please read the paragraphs below **in details** before starting customization.

## i. Client Information

Most of the client information will be generated automatically by the use of Excel formula. If any information appears to be wrong in the bill, please do not modify it directly in the bill. For example, if the company name is wrong in the bill, change the company name in the worksheet [Companies] of "OBS-Records.xls", instead of the bill itself.

The only information required to input is the 'Bill Month' and the 'Company ID' because it is necessary to choose which usage month to be billed and the company to be billed, in order to generate a 'Bill'.

When you change the 'Company ID' or the 'Bill Month', the bill will be refreshed and will re-generate all information again. To change the 'Bill Month' and 'Company ID', select the appropriate value from the drop-down box. There are some functions that can loop through all companies and it is not necessary to choose which company to be billed every time.

In the client information part, you may change the colors, font styles, words, and layout of the bill, but please do **NOT** change the positions of fields. You can only change the positions of 'Company Name', 'Address', 'Country' and 'Phone'. If you want to insert some information between the end of "Client Information" and the title of contents (i.e. before or after row 14), you must also modify the value in the I13 cell, which indicates the starting row of contents. Please refer to the [Programming](#) section for more details.

## ii. Content

The content portion is the area for rows of records which are to be billed, provided with corresponding 'Bill Month' and 'Company ID'. Please refer to the section of [Client Information](#) about how to select the 'Bill Month' and 'Company ID'.

You must not change any position or delete any rows in the content area. It is fully controlled by the programming code. If there is any change in position, the whole program will be corrupted.

However, it is possible to change the color or font style of the titles, i.e. cells A15 to F15 by default.

If you have inserted any row before the content portion, so that the content portion starts on a lower row, you will have to change the 'Starting Row' in the 'Input Area' of the programming part. Please refer to the [Programming](#) section for more details.

### 3.4.2 Programming

All fields in the programming part must not be modified, except the values in the 'Input Area', which is colored in cyan.

Input Area	
Discount / Penalty (USD)	\$0
Starting Row	16

In the 'Input Area', you can enter an amount of special discount for the client. Words will appear on the last row of content when the value is not zero.

The second field for input is the 'Starting Row'. It indicates that the program will start writing records on that row. By default the value is 16. Make sure you have this value correct, otherwise the whole layout of the bill will be corrupted.

### 3.4.3 Others

You may change the page setup. By default, the page size is A4 and the print area is fixed to the bill page. To change the setup, choose [File] in the menu and select [Page Setup]. You can change the [Paper Size] on the [Page] page and the [Print Area] on the [Sheet] page.

It is advised to check the billing amount if it is your first time using this program. Conditions, condition groups, pricing and packages may be defined improperly, thus leading to miscalculation of the billing amount.

## 3.5 Generating and emailing bills

Generating and emailing bills are all done in the workbook of "OBS-Bill.xls". The following instructions are based on the workbook of "OBS-Bill.xls" if no workbook is specified.

You must generate bills before sending emails.

### 3.5.1 Generate bills

After all the customizations are done, and the billing fees are checked to be correct, you can generate a PDF bill by clicking on the [Generate] button.

The generated PDF files can be found under the "PDF" folder by default. Inside the "PDF" folder, you will find subfolders named with the current month (not billing month). For example, if you click the [Generate] button in June 2007, then the PDF file will be saved in a subfolder named "2007-06". The PDF folder name can be modified in the [Constants] worksheet of "OBS-Bill.xls" without modifying the code.

The file name will be a combination of the company ID and the bill month. For example, if the company name is MyCompany and the bill month is 'Jun-2007', the file name will be "MyCompany\_Jun-2007.pdf". You will need to change the code if you want to modify these settings, and it is not recommended.

Clicking the [Generate All] button will generate all the PDF files for every company you have entered in "OBS-Records.xls". However bills with a zero or negative amount will be ignored and will not be generated. Also, companies with 'FALSE' in the charge column will be ignored (please refer to section [Company](#) for more information).

### 3.5.2 Email bills

After generating PDF bills, it is ready to be sent to clients.

Before clicking on the [Send Email] button, it is important to customize your email content first. The email content is stored in the [Email] worksheet. You can customize the 'From', 'Cc', 'Bcc', 'Subject' and 'Content'. Emails will be sent based on these fields with the PDF file attached.

For the fields 'Cc' and 'Bcc', you can add more email addresses if necessary, by separating them with commas (","). For example, if you want to Cc to more than one email address, simply just input something like email1@mycompany.com, email2@mycompany.com.

Please note that only plain-text content is supported. You may try other formats, but if there is any error caused, it will not be treated as a bug and it is not going to be fixed.

After modifying the email contents, you can then send an email to the client by clicking on the [Send Email] button. A dialog box will pop up for your confirmation.

If you have not generated the PDF file, there will be an error message and the email will not be sent. Also, make sure you have configured your mail server settings correctly. The settings are placed in the [Constants] worksheet of "OBS-Bill.xls". Please refer to section [Setting up the environment](#) for more information. It is advised to send an email to a testing email address in order to spot any mistakes before mass broadcast.

Similar to generating bills, by clicking on [Send All Emails], emails with bills attached will be sent to every company you have entered in "OBS-Records.xls" with a positive billing amount for the month. The destination email address follows the email shown on the bill. It is advised to check if the value is correct before sending.

Bills with zero or negative amount, or companies with 'FALSE' in the charge column (please refer to section [Company](#) for more information) will be ignored and will not be sent.

### 3.6 Billing Records Tracking

When a bill is generated, the worksheet of [Billing Records] would also be updated. If it is a new bill, a new record will be generated; otherwise, the bill record will be updated. The program determines if it is a new bill by comparing the 'Bill Month' and 'Company ID' on the bill and on the [Billing Records].

You can use the auto-filter function to view the records of specific months or specific companies. In order to use the auto-filters, just simply click on the title of each column (e.g. 'Bill Month'), and select the corresponding value. You can also write a custom filter by choosing [(Custom)] as the value. The total will be calculated automatically whenever the filter is changed.

The 'Paid' column (in green) provides easy tracking of billing records. It is very convenient to filter paid and unpaid records by using auto-filters. This column should be maintained manually and by default it is set to false.

### 3.7 Hassle-free Service

We understand that setting up the environment, defining items and customizing the bill spend a lot of time and effort. Especially for defining the pricing plan, it is not easy to analyze the pricing logic and put it into the program.

As Ahsay always do, we also provide services to try our best to help our partners. If you find it is too hard or there is not enough time to do the setup, you may try our Hassel-free service on billing. By using this service, we will do all the setup, defining and customizing issues, with the information provided by you.

If you are interested in this service, please contact us via [our forum](#) .

## 4. Case Studies

The following case studies show you examples on how to setup your pricing plan in practical use. They are already delivered as examples with the billing program. You are welcome to use them directly if your pricing plan is similar to them. Each case study is divided into 6 parts:

1. Definition
2. Conditions
3. Condition Groups
4. Packages
5. Pricings
6. Assigning Packages to Companies

In order to fit to the document, tables and the billing templates are not necessarily in the same scale of those in the billing program.

Please be reminded that the user filter will filter out users to be charged, which may cause the missing of charges.

### 4.1 Case 1 – Bill with pricing based on storage and client type

#### i. Definition

IT Company A is a service provider of online backup. It charges users by the scale of storage.

Storage	OBM Unit Price (US\$/MB)	ACB Unit Price (US\$/MB)	Exchange Mailbox Unit Price (US\$/Mailbox)
<10M	10	8	0.5
<100M	9	7	0.5
<1G	8	6	0.5
<10G	7	5	0.5
>=10G	5	4	0.5

The table above shows the logics of its pricing plan. When the users has storage less then 10MB, the unit price for each MB will be US\$10. When the users use more, they can enjoy lower price. The price will be \$5 if the user uses more than 10GB. ACB Users enjoy lower charges than OBM users. Additional Exchange Mailbox will be charged with a constant rate.

#### ii. Conditions

To setup a pricing plan like this in the billing program, Mr. Smith, IT manager of IT Company A, has created conditions in the [Conditions] worksheet as follows:

Condition ID	Field Name	Comparator	Value	Notes
C_MTS_L10M	Max Total Storage	<	10	<10M
C_MTS_L100M	Max Total Storage	<	100	<100M
C_MTS_L1G	Max Total Storage	<	1024	<1G
C_MTS_L10G	Max Total Storage	<	10240	<10G
C_MTS_GE10G	Max Total Storage	>=	10240	>=10G
C_CT_EOBM	Client Type	=	"OBM"	OBM Users
C_CT_EACB	Client Type	=	"ACB"	ACB Users

#### iii. Condition Groups

From the logic of the pricing plan, in order to obtain a price, both conditions for storage and for client type must be obtained. In order to join the conditions, Mr. Smith has created groups in the [Condition Groups] worksheet as followings:



Condition Group ID	Condition ID	Notes
CG_MTS_L10M_CT_EOBM	C_MTS_L10M	<10M
CG_MTS_L10M_CT_EOBM	C_CT_EOBM	OBM Users
CG_MTS_L100M_CT_EOBM	C_MTS_L100M	<100M
CG_MTS_L100M_CT_EOBM	C_CT_EOBM	OBM Users
CG_MTS_L1G_CT_EOBM	C_MTS_L1G	<1G
CG_MTS_L1G_CT_EOBM	C_CT_EOBM	OBM Users
CG_MTS_L10G_CT_EOBM	C_MTS_L10G	<10G
CG_MTS_L10G_CT_EOBM	C_CT_EOBM	OBM Users
CG_MTS_GE10G_CT_EOBM	C_MTS_GE10G	>=10G
CG_MTS_GE10G_CT_EOBM	C_CT_EOBM	OBM Users
CG_MTS_L10M_CT_EACB	C_MTS_L10M	<10M
CG_MTS_L10M_CT_EACB	C_CT_EACB	ACB Users
CG_MTS_L100M_CT_EACB	C_MTS_L100M	<100M
CG_MTS_L100M_CT_EACB	C_CT_EACB	ACB Users
CG_MTS_L1G_CT_EACB	C_MTS_L1G	<1G
CG_MTS_L1G_CT_EACB	C_CT_EACB	ACB Users
CG_MTS_L10G_CT_EACB	C_MTS_L10G	<10G
CG_MTS_L10G_CT_EACB	C_CT_EACB	ACB Users
CG_MTS_GE10G_CT_EACB	C_MTS_GE10G	>=10G
CG_MTS_GE10G_CT_EACB	C_CT_EACB	ACB Users

Therefore, there are totally 10 condition groups, and each of them represents each pricing case:

ConditionGroup1 = OBM users with storage less than 10MB

ConditionGroup2 = OBM users with storage less than 100MB

ConditionGroup3 = OBM users with storage less than 1GB

...

ConditionGroup9 = ACB users with storage less than 10G

ConditionGroup10 = ACB users with storage more than or equal to 10G

Note: the color is used for better readability only, and has no special meaning.

#### iv. Packages

In this case, IT Company A has only 1 pricing plan and therefore 1 package only. Mr. Smith has created the package in the [Packages] worksheet like the following:

Package ID	Group Package	Package Description
Storage1	FALSE	IT Company A Standard Storage Package

#### v. Pricings

After creating the packages, Mr. Smith can now merge the data together and create the pricing plan. In the [Pricings] worksheet, Mr. Smith has created pricings as following:


Pricing ID	Pricing Description	Package ID	Condition Group ID	Priority	Calculation Unit	Price	Prorate by days	Exchange Mailbox Rate	Exchange Mailbox Description
Pricing1	<10 M Pricing	Storage1	CG_MTS_L10M_CT_EOBM	10	Max Total Storage	10	FALSE	0.5	Exchange Mailbox Charges
Pricing2	<100M Pricing	Storage1	CG_MTS_L100M_CT_EOBM	9	Max Total Storage	9	FALSE	0.5	Exchange Mailbox Charges
Pricing3	<1G Pricing	Storage1	CG_MTS_L1G_CT_EOBM	8	Max Total Storage	8	FALSE	0.5	Exchange Mailbox Charges
Pricing4	<10G Pricing	Storage1	CG_MTS_L10G_CT_EOBM	7	Max Total Storage	7	FALSE	0.5	Exchange Mailbox Charges
Pricing5	>=10G Pricing	Storage1	CG_MTS_GE10G_CT_EOBM	6	Max Total Storage	5	FALSE	0.5	Exchange Mailbox Charges
Pricing6	<10M Pricing (ACB)	Storage1	CG_MTS_L10M_CT_EACB	5	Max Total Storage	8	FALSE	0.5	Exchange Mailbox Charges
Pricing7	<100M Pricing (ACB)	Storage1	CG_MTS_L100M_CT_EACB	4	Max Total Storage	7	FALSE	0.5	Exchange Mailbox Charges
Pricing8	<1G Pricing (ACB)	Storage1	CG_MTS_L1G_CT_EACB	3	Max Total Storage	6	FALSE	0.5	Exchange Mailbox Charges
Pricing9	<10G Pricing (ACB)	Storage1	CG_MTS_L10G_CT_EACB	2	Max Total Storage	5	FALSE	0.5	Exchange Mailbox Charges
Pricing10	>=10G Pricing (ACB)	Storage1	CG_MTS_GE10G_CT_EACB	1	Max Total Storage	4	FALSE	0.5	Exchange Mailbox Charges

'Pricing1' has the highest priority, so that if the 'Max Total Storage' is less than 10M and the 'User Type' is 'PAID', the program will stop searching and treat 'Pricing1' as the applicable pricing scheme that will be used to charge for the month.

#### vi. Assigning Packages to Companies

In the [Companies] worksheet, IT Company A has only one package, and therefore Mr. Smith entered 'Storage1' in the 'Package ID' field for all their clients (companies).

It is then all done and Mr. Smith will be able to use the billing program with his own plan. A sample bill is given below:

		My Company Limited Website: www.website.com Email: admin@email.com Fax: 12345678910			
<b>Online Backup Service Bill</b>					
<b>Company Information</b>			<b>Bill Date</b>		
<b>Bill Month:</b> <b>Company ID:</b> <b>Company Name:</b> <b>Address :</b> <b>Country :</b> <b>Phone:</b> <b>Email:</b>	Jun-2007 C-000-001 IT Company A Client1 address1 US 9876-5432 myemail@companyA.com		21-Aug-2007		
			<b>Total Due</b>		
			<b>\$51,157.81</b>		
<b>No.</b>	<b>Pricing ID</b>	<b>Description</b>	<b>Price</b>	<b>Qty</b>	<b>Total (USD)</b>
1	Pricing4	[Betty] <10G Pricing	7	5440.4	38,082.83
2	Pricing8	[Cathy] <1G Pricing (ACB)	6	828.622	4,971.73
3	Pricing4	[David] <10G Pricing	7	1154.79	8,083.56
4	Pricing1	[Eddie] <10 M Pricing	10	0.60371	6.04
5	Pricing1	[Eddie] Exchange Mailbox Charges	0.5	5	2.50
6	Pricing6	[Frank] <10M Pricing (ACB)	8	1.39343	11.15
				<b>Total</b>	<b>\$51,157.81</b>
<b>Thank you for using Online Backup!</b>					

In the user list generated by [Jun-2007], 'Cathy' and 'Frank' are ACB users and only 'Eddie' has been assigned with Exchange Mailbox in the whole IT Company A Client1. Another user 'Adam' has not used the service, and so his record is ignored.

## 4.2 Case 2 – Bill with pricing based on storage, subscribed modules, client application type and user type.

This is an example to charge according to the usage/storage and charge OBM/ACB by unit. Please ensure that you are using the latest version of billing module.

### i. Definition

IT Company E is a service provider of online backup. It charges clients by the scale of storage, used OBM/ACB CAL, Exchange Brick level, V-Sphere and VMWare unit.

User Type	Storage (US\$/GB)	Exchange Brick Level (US\$/mailbox)	MS V-Sphere or VMWare (US\$/unit)	ACB Client (US\$/client)	OBM Client (US\$/client)
Reseller	0.5	0.5	1.5	1.5	1.5
End Users	1.1	1.0	7.5	2.0	2.5

Example 1: If a reseller subscribed 10 GB of storage, 20 Exchange mailboxes, 2 units of Microsoft V-Sphere and 3 units of VMware with OBM. The monthly charge will be

$$\begin{aligned}\text{Total amount} &= \text{Storage} + \text{Mailbox} + \text{V-Sphere} + \text{VMWare} + \text{OBM} \\ &= (0.5 \times 10) + (0.5 \times 20) + (2 \times 1.5) + (3 \times 1.5) + 1.5 \\ &= 5 + 10 + 3 + 4.5 + 1.5 \\ &= 24\end{aligned}$$

Example 2: If an end user subscribed 20 GB of storage, 10 Exchange mailboxes, 3 units of VMware, 3 OBM and 1 ACB. The monthly charge will be

$$\begin{aligned}\text{Total amount} &= \text{Storage} + \text{Mailbox} + \text{VMWare} + \text{OBM} + \text{ACB} \\ &= (1.1 \times 20) + (1.0 \times 10) + (3 \times 7.5) + (3 \times 2.5) + 2.0 \\ &= 22 + 10 + 22.5 + 7.5 + 2 \\ &= 64\end{aligned}$$

## ii. Conditions

To setup a pricing plan like this in the billing program, the development team of IT Company E has created conditions in the [Conditions] worksheet as follows:

Condition ID	Field Name	Comparator	Value	Notes
C_CT_EOBM	Client Type	=	"OBM"	OBM Users
C_CT_EACB	Client Type	=	"ACB"	ACB Users

## iii. Condition Groups

Plenty of Condition Groups are necessary to fulfill the requirement:

Condition Group ID	Condition ID	Notes
CG_MTS_CT_EOBM	C_CT_EOBM	OBM Users
CG_MTS_CT_EACB	C_CT_EACB	ACB Users

## iv. Packages

In this case, IT Company E has two pricing plans. The development team has created the package in the [Packages] worksheet like the following:

Package ID	Group Package	Package Description
User	FALSE	User Package
Reseller	FALSE	Reseller Package

## v. Pricings

Now, the development team can merge the data together and create the pricing plan. In the [Pricings] worksheet, the development team has created pricings as follows:

Pricing ID	Pricing Description	Package ID	Condition Group ID	Priority	Calculation Unit	Price	Prorate by Days
ResellerOBM	Reseller Pricing OBM	Reseller	CG_MTS_CT_EOBM	2	Max Total Storage	0.5	FALSE
ResellerACB	Reseller Pricing ACB	Reseller	CG_MTS_CT_EACB	1	Max Total Storage	0.5	FALSE
OBM	Storage Pricing OBM	User	CG_MTS_CT_EOBM	2	Max Total Storage	1.1	FALSE
ACB	Storage Pricing ACB	User	CG_MTS_CT_EACB	1	Max Total Storage	1.1	FALSE


Exchange Mailbox Rate	Exchange Mailbox Description	VMWare Rate	VMWare Description	Ms Win Server Virtualization	Ms Win Server Virtualization Description	Additional Fixed Charge	Additional Fixed Charge Description	Notes
0.5	Exchange Mailbox Charges	1.5	VMWare Charges	1.5	Ms Win Server Virtualization	1.5	OBM Software Charge	
						1.5	ACB Software Charge	
1.0	Exchange Mailbox Charges	7.5	VMWare Charges	7.5	Ms Win Server Virtualization	2.5	OBM Software Charge	
						2.0	ACB Software Charge	

Since the work sheet is too long, the work sheet is broken into 2 tables. Some of the description/charges are not applied as ACB does not come with those modules.

#### vi. Assigning Packages to Companies

In the [Companies] worksheet, the development team entered 'Reseller' and 'Standard' in the 'Package ID' field for all their clients (companies).

It is then all done and the development team will be able to use the billing program with their own plan. A sample bill is given below:

		My Company Limited Website: www.website.com Email: admin@email.com Fax: 12345678910																																																																																																																																												
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<b>Company Information</b>			<b>Bill Date</b>																																																																																																																																											
<b>Bill Month:</b> <b>Company ID:</b> <b>Company Name:</b> <b>Address :</b> <b>Country :</b> <b>Phone:</b> <b>Email:</b>	Jun-2013 C-000-002 Reseller Company address2 US 9876-5433 myemail@companyB.com		21-Aug-2013																																																																																																																																											
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Thank you for using Online Backup!																																																																																																																																														

### 4.3 Case 3 – Bill on subscription of bandwidth plans with prorating option

#### i. Definition

IT Company B is a service provider of online backup. It charges users by different bandwidth limits.

Bandwidth	Monthly Fee (US\$)	Prorate by Days
1Mb/s	20	No
5Mb/s	30	No
Unlimited	50	Yes

The table indicates that if the user has joined the 1Mb/s plan, the monthly fee for the user is fixed to US\$20. The same logic applies to 5Mb/s and unlimited bandwidth plans. "Prorate by days" is enabled only for unlimited bandwidth plan, so that the client with unlimited bandwidth plan can enjoy the discount if their usage period is less than a month.

For some reasons, SpecialClient, a client of IT Company B, is allowed to enjoy a special plan, with US\$40 only for the unlimited bandwidth, but there is no proration by days.

## ii. Conditions

To setup a pricing plan like this in the billing program, Kenny, IT manager of IT Company B, has created conditions in the [Conditions] worksheet as follows:

Condition ID	Field Name	Comparator	Value	Notes
C_BW_E1M	Bandwidth	=	1024	1Mb bw
C_BW_E5M	Bandwidth	=	5120	5Mb bw
C_BW_EU	Bandwidth	=	0	Unlimited bw

## iii. Condition Groups

As one condition is very enough to achieve the correct price, each condition group contains only one condition.

Condition Group ID	Condition ID	Notes
CG_BW_E1M	C_BW_E1M	1Mb bandwidth
CG_BW_E5M	C_BW_E5M	5Mb bandwidth
CG_BW_EU	C_BW_EU	Unlimited bandwidth
CG_BW_EU_S	C_BW_EU	Special bandwidth

## iv. Packages

In this case, IT Company B has totally 2 pricing plans: one for normal client and one for SpecialClient. Kenny has created 2 packages in the [Packages] worksheet like the following:

Package ID	Group Package	Package Description
Bandwidth1	FALSE	Normal Bandwidth Package
BandwidthSC	FALSE	SpecialClient Bandwidth Package

## v. Pricings

Now, Kenny can merge the data together and create the pricing plan. In the [Pricings] worksheet, Kenny has created pricings as following:

Pricing ID	Pricing Name	Package ID	Condition Group ID	Priority	Calculation Unit	Price	Prorate by Days
NormalP1	1Mb Bandwidth	Bandwidth1	CG_BW_E1M	1	Fixed	20	FALSE
NormalP2	5Mb Bandwidth	Bandwidth1	CG_BW_E5M	2	Fixed	30	FALSE
NormalP3	Unlimited Bandwidth	Bandwidth1	CG_BW_EU	3	Fixed	50	TRUE
SCP	Special Price	BandwidthSC	CG_BW_EU_S	4	Fixed	40	FALSE

## vi. Assigning Packages to Companies

In the [Companies] worksheet, Kenny entered 'Bandwidth1' in the 'Package ID' field for all their clients (companies), except for SpecialClient. He has entered 'PackSC' in the 'Package ID' field for SpecialClient.

It is then all done and Kenny will be able to use the billing program with his own plan. A sample bill is given below:



My Company Limited  
Website: www.website.com  
Email: admin@email.com  
Fax: 12345678910

**Online Backup Service Bill****Company Information**

**Bill Month:** Jun-2007  
**Company ID:** C-000-002  
**Company Name:** IT Company B Client1  
**Address :** Address2  
**Country :** US  
**Phone:** 9876-5433  
**Email:** myemail@companyB.com

**Bill Date**

21-Aug-2007

**Total Due**

\$365.00

No.	Pricing ID	Description	Price	Qty	Total (USD)
1	NormalP3	[George] Unlimited Bandwidth, 21 Days Only	50	1	35.00
2	NormalP3	[Helen] Unlimited Bandwidth	50	1	50.00
3	NormalP3	[Iris] 5Mb Bandwidth	30	1	30.00
4	NormalP3	[Joe] Unlimited Bandwidth	50	1	50.00
5	NormalP3	[Ken] Unlimited Bandwidth	50	1	50.00
6	NormalP3	[Linda] Unlimited Bandwidth	50	1	50.00
7	NormalP3	[Mary] Unlimited Bandwidth	50	1	50.00
8	NormalP3	[Nancy] Unlimited Bandwidth	50	1	50.00


<b>Total</b>	<b>\$365.00</b>
--------------	-----------------

**Thank you for using Online Backup!**

In the user list generated by [Jun-2007], 'Iris' is using 5Mb/s bandwidth where others are using unlimited bandwidth. 'George' has joined the plan on 10-Jun-2007, and therefore he receives proration of  $50 * (30 - 10 + 1) / 30$ .

Similarly, for the company SpecialClient, each user in the company will be charged for US\$40:



	My Company Limited Website: www.website.com Email: admin@email.com Fax: 12345678910																								
Online Backup Service Bill																									
Company Information	Bill Date																								
<b>Bill Month:</b> Jun-2007 <b>Company ID:</b> C-000-003 <b>Company Name:</b> SpecialClient <b>Address :</b> Address3 <b>Country :</b> US <b>Phone:</b> 9876-5434 <b>Email:</b> myemail@specialclient.com	21-Aug-2007																								
	Total Due																								
	\$120.00																								
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr style="background-color: #ffff00;"> <th>No.</th> <th>Pricing ID</th> <th>Description</th> <th>Price</th> <th>Qty</th> <th>Total (USD)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>SCP</td> <td>[Oscar] Special Pricing for SpecialClient</td> <td>40</td> <td>1</td> <td>40.00</td> </tr> <tr> <td>2</td> <td>SCP</td> <td>[Paul] Special Pricing for SpecialClient</td> <td>40</td> <td>1</td> <td>40.00</td> </tr> <tr> <td>3</td> <td>SCP</td> <td>[Quinn] Special Pricing for SpecialClient</td> <td>40</td> <td>1</td> <td>40.00</td> </tr> </tbody> </table>		No.	Pricing ID	Description	Price	Qty	Total (USD)	1	SCP	[Oscar] Special Pricing for SpecialClient	40	1	40.00	2	SCP	[Paul] Special Pricing for SpecialClient	40	1	40.00	3	SCP	[Quinn] Special Pricing for SpecialClient	40	1	40.00
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Total	\$120.00																								
Thank you for using Online Backup!																									

## 4.4 Case 4 – Bill with pricing based on uploaded file size and group packages

### i. Definition

IT Company C is a service provider of online backup. It charges clients by the total uploaded storage size of the whole company.

Uploaded Size	Unit Price
Less than 10GB	US\$ 0.01 per MB
10~100GB (excluding)	US\$ 0.008 per MB
100GB~1TB (excluding)	US\$ 0.005 per MB
Equal or above 1TB	US\$ 1000.00

The table indicates that if the total uploaded file size of all the users in the company in that month is less than 10GB, the price for each 1 MB storage will be US\$0.01. Similar logic applies to size >=10GB and >=100GB. If the company uploaded size exceeds 1TB (1000GB), the billing fee will be fixed at US\$1000.

### ii. Conditions

To setup a pricing plan like this in the billing program, Ms. Anderson, IT manager of IT Company C, has created conditions in the [Conditions] worksheet as follows:

Condition ID	Field Name	Comparator	Value	Notes
C_TUS_L10G	Total Uploaded Size	<	10240	<10GB
C_TUS_GE10G	Total Uploaded Size	>=	10240	>=10GB
C_TUS_GE100G	Total Uploaded Size	>=	102400	>=100GB
C_TUS_GE1T	Total Uploaded Size	>=	1048576	>=1TB

### iii. Condition Groups

As one condition is sufficient to achieve the correct price, each condition group contains only one condition.

Condition Group ID	Condition ID	Notes
CG_TUS_L10G	C_TUS_L10G	10GB
CG_TUS_GE10G	C_TUS_GE10G	>=10GB
CG_TUS_GE100G	C_TUS_GE100G	>=100GB
CG_TUS_GE1T	C_TUS_GE1T	>=1TB

### iv. Packages

In this case, IT Company C has only one pricing plan and therefore only one package. Ms. Anderson has created the package in the [Packages] worksheet like the following:

Package ID	Group Package	Package Description
UploadedSize	TRUE	General Total Uploaded Size Package

### v. Pricings


Now, Ms. Anderson can merge the data together and create the pricing plan. In the [Pricings] worksheet, Ms. Anderson has created pricings as follows:

Pricing ID	Pricing Description	Package ID	Condition Group ID	Priority	Calculation Unit	Price	Prorate by Days
SmallPricing	Small Usage	UploadedSize	CG_TUS_L10G	1	Total Uploaded Size	0.01	FALSE
MediumPricing	Medium Usage	UploadedSize	CG_TUS_GE10G	2	Total Uploaded Size	0.008	FALSE
LargePricing	Large Usage	UploadedSize	CG_TUS_GE100G	3	Total Uploaded Size	0.005	FALSE
VIPPricing	VIP	UploadedSize	CG_TUS_GE1T	4	Total Uploaded Size	1000	FALSE

### vi. Assigning Packages to Companies

In the [Companies] worksheet, Ms. Anderson entered 'UploadedSize' in the 'Package ID' field for all their clients (companies).

It is then all done and Ms. Anderson will be able to use the billing program with her own plan. A sample bill is given below:

		My Company Limited Website: www.website.com Email: admin@email.com Fax: 12345678910			
<b>Online Backup Service Bill</b>					
<b>Company Information</b>			<b>Bill Date</b>		
<b>Bill Month:</b> <b>Company ID:</b> <b>Company Name:</b> <b>Address :</b> <b>Country :</b> <b>Phone:</b> <b>Email:</b>	Jun-2007 C-000-004 IT Company C Client1 Address4 US 9876-5435 myemail@companyC.com		21-Aug-2007		
			<b>Total Due</b>		
			\$91.14		
<b>No.</b>	<b>Pricing ID</b>	<b>Description</b>	<b>Price</b>	<b>Qty</b>	<b>Total (USD)</b>
1	Medium Pricing	Medium Usage, Users- Rose; Steven, Teresa; Uri; Vicky; Wendy;	-	-	101.14
Special Discount					(\$10.00)
<b>Total</b>					<b>\$91.14</b>
Thank you for using Online Backup!					

In the user list generated by [Jun-2007], there are users 'Rose', 'Steven', etc. After adding all their uploaded size, the program calculated the correct total for the whole company. Ms. Anderson would like to give a discount to this company, and after modifying the "Programming" part of the bill (refer to the section of [Programming](#) for more information), a 'Special Discount' row appeared on the bill.

## 4.5 Case 5 – Advanced billing with mixed conditions

This example is rather complex. It is designed for advanced users only. It is recommended to read through Case 1 to Case 3 before getting into this case.

### i. Definition

IT Company D is a service provider of online backup. It charges clients by the scale of storage, excluding the size in retention area. Different bandwidth will also affect the price.

Storage	Bandwidth (Mb/s)	Paid User with In-File-Delta (US\$/MB)	Paid User without In-File-Delta (US\$/MB)	All Trial User (US\$/MB)
<1G	10	0.2	0.1	0.01
1~100G	10	0.1	0.05	0.01
>100G	10	0.05	0.02	0.01
<1G	Unlimited	0.4	0.2	0.02
1~100G	Unlimited	0.2	0.1	0.02
>100G	Unlimited	0.1	0.05	0.02

The table indicates that if the total uploaded file size of all the users in the company in that month is less than 1GB and the bandwidth is 10Mb/s, the price for each MB will be US\$0.2. If the total uploaded file size of all the users in the company in that month is less than 1GB and the

bandwidth is unlimited, the price for each MB of storage will be US\$0.4. Similar logic applies to size >=1GB and >100GB. Special prices are arranged for trial users.

## ii. Conditions

To setup a pricing plan like this in the billing program, the development team of IT Company D has created conditions in the [Conditions] worksheet as follows:

Condition ID	Field Name	Comparator	Value	Notes
C_MDS_L1G	Max Data Size	<	1024	<1GB Storage
C_MDS_GE1G	Max Data Size	>=	1024	>=1GB Storage
C_MDS_G100G	Max Data Size	>	102400	>=100GB Storage
C_BW_E10M	Bandwidth	=	10240	10Mb/s Bandwidth
C_BW_EU2	Bandwidth	=	0	Unlimited Bandwidth
C_IFD_ET	Enabled In-File-Delta	=	TRUE	With In-File-Delta
C_IFD_EF	Enabled In-File-Delta	=	FALSE	Without In-File-Delta
C_UT_P	User Type	<>	"TRIAL"	Paid Users
C_UT_T	User Type	=	"TRIAL"	Trial Users

## iii. Condition Groups

Plenty of Condition Groups are necessary to fulfill the requirement:

Condition Group ID	Condition ID	Notes
CG_SL1G_B10M_IFDT_P	C_MDS_L1G	<1GB Storage
CG_SL1G_B10M_IFDT_P	C_BW_E10M	10Mb/s Bandwidth
CG_SL1G_B10M_IFDT_P	C_IFD_ET	With In-File-Delta
CG_SL1G_B10M_IFDT_P	C_UT_P	Paid User
CG_SL1G_B10M_IFDF_P	C_MDS_L1G	<1GB Storage
CG_SL1G_B10M_IFDF_P	C_BW_E10M	10Mb/s Bandwidth
CG_SL1G_B10M_IFDF_P	C_IFD_EF	Without In-File-Delta
CG_SL1G_B10M_IFDF_P	C_UT_P	Paid User
CG_SL1G_BU_IFDT_P	C_MDS_L1G	<1GB Storage
CG_SL1G_BU_IFDT_P	C_BW_EU2	Unlimited Bandwidth
CG_SL1G_BU_IFDT_P	C_IFD_ET	With In-File-Delta
CG_SL1G_BU_IFDT_P	C_UT_P	Paid User
CG_SL1G_BU_IFDF_P	C_MDS_L1G	<1GB Storage
CG_SL1G_BU_IFDF_P	C_BW_EU2	Unlimited Bandwidth
CG_SL1G_BU_IFDF_P	C_IFD_EF	Without In-File-Delta
CG_SL1G_BU_IFDF_P	C_UT_P	Paid User
CG_SGE1G_B10M_IFDT_P	C_MDS_GE1G	>=1GB Storage
CG_SGE1G_B10M_IFDT_P	C_BW_E10M	10Mb/s Bandwidth
CG_SGE1G_B10M_IFDT_P	C_IFD_ET	With In-File-Delta
CG_SGE1G_B10M_IFDT_P	C_UT_P	Paid User
CG_SGE1G_B10M_IFDF_P	C_MDS_GE1G	>=1GB Storage
CG_SGE1G_B10M_IFDF_P	C_BW_E10M	10Mb/s Bandwidth
CG_SGE1G_B10M_IFDF_P	C_IFD_EF	Without In-File-Delta
CG_SGE1G_B10M_IFDF_P	C_UT_P	Paid User
CG_SGE1G_BU_IFDT_P	C_MDS_GE1G	>=1GB Storage
CG_SGE1G_BU_IFDT_P	C_BW_EU2	Unlimited Bandwidth
CG_SGE1G_BU_IFDT_P	C_IFD_ET	With In-File-Delta
CG_SGE1G_BU_IFDT_P	C_UT_P	Paid User

CG_SGE1G_BU_IFDF_P	C_MDS_GE1G	> = 1GB Storage
CG_SGE1G_BU_IFDF_P	C_BW_EU2	Unlimited Bandwidth
CG_SGE1G_BU_IFDF_P	C_IFD_EF	Without In-File-Delta
CG_SGE1G_BU_IFDF_P	C_UT_P	Paid User
CG_SG100G_B10_IFDT_P	C_MDS_G100G	>100GB Storage
CG_SG100G_B10_IFDT_P	C_BW_E10M	10Mb/s Bandwidth
CG_SG100G_B10_IFDT_P	C_IFD_ET	With In-File-Delta
CG_SG100G_B10_IFDT_P	C_UT_P	Paid User
CG_SG100G_B10_IFDF_P	C_MDS_G100G	>100GB Storage
CG_SG100G_B10_IFDF_P	C_BW_E10M	10Mb/s Bandwidth
CG_SG100G_B10_IFDF_P	C_IFD_EF	Without In-File-Delta
CG_SG100G_B10_IFDF_P	C_UT_P	Paid User
CG_SG100G_BU_IFDT_P	C_MDS_G100G	>100GB Storage
CG_SG100G_BU_IFDT_P	C_BW_EU2	Unlimited Bandwidth
CG_SG100G_BU_IFDT_P	C_IFD_ET	With In-File-Delta
CG_SG100G_BU_IFDT_P	C_UT_P	Paid User
CG_SG100G_BU_IFDF_P	C_MDS_G100G	>100GB Storage
CG_SG100G_BU_IFDF_P	C_BW_EU2	Unlimited Bandwidth
CG_SG100G_BU_IFDF_P	C_IFD_EF	Without In-File-Delta
CG_SG100G_BU_IFDF_P	C_UT_P	Paid User
CG_B10_T	C_BW_E10M	10Mb/s Bandwidth
CG_B10_T	C_UT_T	Trial User
CG_BU_T	C_BW_EU	Unlimited Bandwidth
CG_BU_T	C_UT_T	Trial User

The colors and borders are for better readability only, i.e., they have no special meaning.

#### iv. Packages

In this case, IT Company D has only one pricing plan and therefore only one package. The development team has created the package in the [Packages] worksheet like the following:

Package ID	Group Package	Package Description
Complex01	FALSE	Combined and Complex Package

#### v. Pricings

Now, the development team can merge the data together and create the pricing plan. In the [Pricings] worksheet, the development team has created pricings as follows:

Pricing ID	Pricing Description	Package ID	Condition Group ID	Priority	Calculation Unit	Price	Prorate by Days
PRICE001	<1GB Storage, 10Mb/s Bandwidth, In-File-Delta	Complex01	CG_SL1G_B10M_IFDT_P	1	Max Data Size	0.2	FALSE
PRICE002	<1GB Storage, 10Mb/s Bandwidth	Complex01	CG_SL1G_B10M_IFDF_P	2	Max Data Size	0.1	FALSE
PRICE003	<1GB Storage, Unlimited Bandwidth, In-File-Delta	Complex01	CG_SL1G_BU_IFDT_P	3	Max Data Size	0.4	FALSE
PRICE004	<1GB Storage, Unlimited Bandwidth	Complex01	CG_SL1G_BU_IFDF_P	4	Max Data Size	0.2	FALSE
PRICE005	1-10GB Storage, 10Mb/s Bandwidth, In-File-Delta	Complex01	CG_SGE1G_B10M_IFDT_P	5	Max Data Size	0.1	FALSE
PRICE006	1-10GB Storage, 10Mb/s Bandwidth	Complex01	CG_SGE1G_B10M_IFDF_P	6	Max Data Size	0.05	FALSE
PRICE007	1-10GB Storage, Unlimited Bandwidth, In-File-Delta	Complex01	CG_SGE1G_BU_IFDT_P	7	Max Data Size	0.2	FALSE

	Delta						
PRICE008	1-10GB Storage, Storage, Unlimited Bandwidth	Complex01	CG_SGE1G_BU_IFDF_P	8	Max Data Size	0.1	FALSE
PRICE009	>100GB, 10Mb/s Bandwidth, In-File-Delta	Complex01	CG_SG100G_B10_IFDT_P	9	Max Data Size	0.05	FALSE
PRICE010	>100GB, Storage, 10Mb/s Bandwidth	Complex01	CG_SG100G_B10_IFDF_P	10	Max Data Size	0.02	FALSE
PRICE011	>100GB, Storage, Unlimited Bandwidth, In-File-Delta	Complex01	CG_SG100G_BU_IFDT_P	11	Max Data Size	0.1	FALSE
PRICE012	>100GB, Storage, Unlimited Bandwidth	Complex01	CG_SG100G_BU_IFDF_P	12	Max Data Size	0.05	FALSE
PRICE013	Trial User, 10Mb/s Bandwidth	Complex01	CG_B10_T	13	Max Data Size	0.02	FALSE
PRICE014	Trial User, Unlimited Bandwidth	Complex01	CG_BU_T	14	Max Data Size	0.01	FALSE


The colors are for better readability only, i.e., they have no special meaning.

#### vi. Assigning Packages to Companies

In the [Companies] worksheet, the development team entered 'Complex01' in the 'Package ID' field for all their clients (companies).

It is then all done and the development team will be able to use the billing program with their own plan. A sample bill is given below:



		My Company Limited Website: www.website.com Email: admin@email.com Fax: 12345678910			
<b>Online Backup Service Bill</b>					
<b>Company Information</b> Bill Month: Jun-2007 Company ID: C-000-005 Company Name: IT Company D Client1 Address : Address5 Country : US Phone: 9876-5436 Email: myemail@companyD.com			<b>Bill Date</b> 21-Aug-2007		
			<b>Total Due</b> \$20897.30		
No.	Pricing ID	Description	Price	Qty	Total (USD)
1	PRICE004	[Yuki] <1GB Storage, Unlimited Bandwidth	0.2	0.14848	0.03
2	PRICE004	[Zoe] <1GB Storage, Unlimited Bandwidth	0.2	1.71532	0.34
3	PRICE004	[Andy] <1GB Storage, Unlimited Bandwidth	0.2	1.37985	0.28
4	PRICE004	[Ben] <1GB Storage, Unlimited Bandwidth	0.2	1.71529	0.34
5	PRICE008	[Doris] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	91262.3	9,126.23
6	PRICE008	[Gloria] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	2009.89	200.99
7	PRICE004	[Ivy] <1GB Storage, Unlimited Bandwidth	0.2	490.148	98.03
8	PRICE008	[Jennifer] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	12526.9	1,252.69
9	PRICE004	[Kevin] <1GB Storage, Unlimited Bandwidth	0.2	28.399	5.68
10	PRICE004	[Leo] <1GB Storage, Unlimited Bandwidth	0.2	85.4762	17.10
11	PRICE004	[Michael] <1GB Storage, Unlimited Bandwidth	0.2	164.355	32.87
12	PRICE008	[Nicole] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	2788.97	278.90
13	PRICE008	[Ole] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	3113.06	311.31
14	PRICE002	[Peter] <1GB Storage, 10Mb/s Bandwidth	0.1	2.71339	0.27
15	PRICE002	[Quartus ] <1GB Storage, 10Mb/s Bandwidth	0.1	251.393	25.14
16	PRICE006	[Richard] 1~10GB Storage, Storage, 10Mb/s Bandwidth	0.05	3705.27	185.26
17	PRICE006	[Sam] 1~10GB Storage, Storage, 10Mb/s Bandwidth	0.05	2178.3	108.92
18	PRICE008	[Tim] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	12916.4	1,291.64
19	PRICE008	[Umar] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	59856.2	5,985.62
20	PRICE008	[Victor] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	11651.1	1,165.11
21	PRICE004	[William] <1GB Storage, Unlimited Bandwidth	0.2	0.05006	0.01
22	PRICE004	[Xenos] <1GB Storage, Unlimited Bandwidth	0.2	164.355	32.87
23	PRICE008	[Yvonne] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	2788.97	278.90
24	PRICE008	[Zarif] 1~10GB Storage, Storage, Unlimited Bandwidth	0.1	3113.06	311.31
25	PRICE014	[Testing User 1] Trial User, Unlimited Bandwidth	0.01	5807.54	58.08
26	PRICE013	[Testing User 3] Trial User, 10Mb/s Bandwidth	0.02	0.05318	0.00
27	PRICE014	[Testing User 5] Trial User, Unlimited Bandwidth	0.01	23.8787	0.24
28	PRICE014	[Testing User 6] Trial User, Unlimited Bandwidth	0.01	12916.4	129.16
			<b>Total</b>		<b>\$20897.30</b>
Thank you for using Online Backup!					

In the user list generated by [Jun-2007], there are some users who have 0 storage size, and therefore their charges are ignored. The testing users 'Testing User 1', 'Testing User 3', etc., are trial users, and therefore they are charged at trial users' rate.

## 5. Enquiries

### 5.1 FAQ

1. **I have received an error message called "Runtime Error" when getting users from AhsayOBS. What does it mean?**

"Runtime Error" is a very common error message and there are plenty of possibilities. At the stage of getting users from AhsayOBS, the most likely cause is that the program cannot communicate with AhsayOBS. Please check the connection settings mentioned in sections 1.2, 1.4 and 3.1.

2. **There are some missing users in the bill generated. What could have done wrong?**

Please check the logic of the pricing plan carefully in this case. It is advised to define a simpler pricing plan if possible. You can also consider using our Hassel-free service mentioned in section 3.7.

3. **I have received an error message called "Permission Denied" after generating PDF bills. What does it mean?**

The billing program converts the bill into postscript file, and then converts the postscript file to PDF. After that the program will try to delete postscript file. If you do not have the "delete" permission in the PDF folder, you may receive this message. The only solution is to modify the permission settings of the folder. Otherwise you may just delete the postscript files regularly and ignore the error.

4. **I have already corrected the problems by following the user guide, but the errors still come out. What can I do?**

Every time when an error comes out, the program is terminated and cannot proceed further. One major problem is that the calculation mode of Excel is not recovered to "automatic", so that some of the formula do not work and cause errors. To recover the option, from the Excel menu choose [Tools]->[Options]->[Calculation], and then select [Automatic] in the part of [Calculation].

5. **Can I modify the VBA code behind?**

No, you cannot. The code is password-protected. Please contact us via our [forum](#), if you have special needs to modify the code.

6. **What is the maximum number of records supported by the program?**

There is no specific limit on the number of records. However, the Excel has limited the number of rows by 65536. It is advised to start using another workbook if there is any worksheet which has records exceeding 65500. Also, it is recommended to start using another workbook every year; otherwise the large number of records can degrade the performance of the program.

7. **Can I use my own code or formula to customize the program?**

Yes, you are welcomed to customize the program. However, we reserve the right of not providing support on the program if there is any modified code or changed formula.

### 5.2 Contact Us

For any questions on using the AhsayOBS billing program, please contact our support team by [forum](#) . Please note that we may not be able to provide you support service if you have any modification on the code.