



# Ground-Bill

Wholesale billing and settlement system  
Statistical analysis tool for on board services



GroundBill is a wholesale billing product, a settlement system and a statistical analysis tool aimed at Airlines and Aircraft Operators offering on board communication, business travelers support, in flight entertainment and e-commerce services to their passengers.

**MAIN FEATURES**

- **Collect on board service usage data**
- **Settlement**
- **Reporting towards business partners**
- **Statistical analysis of services per flight, operator or service**
- **Support Advertisement**

In transport networks are offering several services on board. JetBill is the product which charges and collects accounting data and interface with passengers and crew personnel. The data collected by JetBill during flight are then imported by GroundBill.

Complex value chains, involves not only the traditional passenger-airline relationship, but includes advertisers, mobile operators, Internet Service Providers, retailers, content providers, catering services and many more.

GroundBill handles the business partners contracts and upon collection of the fleet data, is able to produce settlement reports towards the involved business partners

Data mining, taking on board information produces reports and graphical analysis which can help you to tune your on board service offerings.

A powerful drill down analysis tool, permits to analyze services both in resources and revenues. Views can be defined per network operator, per airline, per flight, per route, and for all combinations thereof. With GroundBill the on board service provider can immediately see which services, airlines, flights or routes performs best or worse, enabling them to take corrective actions. GroundBill 2.0 has been redesigned to be multi platform and interface with JetBill 2.0

FlightNo	Flight	ServiceType	Price Plan	Usage	EUR
20-Sep-05	AA 185	SPB	00Default-SPB Max	EUR	774.28
20-Sep-05	AA 185	PhoneCall In	01Default-Phone Call In	EUR	648.00
20-Sep-05	AA 185	PhoneCall Out	01Default-Phone Call Out	EUR	333.00
20-Sep-05	AA 185	SPB In	01Default-SPB In	EUR	0.00
20-Sep-05	AA 185	SPB Out	01Default-SPB Out	EUR	15.50
20-Sep-05	AJ 111	SPB	00Default-SPB Max	EUR	638.73
20-Sep-05	AJ 111	PhoneCall In	01Default-Phone Call In	EUR	233.00
20-Sep-05	AJ 111	PhoneCall Out	01Default-Phone Call Out	EUR	393.00
20-Sep-05	AJ 111	SPB In	01Default-SPB In	EUR	0.00
20-Sep-05	AJ 111	SPB Out	01Default-SPB Out	EUR	17.00
20-Sep-05	BA 081	SPB	00Default-SPB Max	EUR	267.83
20-Sep-05	BA 081	PhoneCall In	01Default-Phone Call In	EUR	133.00
20-Sep-05	BA 081	PhoneCall Out	01Default-Phone Call Out	EUR	283.00
20-Sep-05	BA 081	SPB In	01Default-SPB In	EUR	0.00
20-Sep-05	BA 081	SPB Out	01Default-SPB Out	EUR	8.00
20-Sep-05	BB 18	SPB	00Default-SPB Max	EUR	242.45
20-Sep-05	BB 18	PhoneCall In	01Default-Phone Call In	EUR	173.00
20-Sep-05	BB 18	PhoneCall Out	01Default-Phone Call Out	EUR	600.00
20-Sep-05	BB 18	SPB In	01Default-SPB In	EUR	0.00
20-Sep-05	BB 18	SPB Out	01Default-SPB Out	EUR	0.00

## Business Partner Management

GroundBill® supports settlement towards mobile network operators (MNO/MVNO), wired or wireless internet service providers (ISP/WISP), airport operators, advertisers, airlines, retailers and other business partners.

Examples of settlement is the revenue split for Internet Access, VoIP as well as premium content on board like movies, music, games, gambling.

For the purpose of settlement, a number of contracts have to be entered into GroundBill, which details the revenue split strategy amongst the partners. These contracts are handled via a GUI.

As an example, Airlines may get a percentage of the price of onboard VoIP calls. GroundBill splits the amount between the airline and the operator and produces reports at predefined billing cycle intervals or on demand. Rating is normally performed by JetBill. GroundBill can however re-rate the services on time, volume or item.

Within each rating mode, rating values can be applied to multiple units, such as seconds, minutes or hours, allowing the desired granularity. Non recurring charges per item can also be applied.

## Airlines and on board operators

In this business model the on board operator collects the revenues and recompensates the airline. Three different compensation schemes can be chosen:

A flat model where a fixed amount will be charged and bound to the airline OPEX (flight, aircraft).

A more revenue oriented schema where the compensation will consider the exposed business, i.e. bound to the number of passengers

and to the duration of flight (therefore bound to the call probability, i.e. the revenue probability).

A fully proportional schema that will compensate the airline according to the revenues of the business partner.

## Advertisers

A significant part of the on board revenues can derive by advertisers, having space on JetBill on board passenger portal (JetPortal) or sending messages to the passengers during the flight or using conventional advertisements in the plane. Examples of advertisers are hotels, rental car companies, restaurants, who can tailor their advertisement depending upon the destination where the flight is going to and even the passenger class of flight. GroundBill supports Advertiser contracts per flight, allowing to customize space on the on board portal at any time or at specified times during the flight, for example just after take-off or just before landing. The contract details are then loaded onto JetBill on board portal.

In order to stimulate passenger's reaction to the advertisements, a "quasi" toll free mechanism for VoIP calls triggered by ads is implemented in GroundBill. VoIP calls and messages that are destined to the advertiser, are marked and rated, and their value can be sent to the advertiser at convenient times, i.e. when the plane is on the ground. In this way the advertiser, say an hotel can deduct the call charges, or parts thereof from the customer bill when they will check out from the hotel or return the rental car. And a percentage of the call will go to the Airline.

This mechanism stimulates new revenue streams for the involved parties.



Data warehousing and Statistical Analysis  
 A very important feature of GroundBill is its capability to analyze services during flight to extract different analytical views.

The multiple analysis tool, enables you to select to examine the data in one particular time period.

All services, whether VoIP calls, Internet Browsing, IFE or e-Commerce can be examined by their number, volume or by their value after rating. The above parameters can be viewed by Business Partner, by Airline, by route and/or any combination thereof.

Therefore it will be possible for the Operator to point out the most promising flights, or the poor performers, and also the routes, the services experiencing Quality of Service problems, allowing a fast reaction and renegotiation of their business partner agreements with those responsible for poor performance.

### Interfaces

GroundBill imports data generated by JetBill, and convert it into an SQL database tables which can be used to import also from other systems.

GroundBill can generate output data in form of reports. TAP3 format for MNO is also supported. Ad hoc customer interfaces will be implemented on request

## Platform

GroundBill® runs on multiple platforms: Linux, Windows and MacOS. The open source PostgreSQL database is used to store data and to share them with JetBill on board. The wide variety of platforms allows the tailoring to any airline or operator, from the smallest to the largest one. GroundBill can be ported to other Databases such as Oracle, SQL Server or MySQL to support customer existing installations.

## Customization

High flexibility is provided by customizing the product on demand to specific Airline needs. Legacy interfaces with Airline systems can be implemented on request when the statistics need to go to passenger detail level. Passenger behavior learning function can be switched on, in order to acquire useful marketing information. When combined with JetBill, GroundBill offers a seamless complete billing solution for Services in the aeronautical and In Transport Environment.

## Reconciliation

The en-route air to ground communication provider, either a satellite or a terrestrial wireless network operator, and the airport specific wireless network operators will have their view of the communications resources used by the airline during flights. It is important for the airline to be able to produce their view of the used resources, to supervise the operator view and facilitate reconciliation. These statistics are also valuable to optimize the choice of the communication solution on board the fleet.

## PlaneBill Suite

The PlaneBill suite is made of several billing products, the main ones being JetBill and GroundBill. JetBill is the companion product for billing aeronautical services on board.

JetBill is used by an airline or a service provider to bill passengers for on board services.

JetBill does not require GroundBill to operate, and most billing functions can be solved autonomously by JetBill on board. With this approach the air to ground communication is minimized. JetBill contacts the ground only when a credit card authorization is required, and defers the communication with the GroundBill ground server when the plane is on the ground and at the specified location. JetBill data can also be kept on board, as long as there is internal storage, and downloaded either via a WiFi a GateLink or even via USB supports.

JetBill and GroundBill together represent a complete solution to Airlines and Mobile Network Operators willing to offer on board communication, e-commerce, business support and entertainment services.

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