



Technical White Paper

**About the A-Safe Online
Backup Service**

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Introduction

A-Safe, from Arrival Systems, Inc., is a secure, online backup service that automates the process of backing up electronic data. A-Safe was created to satisfy the broad need for an easy to use, automatic and secure method of backing up data offsite. The goal of A-Safe was to design a cost-effective backup service that could be used by anyone regardless of computer expertise, yet with the functionality and features of backup systems used by Fortune 500 companies. Since its market introduction, A-Safe has quickly gained recognition with customers nationwide, who have come to recognize that A-Safe provides them with a backup solution that is simple to setup, easy to use, completely automatic and most importantly, secure and reliable.

How the A-Safe Service Works

After signing up for an A-Safe online backup service account, the administrator or user will download and install the software onto his or her computer or server, or onto multiple computers or servers. Once the software is installed, the user will be prompted to choose a unique 32 character string of characters (the encryption key) that will be used to encrypt all of the user's files. This encryption key is stored only on the user's system and is never transmitted over the Internet nor is it stored on Arrival Systems' servers. Thus, only the user has access to his or her files. Even Arrival Systems cannot access the files or even read the filenames.

Next, the administrator or user will setup a backup set. The backup set is the list of files to be backed up and the days and times that backups will run. Backup Sets can be created by either selecting individual files or folders to backup or by selecting the types of files to backup. In addition, multiple backup sets can be created, allowing the user to have complete control over data being backed up.

The first time a backup occurs after a new backup set is created (the "initial backup"), all files contained in the backup set will be transmitted. Thereafter, only new files and files that have changed will be uploaded (an "incremental backup"), minimizing the time it takes to perform a backup as well as minimizing the user's valuable bandwidth. Backups will begin automatically according to each backup set's backup schedule as long as the computer is on and functioning (and not in sleep or power save mode).



Backups can also be initiated by the user at any time. Because backups run in the background of the system, they have little or no impact on the computer's performance or Internet connectivity.

When a backup starts, the system's hard drive is first scanned for any files contained in the backup set that are new or have changed since the last backup of that backup set. A-Safe grants the user the ability to store an unlimited number of versions of a file (the default setting is 30 revisions per file). Storing multiple versions ("revisions") of files is useful when the content of files changes often but not the filename. The danger of accidentally overwriting a file is thus eliminated.

Once the A-Safe software identifies a file that needs to be backed up, it compresses the file using industry leading compression (ZIP) technology. Compression ensures that not only do backups take a shorter period of time but that the amount of storage space used is minimized.

After being compressed, each file is individually encrypted using the unique 256 bit encryption key. A-Safe uses 256-bit Advanced Encryption Standard (AES) encryption technology. AES encryption was developed by the U.S. National Institute of Standards and Technology (NIST) and is now the state-of-the-art standard encryption technique for both commercial and government applications. Moreover, in June 2003, 256-AES was approved by the United State's National Security Agency (NSA) for use encrypting the U.S. government's documents classified "TOP SECRET."

For added security, each encrypted file is then sent over the Internet via a secure channel using Secure Sockets Layer (SSL) technology. This is the same Internet transmission technology that is used for online banking and online credit card applications. As a result, data is encrypted twice. It is encrypted at all times using the 256-bit AES encryption, and it is encrypted again while it is being sent over the Internet, to and from the Arrival Systems servers.

All user data is sent to and stored in two redundant secure data centers, located hundreds of miles apart from each other (Northern New Jersey and Toronto, Ontario, Canada). Each data center has 24/7 onsite monitoring, advanced security technology such as biometric access controls, backup generators and redundant connections to the Internet.

Each file that is backed up or restored, as well as additional information and statistics about backups is recorded in a log within the A-Safe software. This log, which can easily be searched, allows the user to verify that files were successfully backed up and help troubleshoot any issues that may be occurring. The user also has the option of receiving an automated email notification at the conclusion of each successful backup. Information about recent backups and total storage usage can also be viewed via the Internet, by logging on to the user's account at www.asibackup.com.



Of course, any backup method is only as good as its ability to retrieve files. With A-Safe, restoring files can be done in just a few clicks of the mouse. Using the A-Safe software, the user simply clicks on the individual files or folders or revisions that he or she wants to retrieve. The file or files will then be downloaded to the user's computer, decrypted, uncompressed and then restored to their original location or another specified location on the user's system. A password is required to restore any files, preventing unauthorized restores.

In the event of a complete system failure, a full recovery of the user's backed up data can be initiated in minutes. This recovery can be done on any Windows based computer, and not just the computer from which the files were originally backed up. The user will download and reinstall the A-Safe software, enter his or her username and password, and load or type the encryption key. Once the software installation is completed, two clicks of the mouse will restore the file catalogue (the list of all of the files backed up) which will then give the user the ability to restore any and all files that are backed up.

Extended Features of A-Safe

In addition to the basic backup and recovery functions discussed above, the A-Safe software contains many advanced features which allow the user to have additional functionality and enhanced management of backups. These features include the ability to backup files on mapped network drives as well as the ability to backup multiple computers under one main administrator account. Also available with certain accounts are free plug-ins that allow backups of Microsoft Outlook .PST files, Microsoft Exchange Server databases and Microsoft SQL databases.

For more information about A-Safe, please visit our website or contact us at:

Arrival Systems, Inc.	Tel: 251-545-4962	info@asibackup.com
7863 Airway Park Drive	Tel: 888-561-9809	www.asibackup.com
Mobile, AL 36608		
USA		

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