



Exchange 5.5/2000 Technical White Paper

Arch WirelessTM Enterprise Solution

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ABOUT ARCH WIRELESS, INC.

Arch Wireless Inc. (OTC Bulletin Board: ARCH), headquartered in Westborough, Mass., is a leading two-way wireless Internet messaging and mobile information company with operations throughout the United States. The company offers a full range of wireless messaging services, including wireless e-mail, two-way mobile data and paging. It provides wireless services to customers in all 50 states, the District of Columbia, Puerto Rico, Canada, Mexico and the Caribbean. Additional information on Arch is available on the Internet at www.arch.com.



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1. Introduction

Arch Wireless Enterprise Server enables employees to have secure, real-time, wireless access to enterprise data and applications from nearly any wireless device. AWES is breakthrough technology, combining the simplicity of an off-the-shelf application with the power of an extensible architecture.

AWES provides the ability for mobile workers to view network documents, open and read email and attachments, schedule meetings, phone contacts, receive alerts, log into databases, access CRM applications, and more. And, AWES provides an open, standards-based platform for wirelessly enabling other corporate applications.



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2. System Architecture

2.1 Push and Request/Response

AWES works in two modes, push and request / response.

AWES monitors the Microsoft Exchange server, waiting for certain events such as the arrival of new email. When a user receives a new email, AWES automatically sends that user the email message. In some cases, if the device cannot accept the entire email message, AWES sends a notification that a new email has arrived. This type of action is called “push.” The advantage of push is that it operates without any user intervention.

AWES also responds to users. When a user request a file, for example, AWES receives the request, processes it, and sends the file back to the user. This type of action is called “request/response.” The advantage of request/response is that it allows the user to choose from a wider variety of wireless devices, or to use multiple devices without syncing.

2.2 Components

AWES is built on an extensible architecture which allows enterprises to connect to multiple devices and applications. There are three main components, the Service Bridges, the Presentation Module, and the Mobility Engine.

Service Bridges

Each Service Bridge allows AWES to connect to a specific application. The Service Bridge for Exchange performs the following functions:

- Manages all interactions with the Microsoft Exchange server
- Monitors email inboxes for events such as the arrival of new mail
- Communicates with the Mobility Engine when these “watched” events occur
- Receives requests from the Mobility Engine and issues the appropriate MAPI commands to the Microsoft Exchange server
- Receives responses from the Microsoft Exchange server and send the appropriate data back to the Mobility Engine

The Service Bridge for Filesystems performs the following functions:

- Manages all interactions with the local or LAN Windows shared file systems
- Receives requests from the Mobility Engine, such as “display file directory”, and issues the appropriate commands to the Microsoft Windows file system
- Receives responses from the Microsoft Windows file system (such as the contents of a directory) and send the appropriate data back to the Mobility Engine

Presentation Module

The Presentation Module performs the following functions:



- Formats, compresses, and encrypts information for transmittal to different devices via wired and wireless connections
- Decrypts and uncompresses messages received from different wireless devices, and formats these messages into a common internal command format

Mobility Engine

The Mobility Engine performs the following functions:

- Accepts “push” messages from various service bridges (including the Service Bridge for Exchange) and routes them appropriately to the Presentation Module for delivery
- Accepts “request” messages from various devices via the Presentation Module and routes these information requests to the appropriate Service Bridge
- Accepts “response” messages from various service bridges (including the Service Bridge for Exchange) and routes the response information to the Presentation Module for delivery

2.3 Special Considerations for Arch Wireless Network Users

AWES runs with multiple devices over multiple carrier networks. When activated over the Arch Wireless carrier network, AWES allows you to set certain additional configuration options which can enhance security.

Polling Delivery

When AWES is in polling mode, any message sent from the Timeport P935 is delivered only to the Arch Wireless gateway. The AWES server then retrieves the message from the Arch Wireless gateway in regular frequent intervals. Since the AWES server makes an outbound request to the Arch gateway, no inbound ports are required on your company firewall.

In order to utilize polling, Arch Wireless will supply a specific and unique Poller ID and Security Code reserved for your company. This ID is provided along with the software media. If you do not have your poller information, please contact Arch Customer service.

Standard Delivery

When AWES is in standard delivery mode, any message sent from the Timeport P935 is delivered to the AWES server. Since the messages are sent directly to the AWES server, you must have ports configured on your firewall to allow inbound access (see below). This configuration is preferred if you intend to access AWES from multiple devices such as cell phones or PDAs.

Choosing a Delivery Method

Utilizing polling will simplify installation and maximize security since you do not have to make any modifications to your corporate firewall. If your primary concern is to limit or eliminate inbound ports, then you should choose the polling delivery method.



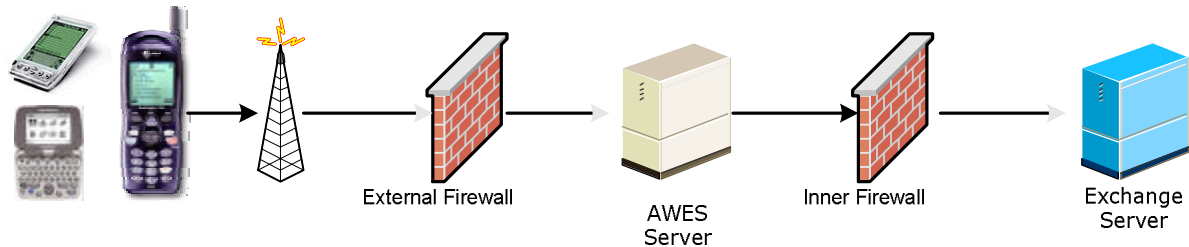
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Utilizing standard delivery will allow you greater flexibility to use additional devices and networks. The firewall requirements for Standard delivery (see below) are similar to those for other applications, such as Microsoft Outlook Web Access.

2.4 Recommended AWES Configuration (Standard Delivery)

The recommended configuration for enabling standard delivery is displayed in the following illustration.



External Firewall

In the scenario above, AWES is placed between two firewalls, within the corporate DMZ. Port 80 (HTTP) and/or 443 (HTTPS) is required from the external firewall to the AWES server.

If desired, another layer of security can be achieved by limiting the access to the external perimeter firewall. For example, you can configure your external firewall to only allow connections from known wireless gateways that your employees will be utilizing for AWES. Attempts to connect to the server from any other network IP schemes would then be denied from the external firewall.

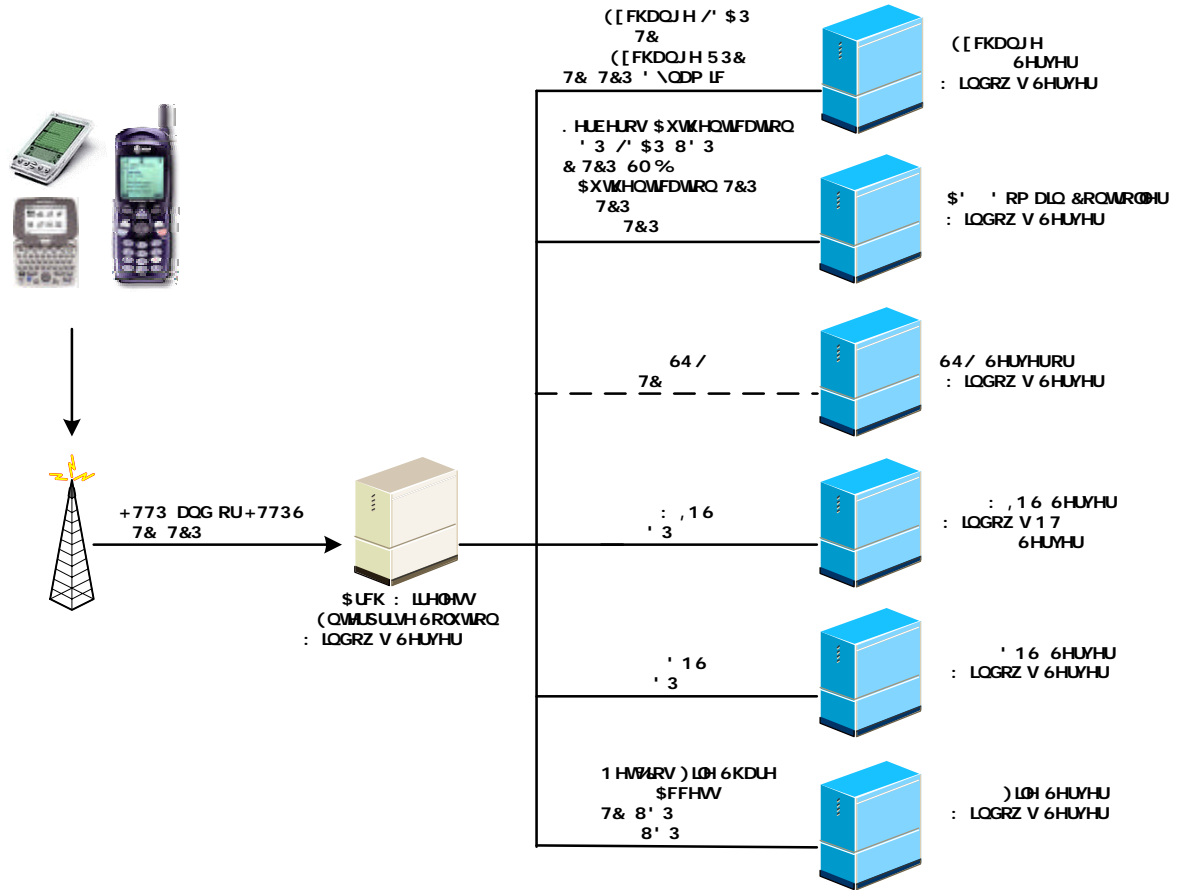
Inner Firewall

Port requirements will vary on deployment scenario, as well as on unique characteristics and needs of your particular network. The illustration below depicts port requirements necessary for the inner firewall for Windows 2000 networks running either Exchange 5.5 OR Exchange 2000 servers.



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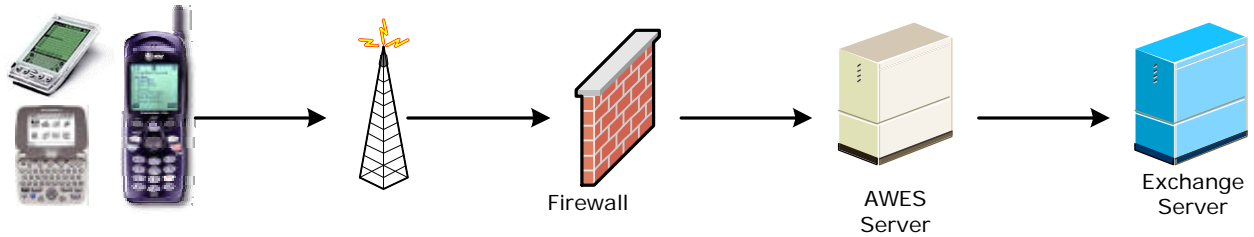
Additional information regarding port requirements can be found in the Exchange Install Guide.

SSL Certificate

Once your AWES server is put into production, it is highly recommended that you install an SSL certificate from a trusted certificate authority onto the AWES Wireless Internet Server. Installing this certificate ensures encryption over all web devices (such as mobile phones) and provides additional security when accessing the web admin screens.

2.5 Alternate Configuration

An alternative configuration option is to place the AWES server directly behind the firewall alongside the corporate Exchange server(s). This scenario is depicted in the following illustration:



In this configuration, the only inbound port required on the firewall is to allow port 80 (HTTP) and/or 443 (HTTPS) access to ONLY the AWES server. An external DNS/IP address would need to resolve to the internal AWES server. This DNS name or IP address will be used by the mobile device to access the AWES Wireless Internet Server. No other port requirements are necessary because the AWES server has access to all other internal systems.

2.6 System Requirements

AWES requires the following hardware and software to connect to Microsoft Exchange 5.5 or Exchange 2000 servers.

Hardware

- Single Intel-based Windows 2000 Server (or equivalent)
- Intel PIII 800MHz, equivalent or better
- Minimum 256MB RAM
- Minimum 50MB of disk space

Software

- Windows 2000 Server, SP1 or higher
- Internet Information Server 5.0 (Installed with Windows 2000)
- SQL Server 7.0 SP3
- CDO libraries installed with Outlook Web Access for Exchange Server 5.5 SP4
- Microsoft Word 2000 (Required for Files access)
- Microsoft Outlook 2000
- Exchange 5.5, SP4+ – or - Exchange 2000



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3. Installation

Installation typically requires preparing the server, installing the AWES software, and registering users.

3.1 Preparing the Server

The first step is to prepare your server. During this process, the following systems are installed:

- Install Windows 2000 Server
- Install Microsoft SQL Server 7.0 and Service Pack 3
- Install Microsoft Word 2000
- Install Outlook 2000

3.2 Installing the AWES Software

The second step is to install the AWES software using the provided automatic installation tools. To install the AWES software, you simply insert the CD-ROM and click on Setup.

The AWES installer will install the following components:

- Core – The Core includes the Mobility Engine and Presentation Module and is required to be installed before any Service Bridges are installed.
- Groupware Service – The Groupware Service will activate the Service Bridge between the Core and the Microsoft Exchange server.
- File System Service – The File System Service will activate the Service Bridge between the Core and various Windows file systems for file and attachment access.

3.3 Registering Users

The final step is to register new users and test the installation. Once the AWES software has been installed, you access the AWES Web Admin to add modify or remove users, setup Services, and configure User permissions. During Installation, an AWES Web Admin Shortcut will be placed on your desktop. The Administrator will be able to launch the AWES Web Admin by simply double-clicking the desktop shortcut, or via a desktop browser.



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4. Administration

4.1 Overview of Web Admin

The AWES Web Admin allows users and system administrators to manage the AWES installation through an easy-to-use web interface.

Using the Web Admin, users can:

- Manage Password Information
- Configure their Motorola Timeport P935 Pin Information
- Manage Notification Option

System administrators can:

- Add or modify new and existing users
- Configure user access to email, files or other resources
- Configure services
- Configure wireless network settings
- Configure server settings
- And perform other administrative tasks

Arch wireless

ARCH WIRELESS ENTERPRISE SOLUTION

User Admin

System Admin

Batch User Import

Add/Modify Users

Setup Services

Setup Network

Setup System

Licensing

Logout

System Administration

Michaela Dimas

Batch User Import: Select this option to import new users from a CSV file.

Add/Modify Users: Select this option to add new users or modify existing users.

Setup Services: Select this option to configure Services.

Setup Network: Select this option to configure Arch network settings.

Setup System: Select this option to configure your AWES server.

Licensing: Select this option to add or enter license keys.

[about](#)

AWES System Administration – Web Admin



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4.2 Setting Up New Users

There are two different scenarios in which administrators can opt from to add new AWES users – As Individuals or in a Batch Import (.csv file). Regardless of the scenario chosen, all new users are added via the System Admin

Batch Import

AWES provides the ability to add multiple users at a single instance, from the AWES Web Admin. This feature allows the system administrator to add a group of users to the AWES application quickly and easily. After importing a batch of users, the system administrator can send a customized message to each new user which contains password information, a link to the Web Admin, and other helpful new user information.

User Admin	Batch User Import		Michaela Dimas
System Admin			
Batch User Import			
Add/Modify Users			
Setup Services			
Setup Network			
Setup System			
Licensing			
Logout			
Import User Data:			
CSV File Path:	<input type="text"/>		
Send Notifications:	<input type="checkbox"/>		
			Add Users
Email Notification:			
Sender Address:	<input type="text"/>		
Subject:	<input type="text" value="Welcome to AWES!"/>		
Body:	<pre> Welcome to AWES! Your initial password is: INSERT_PASSWORD_HERE 1) Please log into the AWES Web Admin at http://archaquivo/AWES/default.asp?t=admin using your AWES username: USERNAME and the password stated above. </pre>		

Individual Users

System administrators can choose to add, remove, or modify individual users as well.



5. Managing a Successful Deployment

The most important factor in managing a successful deployment is ensuring that your users are appropriately trained. A training plan should cover fundamentals such as: how to access AWES from your wireless devices, navigating the application, and basic security procedures. AWES' interface is very easy to learn, and most new users are productive within a day.



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