VMware AirWatch Email Notification Service 2 Installation and Configuration Guide

Configure ENS2 for cloud and on-premises deployments

Version 1.0

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Overview

Introduction

The Email Notification Service (ENS) adds Push Notification support to Exchange. VMware Boxer provide notifications about your emails by running in the background. Due to platform limitations, Boxer can only run in the background for a limited time. Email Notification Service (ENS2) provides a solution to deliver notifications to user's device when Boxer is not running. ENS2 supports notifications that includes the email subject and a badge icon to notify the number of unread emails in the Inbox on the server.

This document provides the information required to install and configure the ENS2 as a cloud-hosted or on-premises service.

ENS2 with Boxer

ENS2 uses Exchange Web Services (EWS) subscriptions to notify changes in users' mailboxes. The EWS subscriptions can go inactive due to different reasons and the systems involved should check to make sure that the subscriptions are active.

ENS2 uses a check-in mechanism within Boxer and also proactively checks the EWS subscription status to ensure the continuous delivery of notifications. The check-in mechanism used by ENS2 require intervention from Boxer to renew the EWS subscriptions. The functionality of ENS2 also depends on the Apple Push Notification Service (APNS) to deliver silent notifications to the device.

The dependency of ENS2 on EWS and APNs can cause the following scenarios:

- No push notifications received when device notification is set to Do Not Disturb

- No push notifications received for up to one hour when the device is actively used (Boxer in the background)

- Inaccurate badge counts that is updated after receiving an email

Bringing the Boxer app to the foreground thereby allowing the ENS2 to renew EWS subscriptions will solve the notification errors.

Architecture Overview

This section provides information about the architecture design and functionality of ENS2.

ENS2 Architecture using APNS
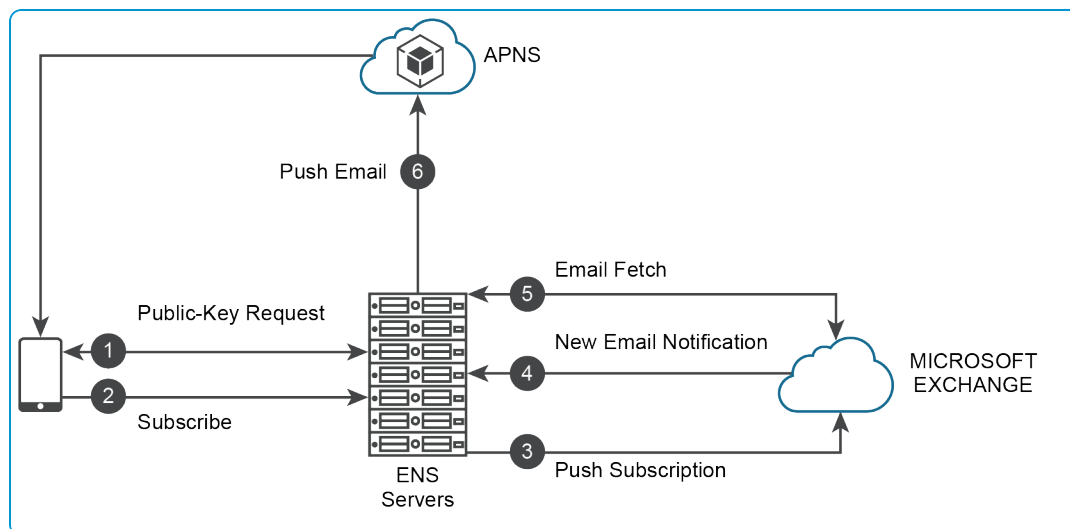
Architecture Flow Description

1. Public-Key Request

   - The device requests a public key to encrypt the account credentials.

2. Subscribe

   - The device sends an encrypted payload with credentials and all the necessary information to subscribe and get email notifications.

3. Push Subscription

   - ENS authenticates with EWS and subscribes for push notifications using a webhook URL. The webhook URL contains the encrypted credentials. The credentials are now kept encrypted on the Exchange server.

4. New Email Notification

   - Exchange sends notification about the mailbox changes to the provided webhook URL.

   - ENS extracts and decrypts the credentials and prepares call to fetch emails.

5. Email Fetch

   - ENS performs a fetch for the email details (subject and sender) required for providing a notification.

6. Push Email

   - ENS pushes email details for delivery to all devices belonging to the user through Apple Push Notification Service (APNS).

Requirements

This section explains the requirements for using the ENS2 with AirWatch.

Email Server Integration

Versions Supported

- Email Client - VMware Boxer v4.8 for iOS or later

- Email Server - Exchange 2010 SP3, Exchange 2013 SP1, Exchange 2016, or Office 365

AirWatch Console Requirements

AirWatch Console v8.4 or later

Hardware Requirements (On-Premises Only)

Web Server

CPU Core	RAM	Hard Disk Storage	Notes
2 (Intel processor)	16 GB (8GB minimum)	30 GB	Per 100,000 users.

Database Server

CPU Core	RAM	Hard Disk Storage	Notes
2 (Intel processor)	16 GB (minimum)	Approx. 0.0477 MB per user to estimate the DB storage size.	Per 100,000 users.

Software Requirements

Requirement (On-Premises only)	Notes
Windows Server 2008 R2 or Windows Server 2012 R2	The servers should be externally accessible
SQL Server 2012–2016 (Database Server)	The db_owner role and public role must be enabled on the SQL server user that is used for running the application
CNS Certificate	
Secure Channel Certificate	
IIS 7 or later	Installed on Web Server
Requirement (Cloud and On-Premises)	**Notes**
Basic Authentication for the Exchange environment	Upcoming versions support Certificate Based Authentication and Modern Authentication
Autodiscovery enabled in Exchange environment and Internet exposed EWS environment. If autodiscovery is disabled, you can use the EWSUrl key value pair to configure ENS.	
Exchange requires an outbound connection to ENS for pushing the events.	

Networking Requirements

Network Ports

Source	Destination	Protocol (Port)
ENS	Exchange (EWS)	HTTPS (443)
Exchange (EWS)	ENS	HTTPS(443)
ENS	Airwatch Cloud Notification Service (CNS)	HTTPS(443)
ENS	SQL Server Instance	SQL(1433)

IIS Services

Component Name	Required Services	Notes
FTP Server	FTP Extensibility	
	FTP Service	
Web Managment Tools	IIS 6 Management Compatibility	
	IIS Management Console	
	IIS Management Scripts and Tools	
	IIS Management Service	
World Wide Web Services		
Application Development Features	.NET Extensibility 3.5	
	.NET Extensibilty 4.6	
	Application Initialization	
	ASP	
	ASP.NET 3.5	
	ASP.NET 4.6	
	ISAPI Extensions	
	ISAPI Filters	
	Server-Side Includes	
	WebSocket Protocol	
Common HTTP Features	Default Document	
	Directory Browsing	
	HTTP Errors	
	Static Content	
Health and Diagnostics	HTTP Logging	
Performance Features	Static Content Compression	
Security	Request Filtering	

Chapter 2:
Email Notification Service for Cloud

vmware airwatch

Configure Boxer for Cloud

Configure the Email Notification Service 2(ENS2) related settings for VMware Boxer on the AirWatch Console.

Prerequisites

API token and ENS2 server URL received from VMware AirWatch are required to activate the ENS service using AirWatch Console.

Procedure

To configure the ENS2 settings on the AirWatch Console:

1. Select the required organization group.

2. Select **APPS & BOOKS** and then select the **Public** tab.

3. Select **VMware Boxer**.

4. Select **Edit** on the upper right corner of the page and then select the **Assignment** tab.

5. On the **Application Configuration (Optional)** section, add the following keys.

Configuration Key	Value Type	Configuration Value	Description
ENSLinkAddress	String	Supported format: https://ens.getboxer.com/api/ens Replace `ens.getboxer.com` with the resolved name or IP provided by VMware based on your region.	Provide the address for the ENS2 system for your users to connect. For more information, see Email Notification Service Endpoints on page 11.
ENSAPIToken	String		API Token provided by AirWatch to activate the ENS service.
AccountNotifyPush	Boolean	True - enable (default) False - disable	Enables ENS for the account.
EWSUrl	String		Enables manual configuration of Exchange Web Services (EWS) endpoint when autodiscovery is disabled in your Exchange environment.

6. Select **Save & Publish** and then select **Publish** on the next page.

Email Notification Service Endpoints

Following API endpoints are supported by ENS2.

Location	API Endpoint	Service Outbound IP Addresses
North America	https://ens.getboxer.com/api/ens	35.170.156.92 52.0.239.8 52.203.205.147
Asia Pacific	https://ens-apj.getboxer.com/api/ens	54.248.56.175 54.249.212.171 54.95.25.171
European Union (EU)	https://ens-eu.getboxer.com/api/ens	18.195.84.245 18.196.197.192 52.28.149.150

Verify VMware Boxer Settings

After you have added the ENS configuration keys for the VMware Boxer using the AirWatch Console, check the Boxer settings on your device to confirm if your device received the configuration keys and the ENS is activated.

To verify the Boxer settings:

1. Open Boxer, tap the **Settings** icon and then select the appropriate email account.

2. In the email settings, verify:

    a. If the **Use Push Service** is enabled.

    b. If the **Notifications** display **Push** as the default selection.

If the **Use Push Service** is enabled and Notifications display **Push**, then the ENS is activated.

Chapter 3:
Email Notification Service for On-Premises

Configure CNS and Download ENS Configuration Files

Configure the Cloud Notification Service (CNS) and download the configuration (.xml) file using the AirWatch Console to install ENS in an on-premises deployment.

To configure the ENS V2 settings on the AirWatch Console:

1. Select the required Organization Group and navigate to **Groups & Settings** > **All Settings**.

2. From the System column, select **Advanced**.

3. From the URL values page, select **Cloud Notification Service URL** text box and provide the CNS URL.

4. From the left navigation pane, select **Security** and then select **SSL Pinning**.
   Follow the instructions to configure the SSL Pinning certificate.

5. If you have logged in as a Global Admin, then change the Organization Group to the child Organization Group for which you are configuring the ENS.

6. From the Settings page, select **Email** and then select **Email Notification**.

7. To enable Email Notification, select **Yes** and then select **Save**.
   After the settings are saved, the Download Configuration option is displayed.

8. Select **Download Configuration**.

9. From the Download email configuration page, select **Certificate Password** text box and provide a password to download the configuration.
   The password you provide for downloading the configuration should again be provided during ENS installation

10. Select **Confirm Password** text box, provide the password to confirm and select **Download**.
    Save the archived .xml file for completing the ENS installation.

Install Email Notification Service 2

To use the Email Notification Service 2 (ENS2), you must install the ENS on an IIS server.

Prerequisites

Complete the following tasks before you install ENS2:

- Install IIS 7 or later on the Web Server

- Update ASP.Net to v4.6.2

- If you do not have an SQL Server database in your environment, install the supported version of SQL Server to create an empty ENS database. The account used for SQL must have the *db_owner* and *public* roles enabled.

- Download the config.xml file from the AirWatch Console. For more information about downloading the configuration file, see Configure CNS And Download ENS Configuration File on page 1.

Procedure

1. Download the latest version of ENS2 installer from the [AirWatch Resource portal](#).

   a. Run the installer. The InstallShield Wizard opens and displays the License Agreement.

   b. Select the **I accept the terms in the license agreement** check box and then select **Next**.

2. Select the ENS components you want to install and select **Next**.
   You can install both components on the same server. If you have separate database server, you can install the components on different servers.

3. Choose a location to install the selected components and select **Next**.If you want to install the components at a custom location, select **Change**.

4. From the AirWatch ENS Configurations wizard window, select **Browse** and locate the `config.xml` file and then select **Next**.

5. Select **Certificate Password** text box and enter the certificate password you provided when you downloaded the configuration file from the AirWatch Console, and then select **Next**.

6. From the Database Server window, select the **Database server you are installing to** text box and provide the database path and account credentials for installing the database components.
   The database account provided must have access and modifying privileges.

7. Select the **Name of the database catalog** text box and enter ENS as the name of the database and select **Next**. The name of the database must be ENS.

8. Select **OK** to confirm and then select **Install** to start the installation.
   After the installation is complete, an API token is displayed in a text file.

9. Copy the API token.
   The API token is required when deploying Boxer application with ENS2.

10. Select **Finish** to exit the wizard.

Configure Boxer for On-Premises Environment

After you have installed the ENS2, you can configure the ENS2 related settings for VMware Boxer on the AirWatch Console.

Prerequisites

API token and ENS2 server URL received from VMware AirWatch are required to activate the ENS service using AirWatch Console.

Procedure

To configure the ENS2 settings on the AirWatch Console:

1. Select the required organization group.

2. Select **APPS & BOOKS** and then select the **Public** tab.

3. Select **VMware Boxer**.

4. Select **Edit** on the upper right corner of the page and then select the **Assignment** tab.

5. On the **Application Configuration (Optional)** section, add the following keys.

Configuration Key	Value Type	Configuration Value	Description
ENSLinkAddress	String	Supported format: https://acme.com/MailNotificationService/api/ens Replace acme.com with the resolved name or IP of your ENS Server.	Provide the address for the ENS2 system that your users should connect.
ENSAPIToken	String		API Token provided by AirWatch to activate the ENS service. The API token is displayed in a text file after the ENS2 is complete.
AccountNotifyPush	Boolean	True - enable (default) False - disable	Enables ENS for the account.
EWSUrl	String		Enables manual configuration of Exchange Web Services (EWS) endpoint when autodiscovery is disabled in your Exchange environment.

6. Select **Save & Publish** and then select **Publish** on the next page. To verify VMware Boxer settings, see .

Chapter 4:
Frequently Asked Questions

This section provides information on the frequently asked questions about ENS2 functionality.

How are credentials or authentication tokens handled?

- Although the client shares the credentials or tokens with the ENS2 environment upon registration, they are not saved on AirWatch servers. The Exchange server sends the encrypted authentication information back to AirWatch as part of a notification whenever a new email is available. From that notification (Exchange to ENS2), the credentials are decrypted and used to make any requests necessary to the Exchange server. The credentials are discarded after performing the necessary requests.

If credentials are not saved, what data is saved by ENS? How secure is ENS?

- AirWatch stores a list of devices and a list of public private key pairs used to decrypt the credentials when the notifications are sent from Exchange. The database is saved on a Virtual Private Cloud (private sub-net) secured using firewall. There is no direct access from the internet to this sub-net. All access is controlled using VPC and Firewall rules and only web servers with a single account have access to the database.

- AirWatch saves the log files to help debug issues and monitor the system. The log does not contain any private information (PI) of the customers and access is secured using account permissions.

Where is ENS hosted? Are there instances configured to serve each region based on data sovereignty laws?

- ENS is hosted in multiple regions. We have various environments spanning the US, Europe, and Asia regions that permit us to abide by data sovereignty rules.

What data is transmitted through the ENS server without being saved? How is it secured?

- User credentials that are encrypted with RSA encryption.

- Email subject and sender (sent using HTTPS).

- Future functionality: The functionality to control what data (if any) is sent or fetched for the notification. You can also control the data from an email that is used in the notification payload.

- All communication is made through HTTPS.

What is the dependency of ENS on cloud services?

- AWS Simple Notification Service (SNS) is used for managing push notification.

- Apple Push Notification Service (APNS). APNS is mandatory for passing notifications to Apple devices.

- AWS Relational Database Service (RDS) is used for data persistence.

What is the user agent utilized by ENS2 when sending requests to Exchange?

- MailNotificationService/v2 (ExchangeServicesClient/15.00.0913.015). The value '15.00.0913.015' will change as new libraries from Microsoft are released and we update them to be used by ENS2.

What email folders does ENS2 monitor for incoming messages and actions?

- ENS2 only monitors each user's Inbox folder.