



BlackBerry AtHoc

MSI OPM Installation and Configuration Guide

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Getting started

The On-Premise Email plug-in works with the Notification Delivery Server to provide email services for BlackBerry AtHoc. The Notification Delivery Server (NDS) is a dedicated server that processes and delivers alert messages from the NDS host service plug-ins.

See the [BlackBerry AtHoc MSI NDS OPM Installation Guide](#) for information on requirements, installing, and basic configuration of the Notification Delivery Server.

Product requirements and prerequisites

This section describes hardware, firmware, software, and network requirements for the OPM plug-in.

Hardware and firmware requirements

- A minimum of Dual-Core Dual CPUs (2 Dual-Core CPUs such as Xeon 51xx family, Xeon E53xx family, or X53xx family) 2 GHz or higher
- One database server core for each of the two application server cores
- 512 MB per application server core plus 2 GB for Windows 2008 R2 SP1 or Windows 2012
- **Recommended:** Dual, redundant Intel NICs and power supplies
- If using Broadcom NICs, perform the following steps:
 1. Ensure that the latest drivers are installed.
 2. Disable the TCP Chimney feature, as described in the following Microsoft® article: <http://support.microsoft.com/kb/951037>
- Disk space for storage on a RAID 5, RAID 0+1, or RAID 10 configured disk system. The exact allocation of disks depends on the hardware configuration.

Important: These requirements are for a small-scale installation. For a large-scale installation, contact BlackBerry AtHoc support for assistance.

Software requirements

OPM has the following software requirements (unless otherwise noted):

- Notification Delivery Server and its prerequisites. For more information, see the *BlackBerry AtHoc MSI NDS OPM Installation Guide*. To determine which version of NDS to install, check with your BlackBerry AtHoc professional services representative.
- 64-bit Windows Server 2012 or later
- Windows Server 2012 or 2016, Standard Edition 64-bit, Service Pack 1 or later
- Internet Information Services (IIS) Standard Edition, Version 7.0
- Microsoft .NET Framework, Version 4.6.1 or later
- IIS extension ASP.Net 4.5 enabled
- An email relay server to send emails
- A configured receiver address (MX record) where alert responses can be received
- URL Rewrite Module 2.0

Network requirements

OPM has the following network requirements:

- **Firewalls:** OPM sends and received emails using the standard SMTP port (25). This port should be opened on all firewalls (including Windows Firewall) that protect the OPM application servers.

Note: Simply turning Windows Firewall off might not guarantee the port is opened. Turn on Windows Firewall and create inbound and outbound to allow TCP traffic on port 25.
- **Anti Virus software:** Anti virus software installed on OPM application servers might affect OPM operations if configured incorrectly. We recommend uninstalling anti virus software if its behavior is uncertain.

- **Server clock synchronization:** All application and database server clocks must be synchronized with the network server time.

OPM setup

This section describes the setup of the OPM plug-in for NDS. Contact your BlackBerry AtHoc implementation engineer to download the installation package.

Verify the plug-in installation

For detailed information about how to install the OPM plug-in, see "[Install NDS](#)" in the *BlackBerry AtHoc MSI NDS OPM Installation Guide*.

1. Go to the following folder and run **NdsConsole.exe**: `..\AtHocENS\DeliveryServer\Tools\NDSConsole`.
2. On the **Testing** screen, verify that the following plug-in is displayed in the **Supported Devices** list:

`<email > AtHoc.Delivery.PlugIn.OPM`

Set up the organization account

After you have verified that the OPM plug-in is available in the NDS console, you can set up the account for your organization. You can also associate a user that is an initiator or operator who publishes email alerts.

To set up an account, perform the following tasks:

1. Create the organization account for NDS.
2. Create a user for the account.
3. Bind the user to the account.

Create the organization account

1. In the NDS console, navigate to **Management > Account**.
2. Click **New Account**.
3. Enter a value for **Display Name** and set following defaults:
 - **Status**: Active
 - **Enable anonymization**: Selected

Create a user

You can create a new user in the NDS console and then customize the user profile for branding, billing, and tracking purposes.

1. In the NDS console, navigate to **Management > User**.
2. On the **User Management** screen, click **New User**.
3. On the **New User** screen, enter a login name.
4. Enter and confirm the password associated with the user.

This login name and password will be used to configure the delivery gateway in the BlackBerry AtHoc management system. For example, account Name\login name. See [Register the NDS email delivery gateway with BlackBerry AtHoc](#).

5. In the **Status** field, select **Active**.
6. Optionally, add a description.
7. Click **Save**.

Bind the user to the account

1. In the NDS console, click **Management > Account**.
2. Select the account, then right-click on the **Login Name** of the user that you created in the "Create a User" section.

This login name will be used to configure the delivery gateway in the BlackBerry AtHoc management system. For example, account Name\login name. See [Register the NDS email delivery gateway with BlackBerry AtHoc](#).

3. Select **API** from the drop-down list to add the user with an API role.
4. Select the account, then click the **Account Resource** tab.
5. Select **Email**.
6. Click **Save**.

Configure the OPM plug-in for NDS

This section describes how to configure the OPM plug-in for the NDS server.

Note: The configuration keys are created automatically after installation and the user is required to update some data manually.

1. In the NDS console, navigate to **Management > Configuration > nds.plugins.opm** plug-in key.
2. Confirm the XML tag values in the following sections.

Note: All tags and values in the configuration file are case sensitive.

3. Click **Update**.
4. Restart `AtHocDeliveryService` for the changes to take effect.

Changes to the configuration file do not take effect until the OPM plug-in restarts. On start, the OPM plug-in loads and verifies the configuration file. Any invalid setting can cause the OPM plug-in fail to start. Errors are logged in event log in any case.

(OpmConfig | pluginConfig)

For OPM without attachments, all default values are used if settings are missing from the configuration file.

For OPM with attachments, the default values listed are optimum values. If optimum values are not provided for OPM with attachments, then the default values for OPM without attachments are used, which will cause functionality issues with the OPM plug-in.

XML tag	Description	Comments
<subDomain>	An email domain or sub-domain created and dedicated for OPM use. All outgoing alert email messages are sent from this domain, and all replies to go back this domain. Ensure the domain name does not include "@" sign. For example, <subDomain>alerts.athoc.com</subDomain>	The DNS MX record needs be added to direct emails that target this sub-domain for the NDS server.

XML tag	Description	Comments
<responseUrl>	Indicates the base URL for link-based responses.	—
<outQueueThreads>	The number of threads for processing and signing emails in the outgoing queue. Default: 4 Range: 1 – 20	This parameter affects the sent throughput especially when digital signing is turned on.
<inQueueThreads>	The number of threads for processing email responses in the incoming queue. Default: 2 Range: 1 – 20	This parameter can affect received throughput.
<dbQueueName>	The database queue name for incoming emails. The name must match the name specified on the NDS system. Default: /delivery/opm/emailreply	Change only when directed by BlackBerry AtHoc Customer Support or Implementation.
<maxRelayErrorsPerSecAllowed>	Specifies the threshold to determine if a relay has failed and need human attention. Default: 10 errors per second	Occasionally, OPM can experience connection drops, timeouts, and other errors (such as, SMTP 452) from relay servers, which are normal. However, frequent occurrences of these types of errors can indicate that a relay server is unstable or has failed.
<validateReceivedEmailAddress>	Species that on receiving emails, OPM validates the sender email address against the recipient email address. Values: true: Validate email addresses. false (Default): Do not validate the email addresses.	—

XML tag	Description	Comments
<engineLaunchTimeout>	<p>The delay timeout, in seconds, that occurs when launching OpmEngine. At start up, the OPM plug-in launches the <code>OpenEngine.exe</code> and waits the specified number of seconds (default: 5 seconds). OPM tries connect to the OpmEngine. If OPM cannot connect, it retries again.</p> <p>Default: 5 seconds</p>	—
<reuseEngine>	<p>Specifies whether to reuse or re-launch an instance of OpmEngine, if it is already running.</p> <p>Values:</p> <p><code>false</code> (Default): Close the running engine and launch a new instance.</p> <p><code>true</code>: Connect to the running engine.</p>	—
<logTaskLifeCycle>	<p>Turn on task life cycle logging.</p> <p>Default: True</p>	—
<logPurgeInterval>	<p>Log purging interval (saving to database) in seconds.</p> <p>Default: 1</p>	—
<logPurgeBatchSize>	<p>Purging batch size for records.</p> <p>Default: 2000</p> <p>Range: 1000-2000</p>	—
<maxTasksPerExecution>	<p>The maximum number of delivery tasks that OPM can process in a single batch.</p> <p>Default:</p> <ul style="list-style-type: none"> • 2000 (without attachments) • 5 (with attachments) 	<p>Change only when directed by BlackBerry AtHoc Customer Support or Implementation.</p>

XML tag	Description	Comments
<maxBacklot>	<p>The maximum number of outstanding delivery tasks that OPM process at any time.</p> <p>Default:</p> <ul style="list-style-type: none"> • 6000 (without attachments) • 5 (with attachments) 	<p>Change only when directed by BlackBerry AtHoc Customer Support or Implementation.</p>
<minBatchSize>	<p>The minimum available batch size that OPM can offer to NDS before capacity is available.</p> <p>Default:</p> <ul style="list-style-type: none"> • 100 (without attachments) • 5 (with attachments) 	<p>Change only when directed by BlackBerry AtHoc Customer Support or Implementation.</p>
<counterCategory>	<p>The OPM performance counter category that is registered on Windows Performance Monitor. The category must match the category specified on the NDS system.</p> <p>Default: AtHoc Delivery OPM</p>	<p>Change only when directed by BlackBerry AtHoc Customer Support or Implementation.</p>
<selfTestInterval>	<p>The OPM performance self test is an in depth health check that runs periodically when OPM is idle. This parameter controls how often the self test runs.</p> <p>Default: 30 seconds</p> <p>Range: 10 - 180 seconds</p>	<p>Change only when directed by BlackBerry AtHoc Customer Support or Implementation.</p>

XML tag	Description	Comments
<selfTestEmail>	<p>A valid email address used by OPM when running the self test. OPM does not actually send the test email to this address. Instead, OPM uses a separate domain from the relay server to test the relay capability.</p> <p>Default: test@athocdevo.cc</p>	—
< selfTestMode>	<p>The self test modes used for system health checks:</p> <p>Values:</p> <p>PingRelay (Default): Test only the connection to relay.</p> <p>Send: Connect and issue all SMTP commands except DATA.</p> <p>NoRelay: Turn off scheduled relay test. For OPM internal test, only.</p>	—

Sender settings (OpmConfig | senderConfig)

XML Tag	Description	Comments
<isSenderEnabled>	<p>Enable the sender.</p> <p>Values:</p> <p>true: Turn on sender (default)</p> <p>false: Turn off sender.</p>	Note: Sender and receiver cannot be turned off at the same time.
<bufferSizePerConn>	<p>The buffer size in bytes per connection.</p> <p>Default: 5000</p> <p>Range: 1,000 – 100,000</p>	—

XML Tag	Description	Comments
<failOverMode>	<p>Specifies whether the relay server is set failover or parallel mode.</p> <p>Values:</p> <p>true: Failover mode; use the high order relay until it is down then fail-over to the next relay</p> <p>false: Parallel mode; use all the enabled relays in parallel.</p>	For more information about how to configure relay servers for failover or parallel mode, see Configure failover mode or parallel mode .
<failOverTimeOut>	<p>The number of failure tries on establishing connection to relay before claiming it down.</p> <p>Default: 1</p>	Change only when directed by BlackBerry AtHoc customer support or implementation.
<sendingRetries>	<p>The number of times OPM retries send an email, if non-system errors occur.</p> <p>Default: 2</p>	Change only when directed by BlackBerry AtHoc customer support or implementation.
<sendTimeOut>	<p>SMTP send session timeout (in seconds)</p> <p>Default: 60</p>	New in OPM 2.2.
<startTlsmode>	<p>Specifies the TLS behavior on the OPM Sender level.</p> <p>Values:</p> <p>none: Indicates as the default value and does not use TLS.</p> <p>optional: Try StartTls and handshaking, if TLS is not supported or fails, log a warning but fall back to none TLS mode (plain SMTP) and continue sending.</p> <p>must: Try StartTls and handshaking, if TLS is not supported or fails, display a new "TlsFailure" error, shut down the relay server and stop the operations (similar to AuthFailure error).</p>	<p>STARTTLS is a standard (RFC 3207) way to upgrade SMTP connections to SSL/TLS optionally. It is widely used by many email servers today, including our cloud email delivery provider Dyn. Starting from this version, OPM supports STARTTLS as SMTP client (sender), on either port 25 or 587.</p> <p>Note: TLS 1.2 version is enforced in the app server system level, not application level.</p>

Relay settings (OpmConfig | senderConfig | relayConfigs)

Relay servers are SMTP mail servers provided by customers. The servers are configured to relay outbound emails for the OPM plug-in. The OPM plug-in supports up to three relay servers, using either Failover mode or Parallel

mode. The user name and password values are encrypted in the `OPMplugin.config` file. For more information, see [../advanced-setup/set-up-relay-authentication.dita](#).

Each relay setting in the configuration file must match the corresponding settings in the relay server. To learn more about configuring relay servers, see the documentation for your email server. For example, for Microsoft Exchange Server, see MS Technet.

XML Tag	Description	Comments
<isRelayEnabled>	<p>Specifies whether the relay server is in use.</p> <p>Values:</p> <p><code>true</code>: The relay server is in use.</p> <p><code>false</code>: The relay server is not in use.</p>	If you have three relay servers, by default, the first relay server value is set to <code>true</code> . The other two relay servers are set to <code>false</code> .
<hostName>	The relay host name or IP address of the relay server, such as <code>mail1.xyzcorp.com</code>	—
<port>	<p>The port number set on the relay server to support relay activities for OPM.</p> <p>Default: Default port is 25, or can be set to the new port 587, depending on the relay side configuration.</p>	—
<order>	<p>Specifies the order used by OPM to determine the failover order, when in Failover mode only.</p> <p>Values: 1 to 3, where 1 is the highest priority and 3 is the lowest priority.</p>	The value of <order> must be unique among the relay servers. If you have three relay servers, only one can have the value of 1, 2, or 3.
<connections>	<p>The number of concurrent connections that can be established to the current relay server.</p> <p>Default:</p> <ul style="list-style-type: none"> • 100 (without attachments) • 30 (with attachments) <p>Range: 1-1000</p>	To achieve high throughput, 100 or more should be used. It should match the relay server setting. (This parameter greatly affects send throughput.)

XML Tag	Description	Comments
<throttle>	Throughput limit set for the relay. 0: No limit. Otherwise, the maximum number of mails/second can be sent through this relay. Default: 20 (with attachments)	This parameter greatly affects send throughput.
<isAuthNeeded>	Specifies whether the relay server requires authorization. Values: <code>true</code> : The relay server requires authentication <code>false</code> : The relay server does not need authentication.	If the value is <code>true</code> , set the <authMode> value to one of the following modes: LOGIN, PLAIN, or NTLM. Must be one of the SMTP AUTH methods currently supported by the relay server.
<authMode>	Three most commonly used SMTP authentication modes are supported: LOGIN, PLAIN, and NTLM.	—
<encryptCredential>	Specifies whether the user name and password are encrypted. Values: <code>true</code> : The credential is encrypted. <code>false</code> : The credential is not encrypted.	When you modify the user name and password, set the value to <code>false</code> to type them in clear text and click Update . After you've saved the username and password values, set <encryptCredential> to <code>true</code> and save your change to protect the credentials. The next time that the OPM plug-in loads the configuration file, the plug-in encrypts the values.
<username>	The user name of an email account on the relay server, in full email address format.	—
<password>	The password of an email account on relay server.	—

Receiver setting (OpmConfig | receiverConfig)

XML Tag	Description	Comments
<isReceiverEnabled>	Specifies whether OPM receives email responses through NDS. Values: true: Receives mail. false (Default): Does not receive email.	—
<portSMTP>	Species the SMTP port. Default: 25, the standard SMTP port.	Best practice: Use the default value of 25 so that OPM can receive email from most countries. Change only when directed by BlackBerry AtHoc customer support or implementation.
<connections>	The number of concurrent connections a receiver can handle at the same time. Default: 200 Range: 1-1000	This parameter impacts the amount of received throughput.
<backlogs>	The number of backlog connection requests allowed when all connections are full. Default: 100	—
<bufferSizePerConn>	The buffer size, in bytes, by connection. Default: 5000 Range: 1,000 – 100,000.	Change only when directed by BlackBerry AtHoc customer support or implementation.

Account setting (OpmConfig | listAccountConfig | AccountConfig)

XML Tag	Description	Comments
<accountId>	The account ID.	—
<accountThrottle>	The throughput specified for the account. Values: 0: No limit Other values: The maximum number of mails per second can be sent.	—

XML Tag	Description	Comments
<subDomain	An email sub-domain dedicated for OPM use and assigned to an account. Each account can have its own sub-domain.	The owner of the sub-domain needs to add the DNS MX record in order to send emails that target this sub-domain.
<fromText>	<p>Specifies the prefix text used for the Sender email domain in the From field. The address uses the following format:[fromText] [AlertID]-[PIN]@[subdomain]</p> <p>Default: Alert</p> <p>Note: Spaces are not allowed.</p> <p>Note: Do not use the full email address, just the simple text.</p>	<p>Example:</p> <p>ABCAlert123456-123456@mydomain.com</p>
<responseInstruction>	<p>Specifies help text that shows in the email message body, if response options are required.</p> <p>Default: the message "To respond, EITHER reply to this email and enter the response code in the email body, OR click on the link above and follow the instruction."</p>	—
<enableSigning>	<p>Specifies whether PKI digital signing is enabled.</p> <p>Values:</p> <p><code>true</code>: Turn on digital (PKI) signing for outgoing email. A digital certificate needs to be installed on the server that NDS runs on.</p> <p><code>false</code>: Turn off digital signing for outgoing email.</p>	Digital signing is a CPU-intensive process. Enabling it can slow the send throughput down to 30%.
<hashAlgorithm>	<p>The hash algorithm used for digital signatures.</p> <p>Values: SHA1, MD5, SHA256, SHA384, or SHA512</p>	—
<systemCertName>	<p>Specify the certificate to be used to sign email, certificate name must exist in <code>nds.certificate.repository</code></p>	—

Customize the OPM configuration for each account

You can use the default OPM configuration for all accounts or you can add customized configurations for each account, as needed. For example, if you need enable digital signing for one account, you can create a custom configuration.

1. In the NDS console, navigate to **Management > Account**.
2. Record the Account ID for the account that needs a customized OPM account configuration. You will need this ID in a later step.
3. From the NDS server file system, open the following folder: ...\\AtHocENS\\DeliveryServer\\Plugins\\OPM Plugin.
4. Copy the contents of the following file: `nds.plugins.opm.accountConfig.xml`.
5. In the NDS console, navigate to **Management > Configuration**.

The list of plug-in keys is displayed.

6. Click **New Configuration** and enter the following information into the fields:
 - New Key: Enter **nds.plugins.opm.accountConfig**.
 - AccountId: Enter the Account ID that you saved in Step 2.
 - Device Type: Insert the string **email**.
 - Value: Paste the contents of the following file that you copied: **nds.plugins.opm.accountConfig.xml**.
7. Optionally, add a sub-domain for each account. The default for each account is the system domain, unless you modify it as shown here:

```
<AccountConfig xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
<accountId>10009</accountId>
<accountThrottle>0</accountThrottle>
<targetThrottle>0</targetThrottle>
<subDomain>your_domain_name</subDomain>
<displayInfo>
...

```

8. Click **Save** and verify that the custom configuration was added:
 - The NDS console configuration should have the added configuration under the key.
 - The AtHoc Event Viewer should show the message that new configuration was uploaded.

Test the configuration

After installing and configuring the plug-in, you need to verify that it works.

1. Open the NDS console and click **Testing**.
2. Send a test email to yourself, using the default template file:
 - a. Select **Send Single Alert**.
 - b. Enter the title and body text and add response options.
 - c. In the **Device** field, enter **email**.
 - d. In the **Address** field, enter your email address.
 - e. In the **AccountId** field, enter the account ID that was setup for OPM.

For more information about how to create an account, see [Create the organization account](#).



- f. Click **Send Alert**.
3. Go to the **Monitoring** page and click **Refresh** to see the new alert status.

4. Check the Sent status for errors.
5. Check your email inbox for the test email.

Register the NDS email delivery gateway with BlackBerry AtHoc

Configure the gateway in the Settings page of the BlackBerry AtHoc management system to enable the BlackBerry AtHoc server to publish alerts through NDS.

Register the NDS server for each organization.

1. Log in to the BlackBerry AtHoc management system as an administrator or an advanced operator.
2. Click **Change Organization** to select the applicable organization.
3. Click .
4. In the **Devices** section, click **AtHoc Cloud Delivery Services East** or **AtHoc Cloud Delivery Services West**.
5. On the **AtHoc Cloud Delivery Services** page, click the **Copy Default Settings**.
6. Complete the connection information for Gateway:
 - **Notification Delivery Server address:** Enter the address of the NDS server.
 - **Username:** Enter the user name defined in [Create a user](#) for the `endpointUsername` parameter in the following file on the NDS Server: `<AthocENSHome>\DeliveryServer\configuration\server.config`
 - **Password:** Enter the same password defined in [Create a user](#) for the `endpointPw` parameter in the `server.config` file on the NDS Server.
Important: For security purposes, you should change this password.
 - **Email Templates:** `<OPM_plugin>\templates\AllTemplates.xml`
 - **From Display Name:** If the value entered is a simple phrase or placeholder, it is used for the **From Display Name**, the **From** email address is supplied by the OPM system. For example, `AtHoc Admin`. If the value entered consists of a valid email address at the end in angle brackets, for example, `XYZ Alerts<alerts@xyz.com>`, it is used as the **From** email address instead of the OPM system address. The reply emails are still sent to OPM system address.
Note: Ensure that the custom **From** email domain is registered with AtHoc Cloud Delivery system before use or emails may be prevented from being delivered.
7. Click **Save**.
8. Click .
9. In the **Devices** section, click **Devices**.
10. On the **Devices Manager** screen, enable the applicable OPM device, using the following steps:
 - a. Select the email types from the list of devices, for example: Email - Personal.
 - b. On the **email device** page, click **Save**.
 - c. Scroll to the top of the screen and click **Enable**.

Set up advanced OPM plug-in features

Use the following sections to set up advanced OPM plug-in features.

Configure failover mode or parallel mode

You can configure relay servers for failover or parallel mode if you have more than one relay servers configured. These options provide additional assurance that the email delivery component of your alerting system is functional.

When you use failover mode or default mode, the primary relay is available. If the primary relay is unavailable then other relays are available.

When you use parallel mode, all the relays are available and the work is distributed among the relays based on the number of connections. This mode can improve performance when one relay does not have the capacity to handle all the work.

1. In the NDS console, navigate to **Management > Configuration**.
2. In the navigation pane on the left, click to open the `nds.plugin.opm` key.
3. Locate the `<OPMConfig><senderConfig><sendingMode>` attribute in the list.
4. Choose one of the following options:
 - Failover mode: Enter the attribute value `failover`
 - Parallel mode: Enter the attribute value `parallel`
5. Click **Save**.

Set up relay authentication

If a relay server requires security authentication, set up SMTP authentication for the OPM plug-in. The OPM plug-in supports the three most commonly used SMTP authentication methods: LOGIN, PLAIN, or NTLM.

1. In the NDS console, navigate to **Management > Configuration**.
2. In the navigation pane on the left, click to open the `nds.plugins.opm` key.
3. Locate `<OPMConfig><senderConfig><relayInfoList><RelayConfig> <relayAuthInfo>` of the relay server you need to set up authentication for.
4. Change the `<isAuthNeeded>` attribute to `true`.
5. Change `<authMode>` to one of the following values, based on the relay settings:
 - LOGIN: Requires the user to login.
 - PLAIN: Requires no user login.
 - NTLM: Requires login on Windows servers that use NT LAN Manager (NTLM).
6. To enter the user name and password in clear text, change the value of `<encryptCredential>` to `false`.
Note: When the BlackBerry AtHoc delivery services starts OPM, the username and password display with encrypted characters.
7. Enter the relay server account username and password in clear text.
8. Restart NDS and OPM.

OPM then reads and encrypts the username and password and saves them in the configuration file.

Enable PKI digital signatures

OPM supports PKI digital signed email messages using one certificate for each account, stored in the NDS database.

Prerequisites

Before enabling digital signatures, perform the following steps:

1. Provision a valid PKI X509 certificate issued by one of the Certification Authorities (CA) with a private key. The certificate needs to be in the certificate file format .pfx.

Important: Protect this file with a password.

2. Add the root certificate of the issuer (for example, Verisign) to the LocalMachine\Trusted Root Certificate Authorization store on each application server.

Add a certificate

You can sign your email with certificates. Perform the following steps to import the certificate into the system.

1. Start the NDS console.
2. Click the **Utilities** tab.
3. In the **Import System Certificate** section, click **Load File** to locate your Certificate.
4. Type the required certificate name.
5. Click **Import**.
6. A pop-up screen confirms whether the certificate has uploaded. Click **OK**.
7. After the import, go to **Management > Configuration**.

The certificate with a name in `nds.certificate.repository` is displayed.

Configure a certificate

1. Navigate to **Management > Configuration**.
2. Open the `nds.plugins.opm.accountConfig` key.
3. Locate the `<AccountConfig>` tag with the value of `<accountId>` to match the certificate you imported.
4. If you want to enable the signing, change the value of `<enableSigning>` to `true`.
5. If the `<systemCertName>` is missing, type the system certificate name to match the certificate you imported.
6. Wait for 30 seconds and then send a test email alert to your email box.
7. Verify the digital signature in the email. The message displays a seal icon next to the message to display the digital signature.

Configure email throttling

The OPM plug-in supports throttling by limiting the number of emails sent per second at both the account and relay levels.

1. In the NDS console, navigate to **Management > Configuration**.
2. Open `nds.plugins.opm.accountConfig` and locate the account by account ID.
3. Change the following values:

Parameter	Description	Value
(OpmConfig listAccountConfig AccountConfig) <accountThrottle>	Specifies the system wide throughput limit.	0: no limit <i>m</i> : Where <i>m</i> is the max number of mails per second that can be sent.
(OpmConfig listAccountConfig AccountConfig) <targetThrottle >	Specifies the throughput limit set for each target email domain.	0: no limit <i>m</i> : Where <i>m</i> is the max number of mails per second that can be sent.
(OpmConfig senderConfig relayConfigs) <throttle>	Specifies the throughput limit set for the relay.	0: no limit <i>m</i> : Where <i>m</i> is the max number of mails per second that can be sent.

4. Click **Save**.

Configure email templates

OPM uses XSLT based templates to control the email body format and content to be sent out. You can save multiple templates in a single XML file and send through system with the BlackBerry AtHoc management system. The following image shows part of a template XML file. Each <template> tag defines a template, and CDATA tags contain the actual template:

```
<templates>
<template label="Text" hint="Text email">
<![CDATA[<?xml version="1.0" encoding="utf-8" ?>
<!--This is an eMail template used by IWSAlert OPM Plugin-->
<xsl:stylesheet
  version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform"
>
  <xsl:output method="text" encoding="utf-8"/>
  ...
</template>
<template label="Html" hint="Html email">
<![CDATA[<?xml version="1.0" encoding="utf-8" ?>
<!--This is an eMail template used by IWSAlert OPM Plugin-->
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
  <xsl:output method="html" encoding="us-ascii"/>
  <!--Following is a list of all parameters passed in by OPM
  Plugin:-->
  ...
</xsl:stylesheet>]]>
</template>
</templates>
```

In BlackBerry AtHoc alerting, all email templates are listed under Email Device options. You can select one template for each alert. Two default templates are provided: Text and HTML. You can edit and customize these templates to fit your need. The following sections provide guidelines for editing a template.

Important: You need to have basic knowledge of XSLT before you edit the email templates. The email templates contain displayable content info and formats, but they also contain other invisible crucial formatting and coding information, like MIME headers, to communicate with email clients like Microsoft Outlook. You can accidentally change this crucial formatting information when you edit the templates, which can cause email messages to display incorrectly.

Guidelines for editing email templates

- Use an XSLT editor to edit email templates.
- Do not change any parameters.
- Do not change XSL logical statements, such as `xsl:if`, `xsl:call-template`, unless you have a very good understanding of XSLT.
- Do not change MIME headers, such as `Content-Type:`, `Content-Transfer-Encoding:` unless you have a good understanding of MIME.

Parameters and variables

OPM email templates are place holders for dynamic data passed in by the BlackBerry AtHoc OPM plug-in during run time. The dynamic data is passed through parameters or variables. Each template lists all the valid parameters at the top. The parameters are pre-defined; do not change them.

The following figure shows a template the defines the parameters:

```
<?xml version="1.0" encoding="utf-8" ?>
<!--This is an eMail template used by IWSAlert OPM Plugin-->
<xsl:stylesheet version="1.0"
  xmlns:xsl="http://www.w3.org/1999/XSL/Transform">
  <xsl:output method="html" encoding="us-ascii"/>
  <!--Following is a list of all parameters passed in by OPM Plugin:-->
  <xsl:param name="RecipientName"/>
  <xsl:param name="MessageTitle"/>
  <xsl:param name="MessageBody"/>
  <xsl:param name="PublishedAt"/>
  <xsl:param name="ResponseOptions"/>
  <xsl:param name="VpsName"/>
  <xsl:param name="PlubishedBy"/>
  <xsl:param name="ResponseInstruction"/>
  <xsl:param name="Link"/>
  <xsl:param name="SystemName"/>
  <xsl:param name="TargetUrl"/>
```

Parameters can be used anywhere in the content. The following example shows a placeholder for the `MessageBody` parameter. `<xsl:value-of select="$MessageBody" />`

Text template

The text template has a body part, which you can edit starting with the following line: `<xsl:text>
</xsl:text>`.

HTML template

The HTML template has two body parts, the MIME multipart and the alternative part, separated by a border:

```
-----OPM_Alternative_Boundary=)
```

One is plain text version for email clients that do not support HTML. The other part is an HTML version. If you change content in one part, you need to also change the other part to make sure they are consistent.

The following figure displays the plain text version of the body:

```

-----OPM_Alternative_Boundary=
Content-Type: text/plain; charset="us-ascii"
Content-Transfer-Encoding: 7bit&#10;</xsl:text>

<xsl:text>&#10;</xsl:text>Dear <xsl:value-of select="$RecipientName" />,
<xsl:text>&#10;</xsl:text>
<xsl:value-of select="$MessageBody" />

<xsl:if test="string-length($TargetUrl) !=0">
  <xsl:text>&#10;&#10;Click the link below for more information. If the link is not
active, please copy and paste it into your browser's address bar:&#10;</xsl:text>
  <xsl:value-of select="$TargetUrl" />
  <xsl:text>&#10;</xsl:text>
</xsl:if>

<xsl:if test="string-length($ResponseOptions) !=0">
  <xsl:text>&#10;&#10;Please respond with one of the following
options:&#10;&#10;</xsl:text>
  <xsl:call-template name="displayoptiontext">
    <xsl:with-param name="optionlist">
      <xsl:value-of select="$ResponseOptions"/>
    </xsl:with-param>
  </xsl:call-template>
  <xsl:text>&#10;</xsl:text>
  <xsl:value-of select="$Link"/>
  <xsl:text>&#10;&#10;</xsl:text>
  <xsl:value-of select="$ResponseInstruction" />
</xsl:if>

<xsl:text>&#10;&#10;Thank you,&#10;</xsl:text>
<xsl:value-of select="$PlubishedBy" />
<xsl:text>&#10;Published At: </xsl:text><xsl:value-of select="$PublishedAt"/>
<xsl:text>&#10;&#10;

```

The following figure displays the HTML version of the body:

```

-----OPM Alternative Boundary=
Content-Type: text/html; charset="us-ascii"
Content-Transfer-Encoding: 7bit</xsl:text>
<xsl:value-of disable-output-escaping="yes" select="'&#32;&#xA;&#xD;'"/>
<html>
  <head></head>
  <body>
    <center>
      <table width="600" border="0" bgcolor="#4A8395" cellpadding="2"
cellspacing="0">
        <tr>
          <td>
            <table border="0" cellpadding="15" cellspacing="0" width="100%"
style="font-family: verdana; font-size: 10pt;">
              <tr>
                <td align="left" bgcolor="#89B7C5" style="border-bottom: 25px solid
rgb(74,131,149);">
                  <table width="100%" style="font-family: verdana; font-size: 10pt;"
border="0" cellspacing="0">
                    <tr>
                      <td style="color: White; font-size: 14pt;">
                        <xsl:value-of select="$SystemName" /><xsl:value-of
select="$VpsName" />
                      </td>
                    </tr>
                  </tr>
                  <tr>
                    <td style="color: Black; font-size: 12pt;">
                      <br />
                      <br />
                      <xsl:value-of select="$MessageTitle" />
                    </td>
                  </tr>
                </table>
              </tr>
            </td>
            <td align="left" bgcolor="#DAE1F1" >
              <p>
                <b>
                  Dear <xsl:value-of select="$RecipientName" />
                </b>,
              </p>
            </td>
          </tr>
        </table>
      </center>
    </body>
  </html>

```

Verify and test the template changes

After changing any part of a template, perform the following verification and test steps to ensure that your changes work before putting the template into production:

1. Open the template in an XSLT editor to verify that the syntax is correct.
2. Test the alert:
 - a. Open the BlackBerry AtHoc management system and click **Alerts > New Alert**.
 - b. Create a new alert with small number of recipients.
 - c. Select the template to be tested and publish the alert.
3. Verify if the alert delivers correctly:
 - If the alert failed to deliver, complete the following steps:
 - a. Check Event Log for error messages from OPM.
 - b. Correct the template and test again.
 - If the alert is delivered, complete the following steps:
 - a. Check the received email messages and verify the result.
 - b. Correct any template problems and test again.
 - If the template has been corrupted, get the default templates from the software package for a clean start.

Microsoft exchange servers

OPM can work with different kinds of SMTP mail servers configured as relay servers. This section demonstrates how to set up Microsoft Exchange Server 2007 and 2010.

1. Open the **Exchange Management Console** on the mail server.
2. Navigate to **Microsoft Exchange > Server Configuration > Hub Transfer**.
3. Go to the **Receive Connectors** section in the middle lower pane and select or create a new Receive connector for OPM relay purposes.
4. Open the **Property** window.
5. Click the **Network** tab and specify the port. The default is 25.
6. Add the BlackBerry AtHoc NDS server IP to the **IP addresses** list.
7. Click **Authentication** and select the authentication mode that you want to use:
 - Select **Basic Authentication** to enable login authentication.
 - Select **Integrated Windows authentication** to enable NTLM authentication.
 - Select **Externally Secured (for example, with IPSec)** to have no authentication (anonymous).
8. Open Exchange Management Shell, which is part of PowerShell (PS).
9. In PS, run the following command to display the settings of the relay server receive connector: `Get-ReceiveConnector "ReceiveConnectorName" | format-list`

This command lists all the current settings, including important parameters that can significantly affect OPM performance:

 - `MaxInboundConnectionsPerSource`: Set to between 100-200. A value less than 100 can slow down throughput.
 - `MaxInboundConnectionsPercentagePerSource`: Set to 100.
 - `MessageRatelimit - throttling`: Set to `unlimited` to achieve maximum performance.
 - `MaxAcknowledgementDelay`: Set to 0 (turn off Acknowledgement Delay feature) to achieve maximum performance.
10. Use the following command to change any of the above parameters: `Set-ReceiveConnector "ReceiveConnectorName" ParamName NewValue`.
11. In the `OpmPlugin.config` file, set up the `relayConfig` section to match the relay setting specified in the prior step.

Email priority

The priority setting for emails specifies the priority displayed in email alerts. The priority is set at the account level and the default setting is Highest (1). This section describes how to change the priority in the plug-in in the AccountConfig section.

1. In the NDS console, navigate to **Management > Configuration**.
2. Open the `nds.plugins.opm.accountConfig` key.
3. Locate the `<AccountConfig>` node with the subnode of `<accountId>` that matches the account to be modified.
4. In the `<xHeaders>` sub node, change the value of the `Priority` attribute: to 3 instead of 1.

The following example shows the updated value:

```
<xHeaders>X-Priority: 3 (Highest) Priority: Urgent Importance: high</xHeaders>
```
5. Change the value of the following node so that the value is "true": `<hasChanged>true</hasChanged>`
6. Click **Save**.

7. Wait for 30 seconds and then send a test email alert to your email inbox.
8. Verify the priority in the email.

Tools for monitoring, troubleshooting, and managing OPM

This section describes tasks and tools for monitoring, troubleshooting issues, and managing the OPM plug-in.

Tracking the life cycle of delivery tasks

Using the NDS 2.8.5 database logging feature, OPM 2.2 tracks task life cycle in the `ngdeliverylog` database. This feature provide valuable troubleshooting and reporting information.

OPM tracks following life cycle task states in the SMTP session.

Code	Description	Notes
210	Send Started	—
220	Send Completed	An email message was sent successfully and acknowledged at the TCP level.
230	Send Confirmed	The SMTP server sent back an acknowledgment - SMTP 250
270	Acknowledged User Input	For example, user response might be "1".
271	Acknowledged without response code	An additional info field shows the first line in the email received by the user.
290	Send failed, will retry	Detailed error message (SMTP state, error code, etc.)
291	Send failed	Detailed error message (SMTP state, error code, etc.). This value identifies a failure after three failed attempts to send the email.

To configure life cycle tracking, update the OPM plug-in:

Under the `<queueControlInfo>` section, a new set of configuration keys are introduced to control the life cycle logging feature (default values are shown):

```
<!--turn on/off task life cycle logging-->
<logTaskLifeCycle>>true</logTaskLifeCycle>
<!--interval in second to purge log records in memory to batch and save to
database, Default: 1-->
<logPurgeInterval>1</logPurgeInterval>
<!--batch size in number of records to purge each time and save to database.
Default: 2000, Max: 2000 -->
<logPurgeBatchSize>2000</logPurgeBatchSize>
```

BlackBerry AtHoc health monitor

OPM continuously reports its health status to BlackBerry AtHoc, and you can monitor the status using AtHoc Health Monitor. For more information about AtHoc Health Monitor, see "Monitor System Health" in the *BlackBerry AtHoc System Administration Configuration Guide*.

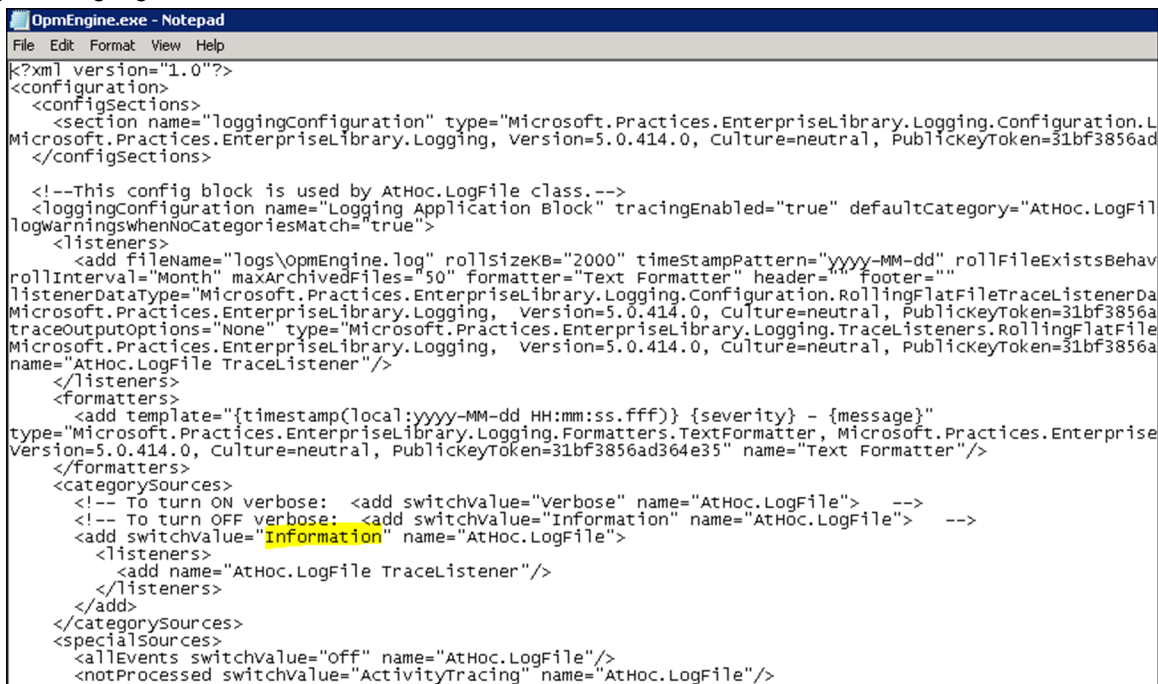
BlackBerry AtHoc log files

BlackBerry AtHoc provides two log files for you to use when monitoring system health and troubleshooting errors.

- **AtHoc Event Log:** OPM logs all errors and event information in the BlackBerry AtHoc Event Log. Use the BlackBerry AtHoc Event Log Viewer to monitor the error messages. Use verbose mode to log detailed information.
- **OpmEngine.log File:** In addition to the Event Log, OpmEngine.exe logs detailed information in the OpmEngine.log file. The log file is rolling, controlled by the OpmEngine.exe. configuration file. The default rolling interval is 2 MB per month.

Turn on verbose mode for log files

1. Open Windows Explorer and navigate to the following directory: \\AtHocENS\DeliveryServer\Plugins\AtHoc.Delivery.Plugin.OPM
2. Open the following file: OpmEngine.exe.config.
3. Change the highlighted value to: verbose.



```
OpEngine.exe - Notepad
File Edit Format View Help
<?xml version="1.0"?>
<configuration>
  <configSections>
    <section name="loggingConfiguration" type="Microsoft.Practices.EnterpriseLibrary.Logging.Configuration.L
Microsoft.Practices.EnterpriseLibrary.Logging, Version=5.0.414.0, Culture=neutral, PublicKeyToken=31bf3856a
  </configSections>

  <!--This config block is used by AtHoc.LogFile class.-->
  <loggingConfiguration name="Logging Application Block" tracingEnabled="true" defaultCategory="AtHoc.LogFile
logWarningsWhenNoCategoriesMatch="true">
    <listeners>
      <add fileName="logs\OpmEngine.log" rollSizeKB="2000" timeStampPattern="yyyy-MM-dd" rollFileExistsBehav
rollInterval="Month" maxArchivedFiles="50" formatter="Text Formatter" header="" footer=""
listenerDataType="Microsoft.Practices.EnterpriseLibrary.Logging.Configuration.RollingFlatFileTraceListenerDa
Microsoft.Practices.EnterpriseLibrary.Logging, Version=5.0.414.0, Culture=neutral, PublicKeyToken=31bf3856a
traceOutputOptions="None" type="Microsoft.Practices.EnterpriseLibrary.Logging.TraceListeners.RollingFlatFile
Microsoft.Practices.EnterpriseLibrary.Logging, Version=5.0.414.0, Culture=neutral, PublicKeyToken=31bf3856a
name="AtHoc.LogFile TraceListener"/>
    </listeners>
    <formatters>
      <add template="{timestamp(local:yyyy-MM-dd HH:mm:ss.fff)} {severity} - {message}"
type="Microsoft.Practices.EnterpriseLibrary.Logging.Formatters.TextFormatter, Microsoft.Practices.Enterprise
Version=5.0.414.0, Culture=neutral, PublicKeyToken=31bf3856ad364e35" name="Text Formatter"/>
    </formatters>
    <categorySources>
      <!-- To turn ON verbose: <add switchValue="verbose" name="AtHoc.LogFile"> -->
      <!-- To turn OFF verbose: <add switchValue="Information" name="AtHoc.LogFile"> -->
      <add switchValue="Information" name="AtHoc.LogFile">
        <listeners>
          <add name="AtHoc.LogFile TraceListener"/>
        </listeners>
      </add>
    </categorySources>
    <specialSources>
      <allEvents switchValue="off" name="AtHoc.LogFile"/>
      <notProcessed switchValue="ActivityTracing" name="AtHoc.LogFile"/>
    </specialSources>
  </loggingConfiguration>
</configuration>
```

The log will start displaying verbose messages within 30 seconds.

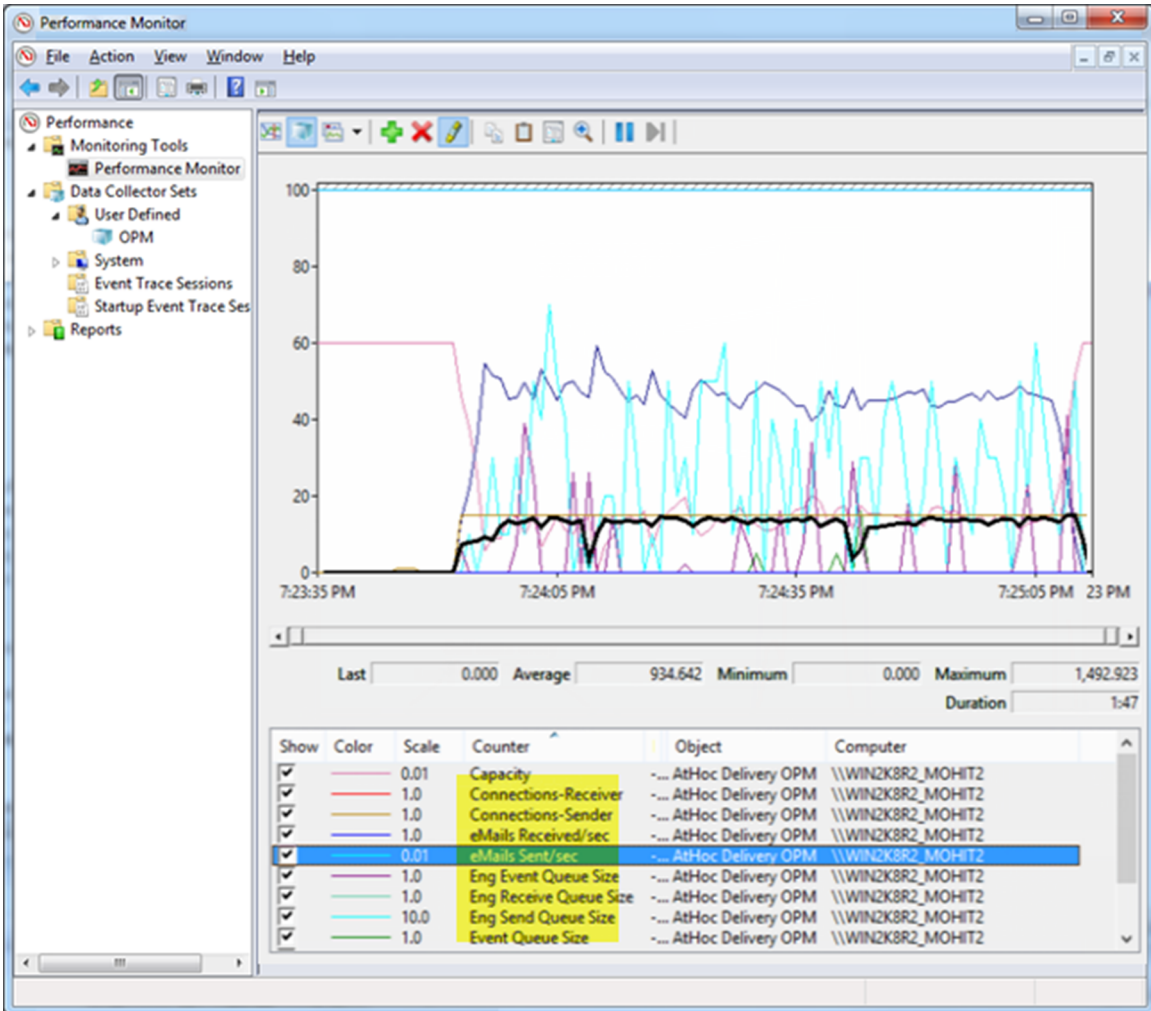
Microsoft performance monitor

The Microsoft Windows performance monitor monitors and logs system and application performance. The Microsoft Windows performance monitor comes with the Microsoft Windows operating system.

To troubleshoot and monitor OPM performance, OPM provides the following custom performance counters for the Windows system. You can add additional counters to the performance monitor in the BlackBerry AtHoc Delivery OPM category:

- eMails Sent/sec (the send rate)
- eMails Read/sec (the receive rate)
- Connections – Sender
- Connections – Receiver
- Relays (number of active relay servers)
- Capacity (number of email messages OPM can take from NDS to send)
- Send Queue Size (in OPM Plugin: number email messages waiting to be signed/passed to OPM Engine to send)
- Event Queue Size (in OPM Plugin: number of task tracking events (sent, responded ...) waiting to be passed back to NDS)
- Eng Send Queue Size (in OPM Engine: number email messages waiting to be sent)
- Eng Receive Queue Size (in OPM Engine: number email messages received waiting to be processed)
- Eng Event Queue Size (number of events, task lifecycle log batches and received emails waiting to be passed back to OPM Plugin)

The following image displays typical activity for the OPM performance counters:



BlackBerry AtHoc Customer Support Portal

BlackBerry AtHoc customers can obtain more information about BlackBerry AtHoc products or get answers to questions about their BlackBerry AtHoc systems through the Customer Support Portal:

<https://support.athoc.com>

The BlackBerry AtHoc Customer Support Portal also provides support via computer-based training, operator checklists, best practice resources, reference manuals, and user guides.

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BlackBerry Limited
2200 University Avenue East
Waterloo, Ontario
Canada N2K 0A7

BlackBerry UK Limited
Ground Floor, The Pearce Building, West Street,
Maidenhead, Berkshire SL6 1RL
United Kingdom

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