BlackBerry AtHoc

IIM Health Monitoring Installation and Configuration Guide

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Contents

Overview

The IIM is dependent on a variety of factors to ensure reliable operation. It is connected to a power, a data network, and a third-party hardware by serial, analog audio, and a digital input-output interface. The IIM CapCon Java-based SaaS is dependent on an operational Java Runtime Environment (JRE). If any of these connections or dependencies fail, the operation of the IIM may be compromised.

The IIM Health Management Agent SaaS is isolated from the JRE and CapCon software. Using Windows Performance Counters, the IIM Agent can be configured to monitor these internal and external dependencies.

There are three ways that the IIM Agent can be used to provide a user of the BlackBerry AtHoc Alerts system of faults that may prevent the proper operation of the IIM.

1. BlackBerry AtHoc Alerts organization homepage error indication.
2. BlackBerry AtHoc Alerts SDK Alert Template error notification.
3. SolarWinds® Server and Application monitoring and notification.

This document describes how to install all Windows Performance Counters and IIM Agent as a service and how to configure the indication and notification methods.

Software requirements

The IIM device must have Windows 2012 with .NET4.7 installed.

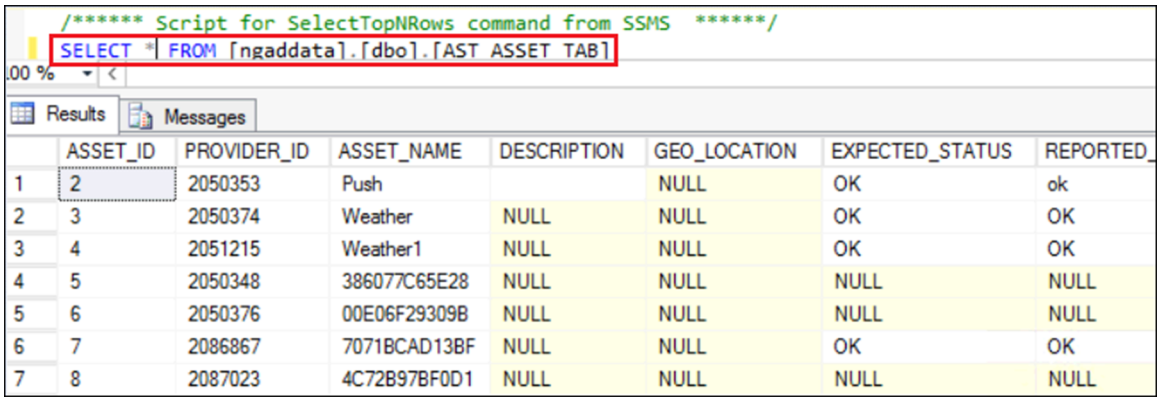
Configure BlackBerry AtHoc IIM health indication

Prerequisite

The IIM indexURL variable in the `system_private.config` file needs to have the <MAC address> extension.

Verify the following before you configure the IIM health monitor in the BlackBerry AtHoc management system:

1. In the **Asset** tab, check the asset ID and execute the query highlighted in the following image:

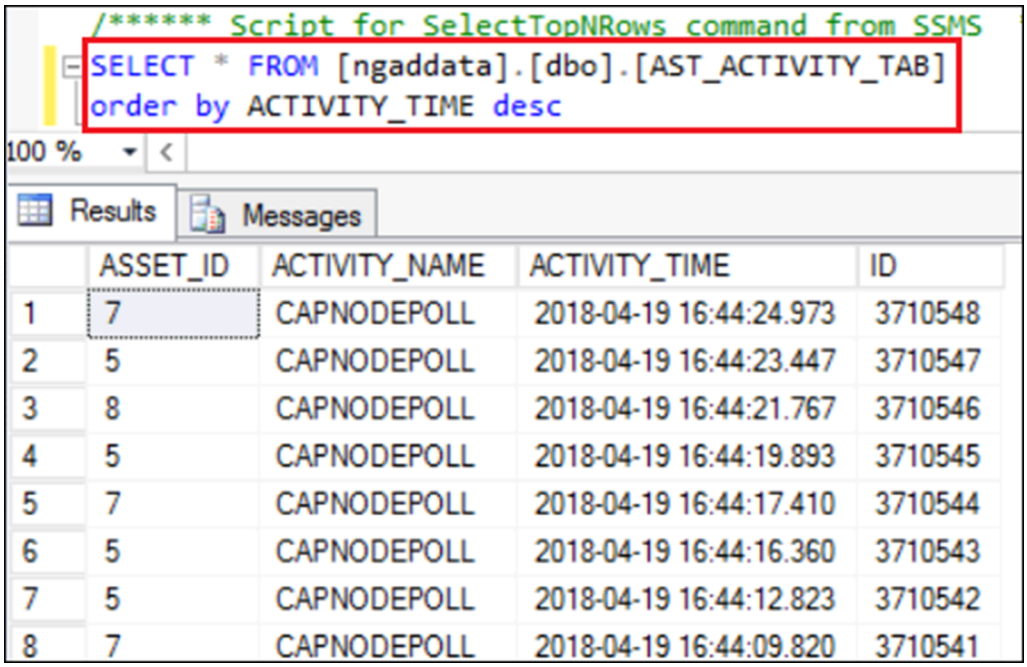


```
/****** Script for SelectTopNRows command from SSMS  ******/
SELECT * FROM [ngaddata].[dbo].[AST_ASSET_TAB]
```

Results | Messages

	ASSET_ID	PROVIDER_ID	ASSET_NAME	DESCRIPTION	GEO_LOCATION	EXPECTED_STATUS	REPORTED_
1	2	2050353	Push		NULL	OK	ok
2	3	2050374	Weather	NULL	NULL	OK	OK
3	4	2051215	Weather1	NULL	NULL	OK	OK
4	5	2050348	386077C65E28	NULL	NULL	NULL	NULL
5	6	2050376	00E06F29309B	NULL	NULL	NULL	NULL
6	7	2086867	7071BCAD13BF	NULL	NULL	OK	OK
7	8	2087023	4C72B97BF0D1	NULL	NULL	NULL	NULL

2. In the **Activity** tab, check for the asset ID and its activities by executing the highlighted query in the following image:



```
/****** Script for SelectTopNRows command from SSMS
SELECT * FROM [ngaddata].[dbo].[AST_ACTIVITY_TAB]
order by ACTIVITY_TIME desc
```

Results | Messages

	ASSET_ID	ACTIVITY_NAME	ACTIVITY_TIME	ID
1	7	CAPNODEPOLL	2018-04-19 16:44:24.973	3710548
2	5	CAPNODEPOLL	2018-04-19 16:44:23.447	3710547
3	8	CAPNODEPOLL	2018-04-19 16:44:21.767	3710546
4	5	CAPNODEPOLL	2018-04-19 16:44:19.893	3710545
5	7	CAPNODEPOLL	2018-04-19 16:44:17.410	3710544
6	5	CAPNODEPOLL	2018-04-19 16:44:16.360	3710543
7	5	CAPNODEPOLL	2018-04-19 16:44:12.823	3710542
8	7	CAPNODEPOLL	2018-04-19 16:44:09.820	3710541

3. In **SQL Server Management Studio**, check if the stored procedure [dbo.mtr_iim_poll] is available in **ngaddata** > **Programmability** > **Stored Procedure**.

```
Stored Procedure
USE [ngaddata]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
```

```
IF EXISTS(SELECT 1 FROM sys.procedures where object_id =
 object_id('dbo.mtr_iim_poll'))<A>column</A>
BEGIN
DROP PROCEDURE dbo.mtr_iim_poll
END
GO
CREATE PROCEDURE [dbo].[MTR_IIM_POLL]
@assetId int,
@interval int = 5
as
select count (1)  pollcount from [ngaddata].[dbo].[AST_ACTIVITY_TAB] where
 ASSET_ID = @assetId and
ACTIVITY_NAME = 'CAPNODEPOLL' and
ACTIVITY_TIME >=  DateAdd(MINUTE, -@interval, GETDATE())
end
go
```

4. Right-click the **dbo.mtr_iim_poll** stored procedure.
5. Click **Execute stored procedure...**.
6. Specify the value for **@assetId** and **@interval**.
7. Click **OK**.

Add IIM device to ASSET_TAB

This section describes the steps to identify if the IIM device is not added to ASSET_TAB and how to add it to BlackBerry AtHoc management system.

To identify and add the IIM device to the ASSET_TAB, complete the following steps:

1. To validate if IIM device is configured at the organization level, run the following query to specify the provider_id (organization ID) in the query:

```
SELECT d.DEVICE_ID,
d.COMMON_NAME DEVICE_COMMON_NAME,
dg.COMMON_NAME GROUP_NAME FROM DLV_DEVICE_TAB d
INNER JOIN DLV_DEVICE_GROUP_TAB dg ON dg.GROUP_ID = d.GROUP_ID
INNER JOIN DLV_GATEWAY_DEVICE_GROUP_TAB gdg ON gdg.GROUP_ID = dg.GROUP_ID
INNER JOIN DLV_PRV_DEVICE_TAB dp ON dp.DEVICE_ID = d.DEVICE_ID
WHERE d.COMMON_NAME LIKE '<iim>'
AND dp.IS_ENABLED = 'Y'
AND dp.PROVIDER_ID = 3
```

2. To add the IIM device to the ASSET_TAB, open a new query window in the **SQL Server Management Studio**.
3. Run the following query and replace the required values:

```
USE[ngaddata]GOINSERT INTO[dbo].[AST_ASSET_TAB](ASSET_ID
    ,PROVIDER_ID
    ,ASSET_NAME
    ,DESCRIPTION
    ,GEO_LOCATION
    ,EXPECTED_STATUS
    ,REPORTED_STATUS
    ,VERSION
    ,NAME
)VALUES
    (7
    ,2087491
    ,'PUSH'
```

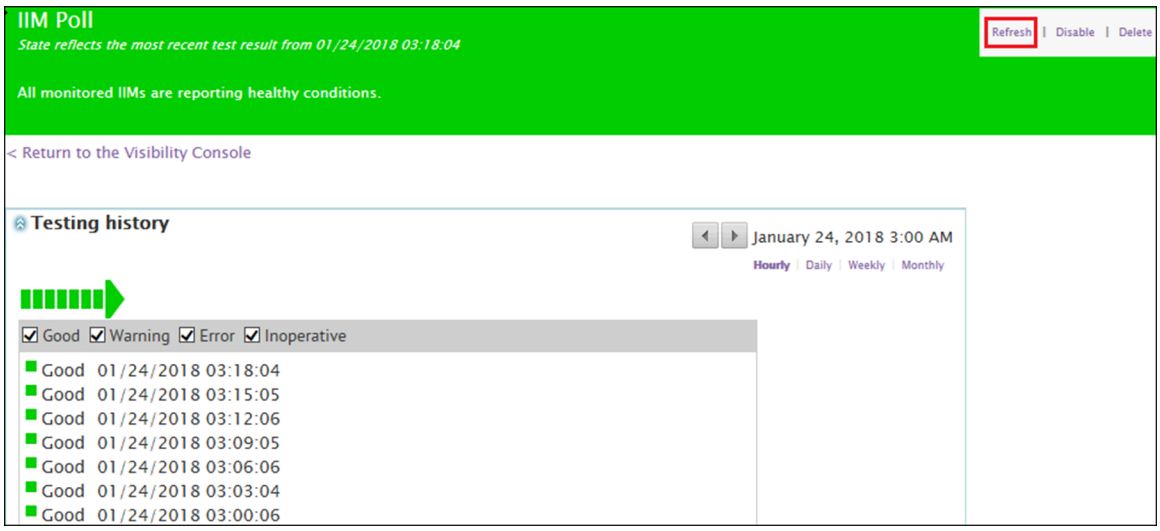
```
    ,NULL
    ,NULL
    ,NULL
    ,NULL
    ,NULL
        )
GO
```

Note: Health Monitor is organization specific. Ensure that the mass device is configured with the organization you are using.

To configure the BlackBerry AtHoc organization home page IIM health indication, complete the following steps:

1. Log in to the BlackBerry AtHoc management system as an administrator.
2. In the navigation bar, click .
3. In the **System Setup** section, click **Global System Health**.
4. In the **General** section, click **IIM**.

   Note: In the **Testing history** section, the polling interval is displayed by state. There are four states: Error, Warning, Good, and Inoperative.
5. Optionally, if the polling stops, click **Refresh** for manual polling.



6. In the **Basic details** section, in the **How often does it check the status of the system?** section, set a polling duration.
7. In the **Database Procedure** section, in the **Test Configuration** field, add an asset ID and interval in stored procedure. The following is an example of a stored procedure:

```
<DatabaseProcedureTestConfig>
<Query> database.dbo.MTR_STORED_PROCEDURE_NAME @assetId=value,@interval=value</
Query>
<WarningConditions />
<WarningCountThreshold>0</WarningCountThreshold>
<ErrorConditions>
<Condition>
<A>column</A>
<B>10</B>
<OffsetSeconds>0</OffsetSeconds>
<Comparison>LessThan</Comparison>
</Condition>
</ErrorConditions>
<ErrorCountThreshold>1</ErrorCountThreshold>
```

```
</DatabaseProcedureTestConfig>
```

8. In the **How is the state of this Health Monitor determined?** section, from the **Match the state if:** list, select a value to determine the health from the last run result. For example, if PollCount < 10, the monitor will go into an error state.
9. In the **What happens when this Health Monitor reaches a particular state?** section, in the **Configure Error State transition actions** section, click **Show a list of possible actions**.
10. On the **Health Actions** screen, click **<add this configuration** in the **Trigger a URL** or **Send an email** section.
11. Click **Save**.

BlackBerry AtHoc alert template IIM error notifications

This section describes how to configure the IIM and an Alert Template in the associated VPS for IIM health monitoring notifications.

Following is the list of Windows Performance Counters:

- RAW_NUM_CONT_POLL_FAIL
- IIM_JAVA_ERROR
- IIM_SERVICE_ERROR

Install all Windows performance counters

Only the `RAW_NUM_CONT_POLL_FAIL` counter is updated from the IIM Java code. This counter gives the count of consecutive BlackBerry AtHoc management system polling failures from the IIM. After polling is successful, this counter is reset to zero.

1. Log in to IIM.
2. Stop the capnode services.
3. Download the updated capnode folder for the specific integration type.
4. Open **Windows Power Shell** as an administrator.
5. In **Powershell**, browse to `C:/Program Files/capnode`.
6. Run the `createWinCounters_v1.ps1` power shell script. The necessary Windows Performance Counters are created in the IIM.
7. Open Notepad as administrator.
8. Open `C:/Program Files/capnode/system.config`.
9. Add the `updateWindowsCounters = yes` parameter.

   Note: If this property is not defined, the system takes the default value as "no".
10. Save `C:/Program Files/capnode/system.config`.
11. Start the CapCon service.

Verify the performance counters installation

1. Log in to IIM.
2. Click **Start** and search for the Performance Monitor program in Windows.
3. Open the **Performance Monitor**.
4. Navigate to **Performance** > **Monitoring Tools**.
5. Click **Performance Monitor**.
6. Click , to remove the default services running in the Performance Monitor program.
7. Click .
8. On the **Performance Monitor Properties** window, click the **Graph** tab.
9. In the **Vertical scale** section, set **Maximum** to **10**.
10. Click **OK**.
11. Click .
12. On the **Add counters** screen, double-click **IIM.Monitoring**. All the monitors are selected.
13. Click **Add**. The added counters appear on the right side of the window.
14. Click **OK**. The counters are added to the Performance Monitor graph.

If the IIM is able to poll the configured BlackBerry AtHoc management system, the `RAW_NUM_CONT_POLL_FAIL` counter shows zero.

15. To simulate a network failure, do one of the following:
    - If you have physical access to the IIM, remove the IIM network cord. This results in a polling failure as IIM is unable to poll the BlackBerry AtHoc management system.
    - Map an incorrect IP for the BlackBerry AtHoc host name in the IIM `etc/hosts` file.
16. Check the performance monitor. The performance monitor should show a non-zero count for the `RAW_NUM_CONT_POLL_FAIL` Windows Performance Counter. It can take 60 to 90 seconds for the counter to update. If the network failure persists, the counter value will keep incrementing.
17. Connect the network again and check the IIM logs to see if IIM is able to poll BlackBerry AtHoc successfully. If the connection is restored, the `RAW_NUM_CONT_POLL_FAIL` Windows counter is reset to zero.
18. Upon successful posting to the BlackBerry AtHoc management system, a relay gets closed and the led light glows, indicating that the alert was sent successfully.
19. Repeat steps 11 to 14 several times.

Configure the IIMAgent

The following features are implemented in the IIMAgent C# project to support Windows Performance Counters:

1. Disable the BlackBerry AtHoc management system polling from IIMAgent.
2. Update the Windows counters, if there is a java setup error in the IIM.
3. Update the Windows counters, if a required service is not running in the IIM.
4. Make external watchdog configurable from IIMAgent's config file.

Install IIMAgent as a service

You must create an IIM Agent V2 that writes health, polls information to Windows Performance Counters, and sends an SDK alert to the BlackBerry AtHoc management system where there is a service error or Java error.

Note: If watchdog service is installed in your system, disable it, otherwise it can result in continuous restarting of the system.

Before you begin: Ensure .NET4.7 is installed.

1. Log in to IIM.
2. Open a command prompt as an administrator and navigate to `C:\Program Files\capnode \IIMAgent_Build`.
3. Run the `install.bat` file and then close the command window.
4. Open Notepad as an adminisitrator.
5. Open the `C:\Program Files\capnode\iimm\IIMAgent.exe.config` file. The file has two tags related to configuring the service:

   ```
   <add key="ServiceCount" value="1"/>
   ```

   ```
   <add key="Service1" value="CapCon,start"/>
   ```

   Note: Enter the number of services and the expected state you want to configure in the `<ServiceCount>` tag. The value of the `ServiceCount` key must be equal to the number of services you want to configure. Index additional services as Service2, Service3, and so on.
6. Add the `EnableIWSPolling` parameter in the BlackBerry AtHoc Java polling threads configuration. Add the following line in the `IIMAgent.exe.config` file: `<add key="EnableIWSPolling" value="no"/>`

Note: If the value of the parameter is set to 'yes', IIMAgent polls the BlackBerry AtHoc management system. If the parameter is not added in the `IIMAgent.exe.config` file, IIMAgent does not poll the BlackBerry AtHoc management system.

Create an IIM alert template

To create an IIM alert template for IIMAgent Errors in the associated BlackBerry AtHoc organization, complete the following steps:

1. Create an IIM template for IIMAgent Errors.
2. In the **Template Title** add the following text: `[[IIM Agent Error Type]]` at `[[IIM ID]]`.

   Note: [[IIM ID]] is replaced with the IIM ID provided in the `IIMAgent.exe.config` file.
3. Add the following text in Alert Template Body: `[[IIM Agent Error Type]]` occurred at IIM `[[IIM ID]]` `[[Error Message Body]]`

   Note: `[[IIM Agent ErrorType]]` is replaced with the value of the Error Type (Service Error or Java Error) that is passed to the SDKAlert. `[[Error Message Body]]` is replaced with the error message that is passed in the `SDKAlertTemplate`.
4. Save the alert template.
5. Note down the alert template common GUID, Organization ID, SDK user name, and password.
6. Open Notepad as an administrator.
7. Open `C:\Program Files\capnode\iim\IIMAgent.exe.config`.
8. Add the following parameters:

```
<add key="SDKURL" value="https://iwshostname/sdk/listener/listen.asp"/>
<add key="SDKUserName" value="username"/>
<add key="SDKPasswordEncrypted" value="no"/>

<add key="SDKPassword" value="password"/>
<add key="SDKVPSId" value="1234567"/>
<add key="SDKAlertTemplateCommonName" value="85b0b856-7637-4862-abe8-
dd9ea6be2524"/>
<add key="IIMId" value="IIM-IP_OR_IIM_Name"/>
#
#SDKAlertTemplateCommonName-value for this parameter must be the alert template
 Common Name for Error Template that we have created in IWS steps.
#
#SDKURL-Add the URL of the BlackBerry AtHoc management server you are using.
#
#SDKUserName-Add the SDK username according to your SDK server.
#
#SDKPasswordEncrypted-When installing for first time, value should be
 "no", later this SDKPasswordEncyted is updated as"yes" once SDKPassword is
 encrypted.
#
#SDKPassword-Add SDK password according to your SDK server (text format).Later
 this is updated in Di-cipher text (encrypted format).
#
#SDKVPSId-This is the BlackBerry AtHoc management system organization ID.
#
#IIMId-IIM ID of the IIM on which you are installing the IIMAgent.
```

9. Save `C:\Program Files\capnode\iimm\IIMAgent.exe.config`.
10. Open **Component Services**, search for **IIMAgent Service** in the service list.

11. Right-click and select **Properties**.
12. Change the **Startup Type** to **Automatic (Delayed)**.
13. Click **Apply** > **OK** and then run the service.

    Note: Do not set the **Startup Type** to **Automatic**, it should be **Automatic (Delayed)**.
14. Start and stop the service to check the installation. If the service is starting and stopping properly, then the installation is successful.
15. Optionally, if you already ran the `createWinCounters_v1.ps1` file for setting up Java counters, do not run it again. For detailed information about how to create Windows Performance Counters from IIM Java code, see Install all Windows performance counters .
16. Start the IIMAgent Service from Component services.

Verify the installation

1. Open Windows Performance Monitor in the IIM.
2. Search for and start the **Performance Monitor** program in Windows.
3. In the **Performance Monitor**, navigate to **Performance** > **Monitoring Tools** > **Performance Monitor**.
4. Click **Add** and add all performance counters in the **IIM Monitoring** section.
5. To simulate a service error, do the following:
   a. Navigate to the following path: `C:\Program Files\capnode\iimm`.
   b. Open the **IIMAgent XML** document and see the services specified in the configuration file. The services are mentioned in the <Service(n)> tag, where 'n' stands for a numeric value. For example, <Service1>.
   c. Navigate to the **Performance Services** and stop one of the services mentioned in the XML configuration file.
   d. Check the performance monitor. It should increment the `IIM_SERVICE_ERROR` counter by one, as one service mentioned in the XML configuration file is not running. You can also stop other services mentioned in the configuration file. When you restart those services the counter decrements accordingly. It takes around 40 to 50 seconds to appear in the performance monitor.
   e. Check if the value of the `IIM_SERVICE_ERROR` count is equal to the number of services which are present in the XML configuration file and if they are not running.
   f. The `IIM_JAVA_ERROR` counter is updated if there is any problem with the Java setup on the IIM machine. The value of the counter is 0 if Java functions successfully on the machine. If there is a problem, the counter increments to 1.
6. In the BlackBerry AtHoc management system, check the alerts in Sent Alerts.
7. Check the email that is sent in service error and Java error templates. A BlackBerry AtHoc alert is sent only once per error. The alert is sent again, if the error is resolved or found.

SolarWinds health monitoring

The SolarWinds is a Server and Application Monitor (SAM) used by system administrators to monitor windows counters on the client machine.

Hardware requirements

Decide the level of installation required (small, medium, or large). Click the following link to see the hardware requirements for the SolarWinds (SAM) installation:

http://www.solarwinds.com/documentation/en/flarehelp/sam/content/sam-hardware-requirements.htm

Download SolarWinds Server and Application Monitor

1. Click the following link: http://www.solarwinds.com/downloads.
2. Under **Server and Application Monitor** click **DOWNLOAD FREE TRIAL**. The free trial is active for 30 days.

   Note: Contact the SolarWinds sales team for licensing.
3. Enter your information on the registration form.
4. Click **PROCEED TO FREE DOWNLOAD**.
5. On the **Thank you** screen, click **DOWNLOAD NOW**.
6. Run the downloaded .exe file. The SQL server is also downloaded if not installed.

Install SolarWinds

Note: SolarWinds cannot be installed on a Domain Controller.

1. To install SolarWinds, click the following link and complete all the steps: http://www.solarwinds.com/documentation/en/flarehelp/sam/content/sam-install-sam-stand-alone.htm.
2. After installing Solar Winds, click **Start** > **All Programs** > **SolarWinds Orion** > **Orion Web Console**.
3. To verify if the installation is successful, on the **Login** screen, enter the user name as **admin** and leave the password field blank.
4. Click **Login**.

Activate licenses

1. Access the **Orion Web Console** on the main polling engine or Orion server.

   Note: Do not activate the license directly on the additional polling engine.
2. Click **Settings** > **All Settings**.
3. In the **Details** section, click **License Manager**.

   Note: If you click **Add/Upgrade License**, enter the details, and complete the activation to see the license in the License Manager.
4. Select **Server and Application Monitor**.
5. Click **Activate**.
6. Enter the activation key.

Note: Log in to the **Customer portal** with your customer ID and password or your individual user account information to get the activation key.

7. Enter the registration details.
8. Click **Activate**.

The license type, expiration date, assigned server, and the license key is displayed in the License Manager.

Set up a node

1. Open a command prompt and ping the IP Address of the machine you want to add as a node. If the ping is unsuccessful, contact your IT administrator as the node is not reachable from the machine where you have installed the SolarWinds.
2. Log in to the **Orion Web Console** as an administrator.
3. Click **Settings** > **Manage Nodes** > **Add a Node**.
4. On the **Define Node** screen, in the **Polling Hostname or IP Address** field, enter the IP address of the node you want to add.
5. Select **Windows Servers: WMI and ICMP** and provide the following information:
   a. **Choose Credentials**: From the list, choose the credentials you already have saved in your database. If you do not have credentials saved in your database, select **<New Credential>**.
   b. **Credential Name**: Add any string that can identify the node for your reference.
   c. **User Name**: Enter a user to log in to the remote computer. The user must have administrative permissions on that node.
   d. **Password/Confirm Password**: Enter a password and re-enter the same password.
   e. Click **Test**. If the connection test is successful, then you can connect to the node.
   f. Click **Next**.

Troubleshoot a failed connection test

If the connection test fails, complete the following tasks on the node computer and not on the SolarWinds server.

Enable remote Windows Management Instrumentation (WMI) requests

Change the following settings to get WMI working:

1. On the target server, go to **Administrative Tools** > **Computer Management**.
2. Expand **Services and Applications**.
3. Right-click **WMI Control** and select **Properties**.
4. On the **WMI Control Properties** window, select the **Security** tab.
5. Click **Security**.
6. Click **Add** if you want to add a monitoring user.
7. Check **Remote Enable** for the user or group that is requesting WMI data.
8. Check if the connection is successful. Go to SolarWinds and try to add a node again using WMI in the SolarWinds server. If you are unable to add a node, complete the steps in the Allow WMI through Windows firewall section.

Allow WMI through Windows firewall

1. All users can read WMI data on their local computer. For reading WMI data on a remote server, a connection needs to be made from the computer you have installed the software to the server that you are monitoring

(target). If the target server is running Windows Firewall, then open a command prompt and run the following command on the target computer: `netsh firewall set service RemoteAdmin enable`

2. Check if you can add a node. If you are still unable to add, complete the steps in the Enable DCOM calls on the remote machine section.

Enable DCOM calls on the remote machine

If the account you are using to monitor the target server is an administrator but DCOM is not enabled for that user on the target server, you must enable the non-administrator to interact with DCOM on the node machine.

For detailed information on how to grant DCOM remote access permissions, see https://msdn.microsoft.com/en-us/library/Aa393266.aspx.

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/customer-support-portal.html

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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