

Placing the BlackBerry Enterprise Solution in a segmented network

BlackBerry Enterprise Server Version 4.0 and later

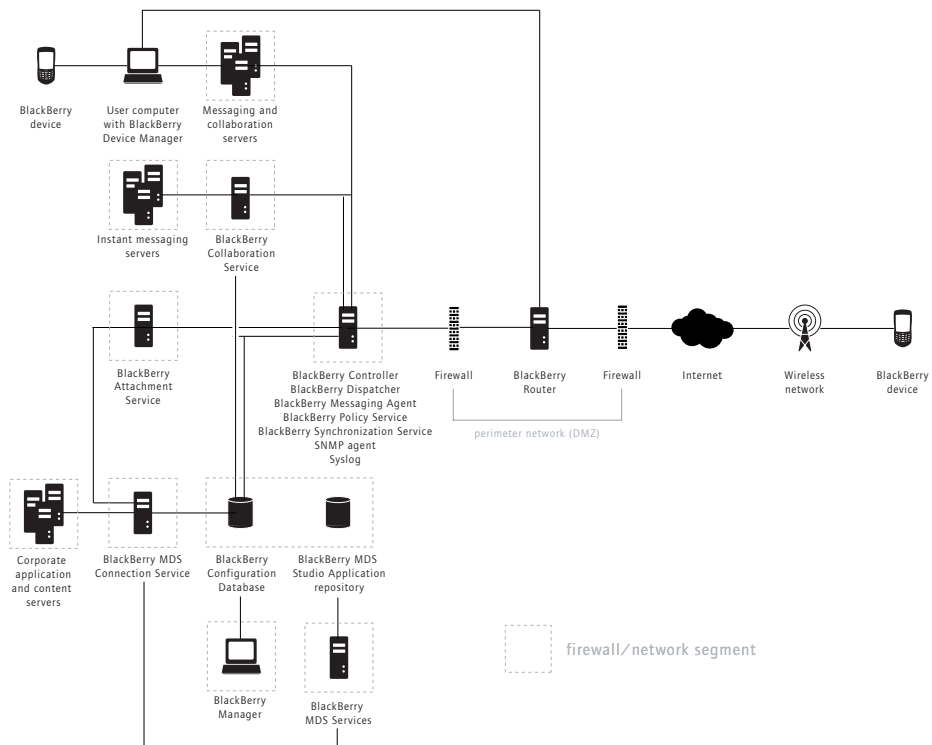
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Segmented network architecture

Using a firewall, you can separate a network or LAN into multiple components to create segmented network architecture. The firewall blocks data that is not destined for a particular segment, and might block all protocol ports except those that that segment specifically requires. Thus each segment contains filtered and isolated network traffic, which might improve the security and performance of the network. A particular department or a specific group of servers in your organization can use a segment of the corporate LAN while a bridge, router, or switch separates that segment from the rest of the corporate LAN.

If your corporate security policies enforce the use of segmented network architecture, you can place the BlackBerry® Enterprise Solution components in network segments.



BlackBerry Enterprise Solution in a segmented network architecture

Protecting BlackBerry components

The port connections to all BlackBerry components are authenticated over a TCP/IP or UDP/IP connection using Secure Sockets Layer (SSL) or Transport Layer Security (TLS).

The BlackBerry Enterprise Server encrypts data between specific BlackBerry components that share a secure communication password that is known only to them. When one of these components initiates a connection to the BlackBerry Dispatcher, a Research In Motion (RIM) proprietary protocol establishes an encryption key, and the BlackBerry Enterprise Server uses that key to encrypt data that is transmitted to any components that store the same secure communication password. See the *BlackBerry Enterprise Solution Version 4.1 Security Technical Overview* for more information about how the BlackBerry Enterprise Solution encrypts data.

Some organizations require that the BlackBerry components be placed in a segmented network to help prevent the spread of potential attacks from one BlackBerry component installed on a remote computer to another computer within the corporate LAN. Segmented network architecture is designed to isolate attacks and contains them on one computer. When each BlackBerry component resides in its own network segment, you make remote communications possible by opening only the port connections that the BlackBerry components use.

To place the BlackBerry Enterprise Solution in network segments, you must install each component on a remote computer and then place each component in its own network segment.

Placing the BlackBerry Router in the DMZ

The BlackBerry Router is designed so that you can securely place it in the DMZ, a neutral subnetwork that you separate from the corporate LAN by a firewall. An authentication protocol that is unique to the BlackBerry Router authenticates the connections between the BlackBerry Enterprise Server and the BlackBerry device. The BlackBerry Router uses this authentication protocol to verify that the BlackBerry device has the correct master encryption key. The value of the master encryption key that the BlackBerry device and the BlackBerry Enterprise Server share is not available to the BlackBerry Router; therefore, no master encryption key information is stored in or transferred through the BlackBerry Router.

See the *Placing the BlackBerry Router in the DMZ* for more information.

When you create segmented network architecture, you can place the BlackBerry Router in the DMZ to control BlackBerry data that passes through your corporate LAN. You configure the BlackBerry Router so that all BlackBerry data bypasses the Server Relay Protocol (SRP) authenticated connection to the BlackBerry Infrastructure and travels through the DMZ location to the BlackBerry devices.

Protecting non-BlackBerry components

To segment the entire BlackBerry Enterprise Solution, it might be necessary to isolate the BlackBerry components and other components within the corporate LAN. To protect or segment components of the BlackBerry Enterprise Solution in the corporate LAN that are not products of RIM, for example, the Microsoft® SQL Server, follow the instructions from the applicable product vendors.

Component	Description	Resource
Microsoft SQL Server	port connection mappings	http://support.microsoft.com/default.aspx?scid=kb;en-us;287932
	security recommendations	http://www.microsoft.com/sql/prodinfo/previousversions/securingsqlserver.aspx
Microsoft Exchange Server and the Messaging Application Programming Interface (MAPI)	port connection mappings	http://support.microsoft.com/?kbid=270836
Microsoft Windows Server™	ports connections that the Windows Server products use	https://www.microsoft.co.ke/smallbusiness/support/articles/ref_net_ports_ms_prod.aspx
IBM® Lotus® Domino®	IBM Lotus Domino web server security	http://www-128.ibm.com/developerworks/lotus/library/dominowebserver-security/
	port number selection and configuration	http://www-1.ibm.com/support/docview.wss?rs=463&context=SSKTMJ&context=SSKTWP&q1=domino+server+ports&uid=swg21097004&loc=en_US&cs=utf-8&lang=en
IBM DB2 Universal Database™ (DB2 UDB)	DB2 UDB secure integration	http://www-1.ibm.com/support/docview.wss?rs=463&context=SSKTMJ&context=SSKTWP&q1=domino+server+security&uid=swg21224455&loc=en_US&cs=utf-8&lang=en
IBM Sametime® server	port connection mappings	http://www-12.lotus.com/ldd/doc/sametime/6.5.1/sthelpad.nsf/f4b82fbb75e942a6852566ac0037f284/fb9411b787fd0fa85256e5200761bda?OpenDocument
Novell® GroupWise®	Novell GroupWise Messenger port connection	http://support.novell.com/cgi-bin/search/searchtid.cgi?10099375.htm
	port connections for Internet access	http://support.novell.com/cgi-bin/search/searchtid.cgi?10013040.htm
	port connection for web access	http://support.novell.com/cgi-bin/search/searchtid.cgi?10011226.htm

BlackBerry Enterprise Solution connectivity requirements in a segmented network environment

Identify the port numbers and connection types that you need to set in your segmented network environment so that the BlackBerry components can connect to and authenticate with each other.

Component	Activity	Connection type	Default port number	Configure connection
BlackBerry Attachment Service	<ul style="list-style-type: none"> incoming document submissions from the BlackBerry Attachment Service outgoing conversion results sent to the BlackBerry Attachment Connector 	TCP	1900	BlackBerry Configuration Panel
	<ul style="list-style-type: none"> incoming connections from and outgoing connections to the BlackBerry Attachment Service tab of the BlackBerry Configuration Panel 	TCP	1999	BlackBerry Configuration Panel
	<ul style="list-style-type: none"> incoming document queries from the BlackBerry Attachment Service outgoing conversion results of large attachments to the BlackBerry Attachment Connector 	TCP	2000	BlackBerry Configuration Panel
BlackBerry Collaboration Service	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the Microsoft Live Communications Server Connector 	TLS	5061	BlackBerry Configuration Panel
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the IBM Sametime server 	TCP/IP	1533	BlackBerry Configuration Panel
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connection to the Novell GroupWise Messenger server 	SSL	8300	BlackBerry Configuration Panel
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Dispatcher 	TCP	3200 (for the BlackBerry Enterprise Server for Microsoft Exchange or Novell GroupWise only) 3201 (for the BlackBerry Enterprise Server for IBM Lotus Domino only)	—
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (Microsoft SQL Server) 	TCP	1433	Microsoft Windows® Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (DB2 UDB) 	TCP/IP	50000	DB2 UDB setup program
	<ul style="list-style-type: none"> outgoing system log connections to the SNMP agent 	UDP	4071	Microsoft Windows Registry Editor

BlackBerry Enterprise Solution connectivity requirements in a segmented network environment

Component	Activity	Connection type	Default port number	Configure connection
BlackBerry Configuration Database (Microsoft SQL Server or Microsoft Database Engine (MSDE))	<ul style="list-style-type: none"> incoming data connections from and outgoing data connection to one or more of the following BlackBerry components: <ul style="list-style-type: none"> BlackBerry Collaboration Service BlackBerry Dispatcher BlackBerry Manager BlackBerry MDS™ Connection Service BlackBerry Messaging Agent BlackBerry Policy Service BlackBerry Synchronization Service 	TCP	1433	Microsoft Windows Registry Editor
BlackBerry Configuration Database (DB2 UDB)	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to one or more of the following BlackBerry components: <ul style="list-style-type: none"> BlackBerry Collaboration Service BlackBerry Dispatcher BlackBerry Manager BlackBerry MDS Connection Service BlackBerry Messaging Agent BlackBerry Policy Service BlackBerry Synchronization Service 	TCP/IP	50000	DB2 UDB setup program
BlackBerry Controller	<ul style="list-style-type: none"> incoming system log connections from the BlackBerry Messaging Agent 	UDP	4070	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> outgoing system log connections to the BlackBerry Messaging Agent 	UDP	port number provided by the BlackBerry Messaging Agent	—

Placing the BlackBerry Enterprise Solution in a segmented network

Component	Activity	Connection type	Default port number	Configure connection
BlackBerry Dispatcher	<ul style="list-style-type: none"> incoming data connections, using BlackBerry inter-process protocol, from the BlackBerry Messaging Agent 	TCP	5096	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections, using WART, from and outgoing data connections, using WART, to one or more of the following BlackBerry components: <ul style="list-style-type: none"> BlackBerry Collaboration Service BlackBerry MDS Connection Service BlackBerry Policy Service BlackBerry Synchronization Service 	TCP	3200 (for the BlackBerry Enterprise Server for Microsoft Exchange or Novell GroupWise) 3201 (for the BlackBerry Enterprise Server for IBM Lotus Domino)	—
	<ul style="list-style-type: none"> outgoing data connection, using SRP, to the BlackBerry Router 	TCP	3101	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (Microsoft SQL Server) 	TCP	1433	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (DB2 UDB) 	TCP/IP	50000	DB2 UDB setup program
	<ul style="list-style-type: none"> incoming data connection from the database notification system (DBNS) 	UDP	first unused port number in the range of 4185 to 4499	—
	<ul style="list-style-type: none"> outgoing system log connection to the SNMP agent 	UDP	4071	Windows Registry Editor
BlackBerry Manager	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (Microsoft SQL Server) 	TCP	1433	Microsoft Windows Registry Editor

BlackBerry Enterprise Solution connectivity requirements in a segmented network environment

Component	Activity	Connection type	Default port number	Configure connection
BlackBerry Messaging Agent	<ul style="list-style-type: none"> outgoing data connections to the BlackBerry Dispatcher 	TCP	5096	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (Microsoft SQL Server) 	TCP	1433	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (DB2 UDB) 	TCP/IP	50000	DB2 UDB setup program
	<ul style="list-style-type: none"> incoming system log connections from <ul style="list-style-type: none"> BlackBerry Controller CalHelpers 	UDP	first unused port number in the range of 4085 to 4499	—
	<ul style="list-style-type: none"> outgoing system log connections to the BlackBerry Controller 	UDP	4070	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> outgoing system log connections to the SNMP agent 	UDP	4071	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from the DBNS 	UDP	first unused port number in the range of 4185 to 4499	—
BlackBerry MDS Connection Service	<ul style="list-style-type: none"> incoming HTTP listener port connections for <ul style="list-style-type: none"> HTTP HTTPS, if access control is enabled for push 	—	8080 (HTTP) 8443 (HTTPS)	—
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Dispatcher 	TCP	3200 (for BlackBerry Enterprise Server for Microsoft Exchange or Novell GroupWise only) 3201 (for BlackBerry Enterprise Server for IBM Lotus Domino only)	—
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (Microsoft SQL Server) 	TCP	1433	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (DB2 UDB) 	TCP/IP	50000	DB2 UDB setup program
	<ul style="list-style-type: none"> outgoing system log connections to the SNMP agent 	UDP	4071	Microsoft Windows Registry Editor

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Component	Activity	Connection type	Default port number	Configure connection
BlackBerry MDS Services	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry MDS Services Studio Application Repository (Microsoft SQL Server) 	TCP	1433	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry MDS Services Studio Application Repository (DB2 UDB) 	TCP	50000	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry MDS Connection Service 	TCP	3200	—
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the Apache Tomcat server for BlackBerry device messaging and setup web service 	TCP	7080 (HTTP)	Apache Tomcat server.xml file
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the Apache Tomcat server for administration web service 	TCP	7443 (HTTPS)	Note: After you start the BlackBerry MDS Services, you cannot change these port settings.
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the Apache Tomcat server for shutdown process 	TCP	7005	
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the Apache Tomcat server for notification messages 	TCP	7090 (HTTP)	BlackBerry MDS Studio Application Repository, SERVER table, NOTIFICATION_PORT row
BlackBerry MDS Studio Application Repository (Microsoft SQL Server or MSDE)	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry MDS Services 	TCP	1433	Microsoft Windows Registry Editor
BlackBerry MDS Studio Application Repository (DB2 UDB)	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry MDS Services 	TCP	50000	Microsoft Windows Registry Editor

BlackBerry Enterprise Solution connectivity requirements in a segmented network environment

Component	Activity	Connection type	Default port number	Configure connection
BlackBerry Policy Service	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Dispatcher 	TCP	3200	—
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (Microsoft SQL Server) 	TCP	1433	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (DB2 UDB) 	TCP/IP	50000	DB2 UDB setup program
	<ul style="list-style-type: none"> incoming data connections from the database notification system 	UDP	first unused port number in the range of 4185 to 4499	—
BlackBerry Router	<ul style="list-style-type: none"> incoming data connections, using SRP, from the BlackBerry Dispatcher 	TCP	3101	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> outgoing data connections, using SRP, to the BlackBerry Infrastructure 	TCP	3101	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry devices using the BlackBerry Device Manager for wireless network bypass 	TCP	4101	BlackBerry Device Manager
	<ul style="list-style-type: none"> outgoing system log connections to the SNMP agent 	UDP	4071	Microsoft Windows Registry Editor
BlackBerry Synchronization Service	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Dispatcher 	TCP	3200	—
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (Microsoft SQL Server) 	TCP	1433	Microsoft Windows Registry Editor
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Configuration Database (DB2 UDB) 	TCP/IP	50000	DB2 UDB setup program
	<ul style="list-style-type: none"> incoming data connections from the DBNS 	UDP	first unused port number in the range of 4185 to 4499	—
CalHelper	<ul style="list-style-type: none"> outgoing logger connections to the BlackBerry Messaging Agent (for BlackBerry Enterprise Server for Microsoft Exchange only) 	UDP	port number provided by the BlackBerry Messaging Agent	—

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Component	Activity	Connection type	Default port number	Configure connection
IBM Lotus Domino	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the IBM Lotus Domino web server 	TCP/IP	80	IBM Lotus Domino Directory
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the IBM Lotus Domino web server 	SSL	443	IBM Lotus Domino Directory
IBM Sametime server	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Collaboration Service 	TCP/IP	1533	IBM Sametime Administration Tool
Microsoft Exchange Server	<ul style="list-style-type: none"> Remote Procedure Call (RPC) endpoint mapper 	TCP	135	Visit http://support.microsoft.com/?kbid=270836 .
	<ul style="list-style-type: none"> Microsoft Exchange System Attendant service 	TCP	—	Visit http://support.microsoft.com/?kbid=270836 .
	<ul style="list-style-type: none"> Name Service Provider Interface (NSPI) 	TCP	—	Visit http://support.microsoft.com/?kbid=270836 .
	<ul style="list-style-type: none"> Microsoft Exchange Information Store 	TCP	—	Visit http://support.microsoft.com/?kbid=270836 .
Microsoft Live Communications Server	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the Microsoft Live Communications Server Connector 	TLS	5061	Microsoft Live Communications Server
		TCP	5060	
Microsoft Live Communications Server Connector	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the Microsoft Live Communications Server 	TLS	5061	BlackBerry Configuration Panel
		TCP	5060	
Novell GroupWise	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the Novell GroupWise 6.5 API 	TCP	1677	BlackBerry Configuration Panel
	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the Simple Object Access Protocol application programming interface (SOAP API) 	TCP	7191 9000	BlackBerry Configuration Panel
Novell GroupWise Messenger Server	<ul style="list-style-type: none"> incoming data connections from and outgoing data connections to the BlackBerry Collaboration Service 	SSL	8300	Novell GroupWise Messaging Agent server
SNMP agent	<ul style="list-style-type: none"> incoming system log connections from <ul style="list-style-type: none"> BlackBerry Messaging Agent BlackBerry Dispatcher BlackBerry Router SNMP queries and traps 	UDP	4071	Microsoft Windows Registry Editor
			161 (incoming); 162 (outgoing)	
system log	<ul style="list-style-type: none"> listener port for the BlackBerry Enterprise Server events 	UDP	514	Microsoft Windows Registry Editor

Customizing BlackBerry component port numbers

To address the needs of your security policies, you can customize the port numbers through which the BlackBerry components connect to each other in your segmented network architecture.

You set custom port numbers for the BlackBerry components to use to connect to each other. Depending on the BlackBerry component, you use the Microsoft Windows Registry Editor or the BlackBerry Configuration Panel to set a custom port number.

Set a custom port number to connect BlackBerry components to the BlackBerry Configuration Database

To use a custom port number to connect a BlackBerry component to the BlackBerry Configuration Database, you must configure the port number for each BlackBerry component and the BlackBerry Manager. By default, the port number for TCP/IP connections to a remote BlackBerry Configuration Database is 1433. The BlackBerry Configuration Database accepts other types of connections through port numbers 1024 to 65535.

1. On the computer on which the BlackBerry component resides, open the Microsoft Windows Registry Editor.
2. Perform the following actions:

Action	Procedure
Set the BlackBerry component to connect to a custom TCP/IP port number on the database server on which the BlackBerry Configuration Database resides.	<ol style="list-style-type: none"> 1. Browse to HKEY_LOCAL_MACHINE\Software\Research In Motion\BlackBerry Enterprise Server. 2. Right-click Database. Create a new DWORD value called Port. 3. Double-click Port. 4. In the Base section, select the Decimal option. 5. In the Value data field, type the custom TCP/IP port number. 6. Click OK. 7. In the Microsoft Windows Services window, restart the appropriate service for the BlackBerry component.
Set the BlackBerry Manager to connect to a custom TCP/IP port number on the database server on which the BlackBerry Configuration Database resides.	<ol style="list-style-type: none"> 1. Browse to HKEY_USERS\Software\Research In Motion\BlackBerry Enterprise Server\Management. 2. Right-click Database. Create a new DWORD value called Port. 3. Double-click Port. 4. In the Base section, select the Decimal option. 5. In the Value data field, type the custom TCP/IP port number. 6. Click OK. 7. In the Microsoft Windows Services window, restart the appropriate service for the BlackBerry component.

Set a custom port number through which BlackBerry components connect

1. On the computer on which the BlackBerry component resides, open the Microsoft Windows Registry Editor.
2. Browse to the BlackBerry component registry key that you want to customize..

BlackBerry component	Registry key	DWORD value
BlackBerry Dispatcher	HKEY_LOCAL_MACHINE\Software\Research In Motion\BlackBerry Enterprise Server\Dispatcher	TcpPort
BlackBerry Messaging Agent	HKEY_LOCAL_MACHINE\Software\Research In Motion\BlackBerry Enterprise Server\Agents	TcpPort
		TcpPortDispatcher
		SysLogHost
BlackBerry Policy Service	HKEY_LOCAL_MACHINE\Software\Research In Motion\BlackBerry Enterprise Server\BlackBerry IT Admin Server	TcpPort
BlackBerry Router	HKEY_LOCAL_MACHINE\Software\Research In Motion\BlackBerryRouter	TcpPort
SNMP Agent	HKEY_LOCAL_MACHINE\Software\Research In Motion\BlackBerrySNMPAgent\Parameters	UDPPort

3. Double-click the DWORD value.
4. In the **Base** section, select the **Decimal** option.
5. In the **Value data** field, type a custom port number.
6. Click **OK**.
7. In the Microsoft Windows Services window, if applicable, restart the appropriate service for the BlackBerry component.

Set the port number on which the system log tools monitor BlackBerry Enterprise Server events

By default, the system log tools listen to BlackBerry Enterprise Server events on port number 514.

1. On the computer on which the BlackBerry component resides, open the Microsoft Windows Registry Editor.
2. Browse to HKEY_LOCAL_MACHINE\Software\Research In Motion\BlackBerry Enterprise Server.
3. In the **Logging Info** registry key, click a BlackBerry component.
4. Create a DWORD value called **<Default>**.
5. Double-click the new value.
6. In the **Value data** field, type a custom port number.
7. Click **OK**.

Related resources

Resource	Location
<i>BlackBerry Enterprise Server Installation Guide</i>	www.blackberry.com/go/serverdocs
<i>BlackBerry Security Technical Overview</i>	www.blackberry.com/knowledgecenterpublic/livelink.exe?func=11&objId=1199150
<i>Placing the BlackBerry Router in the DMZ</i>	www.blackberry.com/knowledgecenterpublic/livelink.exe?func=11&objId=745137

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