Adding additional services to an existing SiteManager Agent (FTP and Web)

This guide explains how to add an additional service, such as FTP or Web support to a device Agent that does not natively include these services, and how you get the agents activated simultaneously from the LinkManager.

Version: 1.0, October 2010, Applicable to RDM version 4.2 or newer

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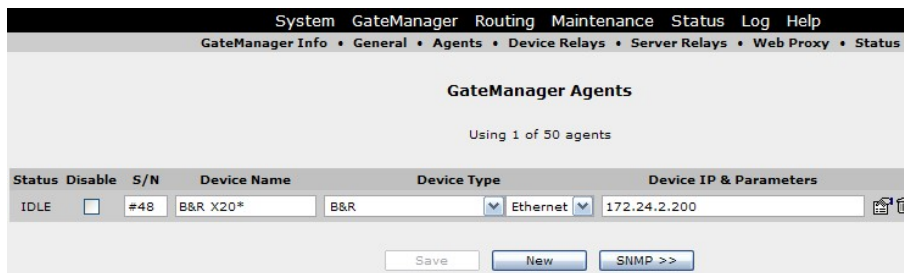
1. Prerequisite for This Guide

Prerequisites for this guide are:

- You have a general understanding of the Agent principle of a SiteManager
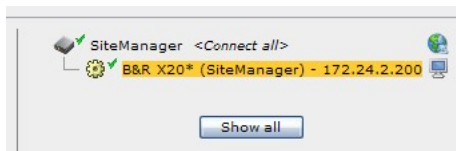
In this guide, we will illustrate by using a B&R PLC, but the principles are applicable to any Agent and device type.

2. The base Agent

1. In our SiteManager we have configured the following Agent for a B&R PLC:

2. In LinkManager we locate the B&R Agent:

3. And we can verify the ports being used for the Agent:

4. We notice that it opens the TCP port 5900 and UDP port 11159, which is sufficient for the B&R Automation Studio to operate the PLC.

3. Adding Web Support

Newer B&R PLCs have support for a SCADA like Web GUI. This web GUI is accessed by the IP address, and also requires a specific path like this:

http://172.24.1.200**/sdm**

5. First we create a separate web Agent pointing at the same IP address as the primary Agent. The Agent would type **Custom** / **Http**. When filled in click **Parameter Details**:

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6. Under Parameter details, we configure the path "/sdm":

7. Click **Save** and **Back**, and click **Refresh** until the new Agent goes idle:
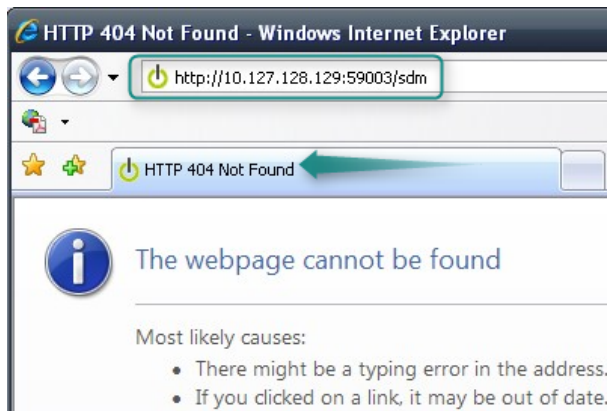

8. Click **Refresh** in the LinkManager window until the new Agent appears:

9. Since the Web service of the devices makes use of some special plugins, we may not be able to just click the **Go To Device** icon, but we can try:

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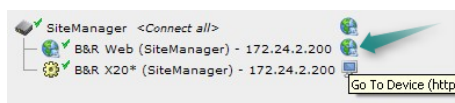
Nope,- we can see that it got the path alright (/sdm), but also gave us a 404 error. This is likely because the connection is made by a direct "relay" connection on a randomized port (here 59003), rather than through the encrypted LinkManager connection. Apparently the web plugin of the device does not like that.

10. So in order to ensure the Web browser session is using the encrypted connection and simulate that the web browser is connecting locally, we must connect via the Agent:

11. Clicking the above Globe, will establish the Web browser connection through the encrypted connection directly to the PLC's local IP address, and the session will appear to the PLC as if the web browser was located in its local network:

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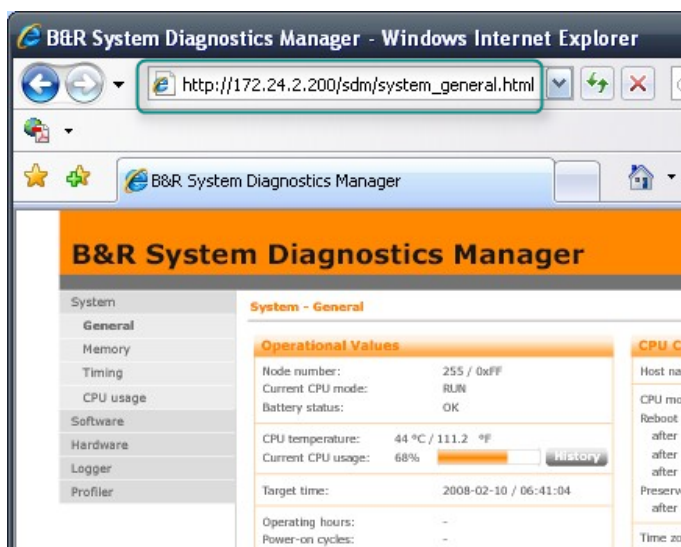
4. Adding FTP support:

The B&R PLC may support FTP for functions like firmware upgrade. Since the B&R Agent does not natively support FTP, we must make a new Agent:

12. Create a new Agent and select Device Type **Custom** / **Device**, define the same IP address and select **Parameter Details**.

13. FTP uses TCP port 21, and this must be filled in under Parameter Details:
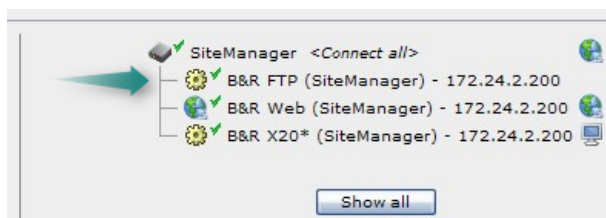

Note: For FTP in active mode, the server will connect back to the clients data port (above 1023). The SiteManager version 4.3 or later will automatically enable this, when port 21 is selected as TCP port.

14. Click **Save** and **Back**, and click **Refresh** until the Agent goes idle:
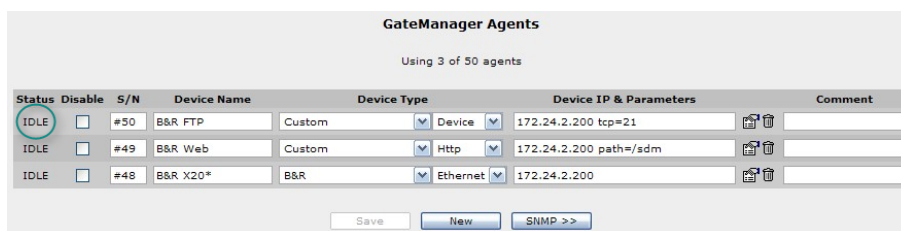
15. You can now refresh the LinkManager screen and see the new Agent:

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5. Connecting multiple Agents simultaneously

You can now connect to the B&R with 3 different Agents that each gives you access to certain services. This may we wise if you have different service engineers having different responsibilities on the same PLC.

It would, however, be more common that the same engineer should be able to use all services for that particular PLC.

If you want to connect to the PLC and have all services available together, you can do one of two:

a) In LinkManager press the **<Connect all>** on the SiteManager, which will connect all Agents. This require that the SiteManager is actually located in the same domain as the Agents. Additionally you may have many Agents, and do not want people to make connection to everything if they are just interested in the B&R PLC:

b) Define the Agents you want to connect to collectively into a group. When the engineer connects to one of the Agents in the group, it will automatically connect to the other members of the group.
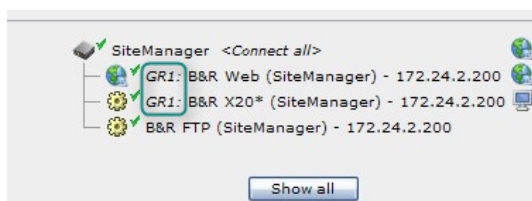
We will demonstrate b) in the following:

16. To group Agents, you should apply a prefix to the Agents you want be member of the group. The notation is "$group name: device name".

    Say we want the standard PLC Agent and the Web Agent to start together, but not the FTP Agent, we apply the prefix **$GR1** to the two Agents we want to group, and click **Save**:

    GateManager Agents

    Using 3 of 50 agents

Status	Disable	S/N	Device Name	Device Type			Device IP & Parameters
IDLE	☐	#49	$GR1:B&R Web	Custom	▼	Http ▼	172.24.2.200 path=/sdm
IDLE	☐	#48	$GR1:B&R X20*	B&R	▼	Ethernet ▼	172.24.2.200
IDLE	☐	#50	B&R FTP	Custom	▼	Device ▼	172.24.2.200 tcp=21

    Save   New   SNMP >>

17. We refresh the LinkManager until it reflects the new device names:

    SiteManager <Connect all>
    — GR1: B&R Web (SiteManager) - 172.24.2.200
    — GR1: B&R X20* (SiteManager) - 172.24.2.200
    — B&R FTP (SiteManager) - 172.24.2.200

    Show all

18. Now we click on any of the two Agents with the $GR1 prefix, and we will notice that we are automatically connected with the other Agent also:

    Disconnect   Logout   Services   Sniffer

    ROOT.demo.Toplevel.EMEA.Denmark.CustomerF.Production Plant 2

    GR1:B&R X20* (SiteManager) - 172.24.2.200

		Agent	Address	Status	Connects		Packets		Bytes	
					ok	fail	tx	rx	tx	rx
		B&R Web	172.24.2.200:80	IDLE	0	0	0	0	0	0
		B&R X20*	172.24.2.200:5900	IDLE	0	0	0	0	0	0
			:11159 (udp)	IDLE	0	0	0	0	0	0

6. Notices

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Version 1.0, October 2010

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