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Tips and Tricks Guide™ To

Windows Administration

Don Jones and Dan Sullivan

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Tip, Trick, Technique 13: Configuring Server Core in Windows Server 2008 R2

As mentioned in a previous tip, Windows Server 2008 R2's Server Core installation mode offers a new, easier way to perform the initial server configuration: the Sconfig utility. In some ways, Sconfig is kind of like a text-based, mini Server Manager—and it can be used to enable even greater management flexibility.

As Figure 25 shows, Sconfig can be run immediately after the Server Core installation completes and you log onto the console for the first time.

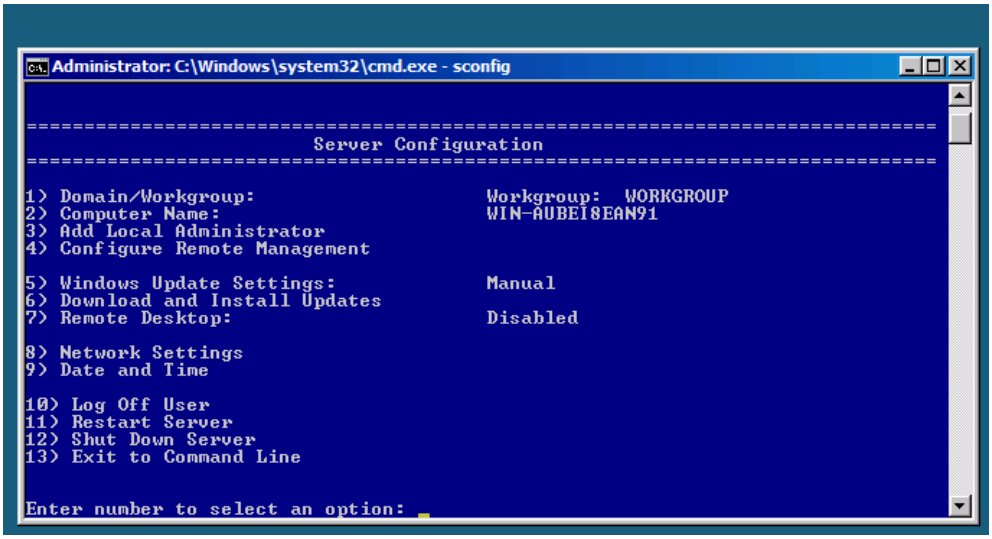

Figure 25: Running Sconfig.

The utility makes it easier to perform all but one of the major initial configuration tasks you need to do on any new server (more on that missing one item in a moment). You can join a domain, set the computer name (although computer name should really be the first item, not the second, since changing the name should occur before joining a domain). You can configure Windows Update, run a Windows Update check, and configure a variety of remote management options, which you should definitely do. In Figure 26, you'll see that I'm enabling MMC remote management, a task that also enables the necessary firewall exceptions on the server.

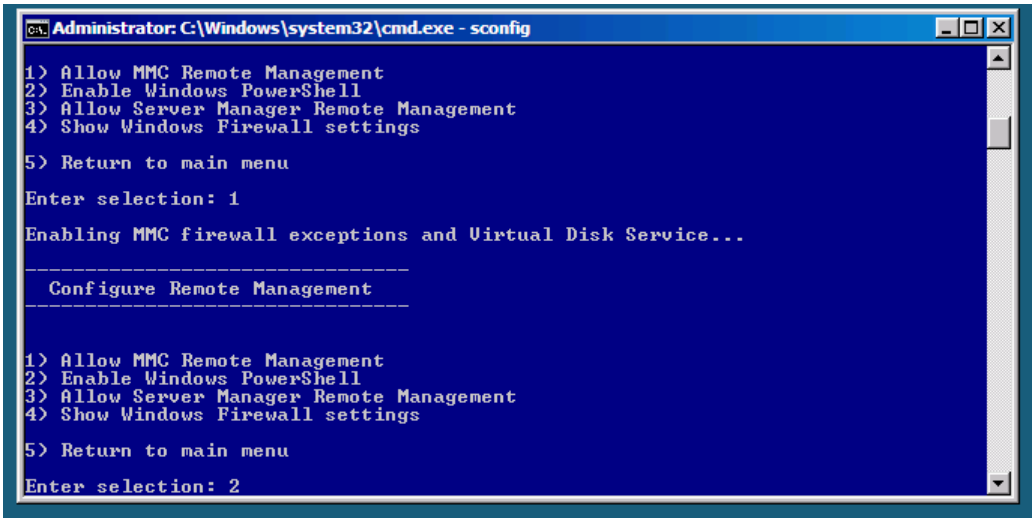

Figure 26: Enabling MMC Remote Management.

I also recommend allowing Server Manager Remote Management. A new feature in Windows Server 2008 R2's Server Manager console, Remote Management will enable a *remote* instance of Server Manager to connect to, and manage, your Server Core instance—making it vastly easier to examine roles and features installed on Server Core, for example. You can also enable Remote Desktop, as Figure 27 shows. Keep in mind that on Server Core, Remote Desktop only buys you a remote command-line window; it doesn't magically give you a full GUI to work with remotely. In fact, although I always enable Remote Desktop, I mainly use it for emergencies—I prefer to use remote GUI-based tools to connect to, and manage, Server Core installations.

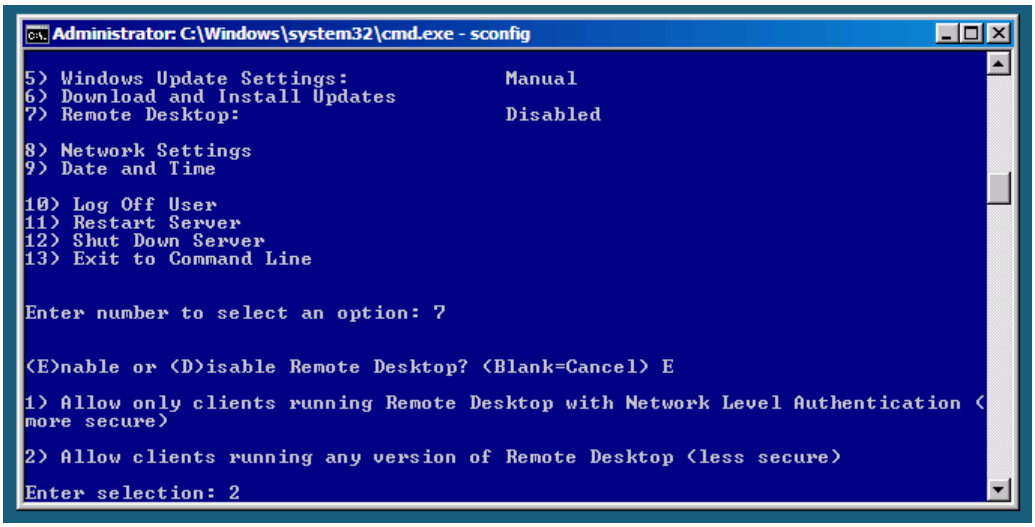

Figure 27: Enabling Remote Desktop.

Finally, as Figure 28 shows, Sconfig even allows you to configure network settings for each installed network adapter. Configure a static IP or any other settings. (Although I frankly prefer to leave Server Core using DHCP and to instead configure a DHCP reservation in my DHCP server. That way if I ever re-install Server Core for some reason, I don't have to reconfigure the static IP—it'll just pick up the desired IP from DHCP).

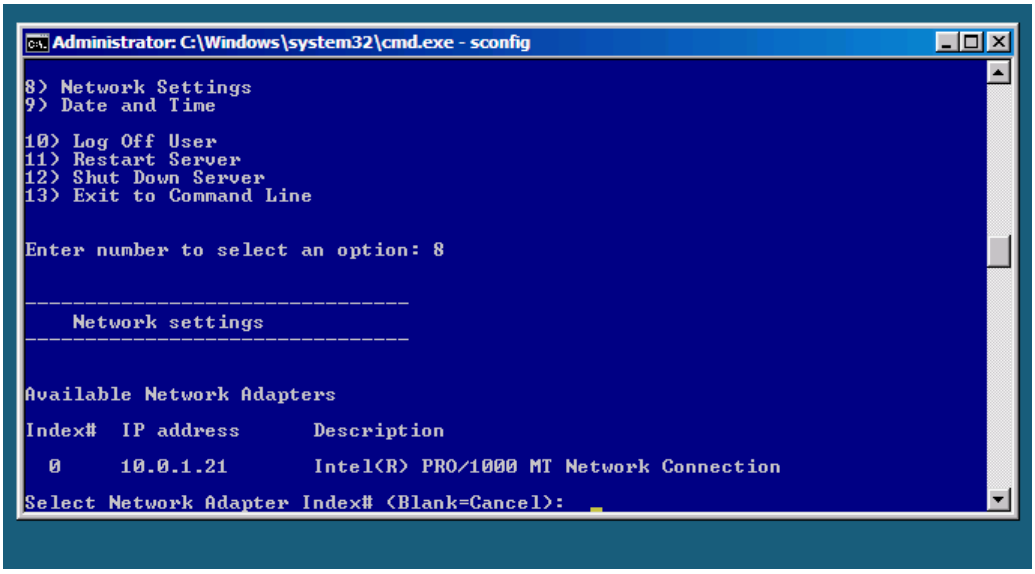

Figure 28: Configuring network adapter settings.

It seems as if Sconfig will do everything you need, but you won't find an option on its menu for activating Windows, which seems like a pretty serious oversight. Instead, you'll still need to manually install your product key using Slmgr, as Figure 29 shows.

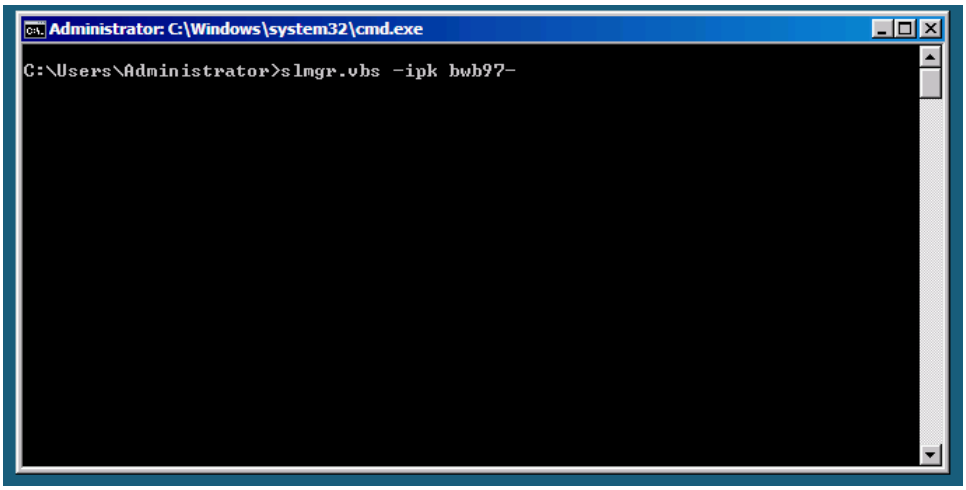

Figure 29: Installing a product key in Server Core.

After installing the product key, you'll have to activate Windows. If you're using a normal retail key, just run **Slmgr –ato** to initiate activation.

Sconfig is a big help, although it would be nice if it also handled the product activation.

Tip, Trick, Technique 14: What Are Microsoft's Many Virtualization Options?

If you thought Windows' Hyper-V was Microsoft's only foray into virtualization, you're in for a bit of a surprise. Microsoft is slapping the "v-word" on many different products and technologies—some of which have been around for years without anyone apparently realizing they were virtualization!

Hyper-V

The "real" virtualization in Windows, Hyper-V is a type-1 hypervisor that's designed to emulate PC hardware for the purpose of running "guest" operating systems (OSs). Deriving from Microsoft Virtual Server—but in fact built in an entirely different way—Hyper-V is the basis for Microsoft's enterprise virtualization efforts. It competes with VMware's vSphere / ESX products and Citrix' Xen family.

App-V

App-V is designed to run on Windows client computers or on Terminal Services servers. It essentially allows you to create images of completely installed applications, then deploy those images rather than actually installing the application on each of your client computers. App-V creates a sort of sandbox or bubble around the application, preventing it from having a permanent impact on the client's file system, registry, and other resources, and protecting applications from conflicting with one another. Central management tools provide deployment, management, de-provisioning, and other functionality. App-V is available as part of the Microsoft Desktop Optimization Pack (MDOP), which is only offered to Microsoft customers who have purchased Software Assurance for their enterprise OSs.

Virtual PC

Sort of a stripped-down Virtual Server, Virtual PC is Microsoft's workstation-grade virtualization software. Conceptually, it does the same thing as Hyper-V: Running guest OSs on Windows (or Macs). Under the hood, it's a very different type of hypervisor with lesser performance. It's useful for software testers and other employees who need to run an alternate OS on their client computer; Windows 7's "Windows XP Mode" is essentially a built-in Virtual PC running a preconfigured Windows XP guest OS. Virtual PC competes with VMware Workstation and similar products from Parallels.

Desk-V or MED-V

Microsoft Enterprise Desktop Virtualization (MED-V) is also a part of the MDOP. It's designed to provide central management and control of Virtual PC images, enabling you to deploy, manage, and control these images. For example, subcontractors working in your environment might be given a corporate-standard Virtual PC image, which allows them to access corporate resources without joining their laptop or desktop computer to your domain. You can then control the security and use of that Virtual PC image.

Remote Desktop Services

Called *presentation virtualization,* Remote Desktop Services (RDS) used to be known as "Terminal Services." It got a name change in Windows Server 2008, and is officially part of Microsoft's virtualization efforts now. Technically, it has always offered "virtual desktops," although it's "virtualization" in a very different way than, say, Hyper-V. RDS competes with Citrix in a way, and in a way is complemented by certain Citrix products.

It's all "V"

"Virtualization" has taken on so many meanings—due in part to the word's popularity and marketing clout—that it has become an almost meaningless term, like "ActiveX" and ".NET" were back in their days. Suffice to say that Microsoft has a number of creative and useful products and technologies that "virtualize" something in some way; focus on individual solutions more so than the "v word."

Tip, Trick, Technique 15: The New Windows Log Files

For more than a decade, Windows administrators have suffered with the native Windows event logs. We've struggled to find relevant events to help us audit and troubleshoot our systems, we've hunted for the meaning behind obscure messages and event ID numbers, and we have tried to make a science out of a pretty raw and low-level store of information. Worse, the things aren't centralized, meaning you wind up hunting across multiple servers to find the information you need.

In Windows Server 2008, things are a *little* better. Sure, you get a fancy new user interface (UI) embedded within Server Manager (shown in Figure 30), but you also get some important new features.

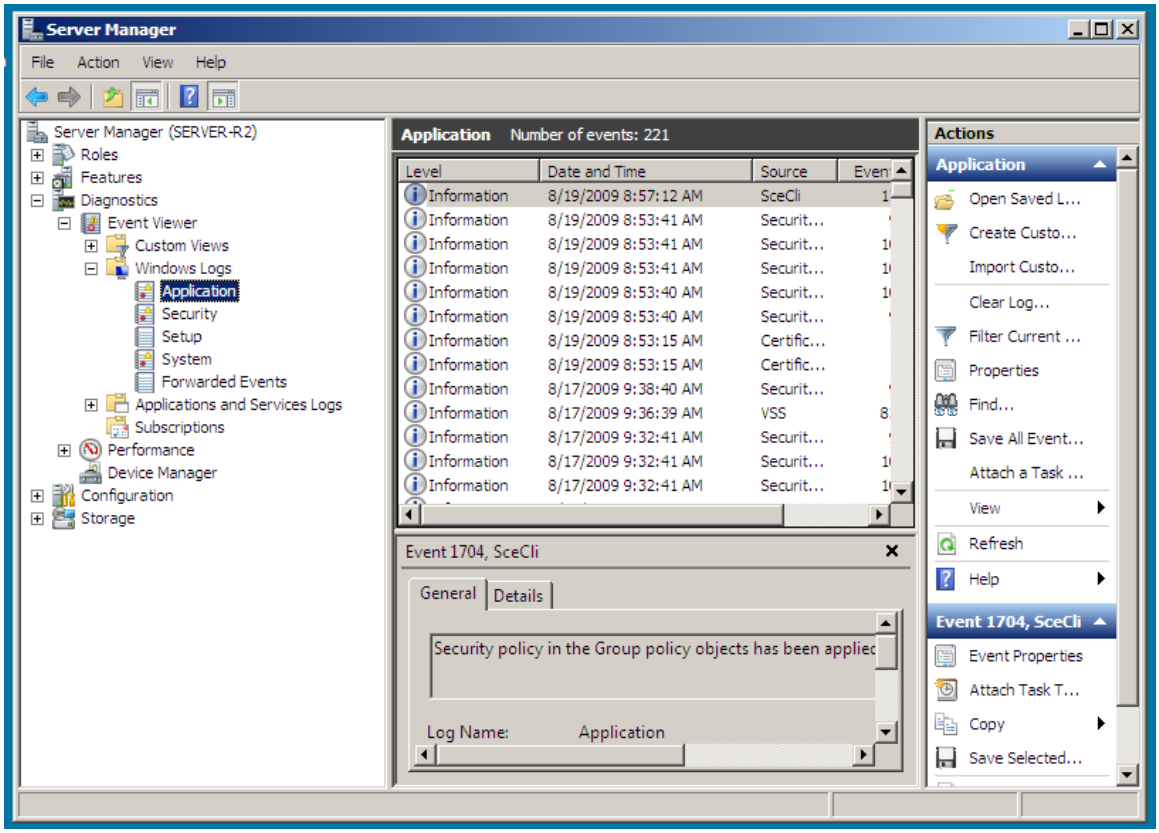

Figure 30: New event log viewing in Server Manager.

Now you can create custom *views,* which contain filter and sort criteria that make it easier for you to repeatedly come back and find specific events. You might set up a view for events related to a specific application, for example. Figure 31 shows an example, using the built-in "Administrative Events" custom view.

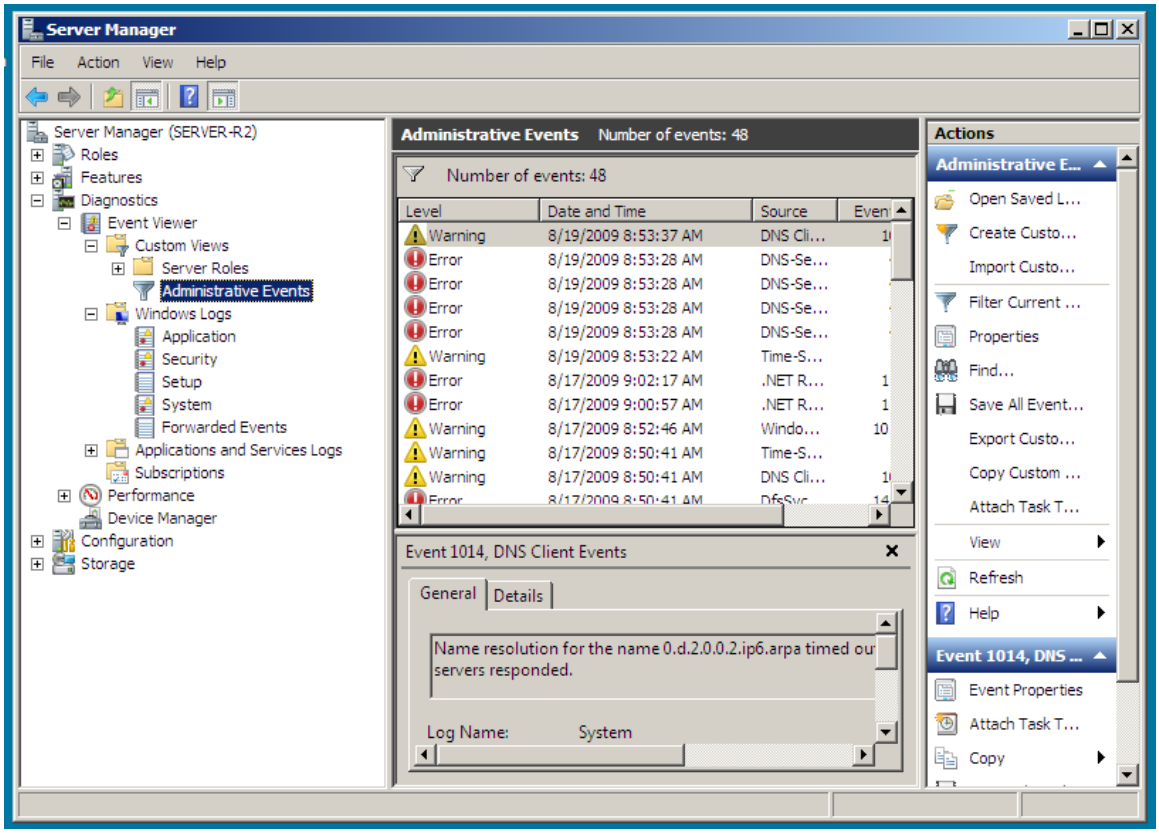

Figure 31: Viewing events through a custom view.

Log data has been segregated out into more logs, helping break down information logically by product or technology. As Figure 32 shows, a fairly bare-bones Windows Server 2008 installation has *dozens* of individual logs; fortunately, those custom views can aggregate events from multiple logs, giving you a consolidated view if you so desire.

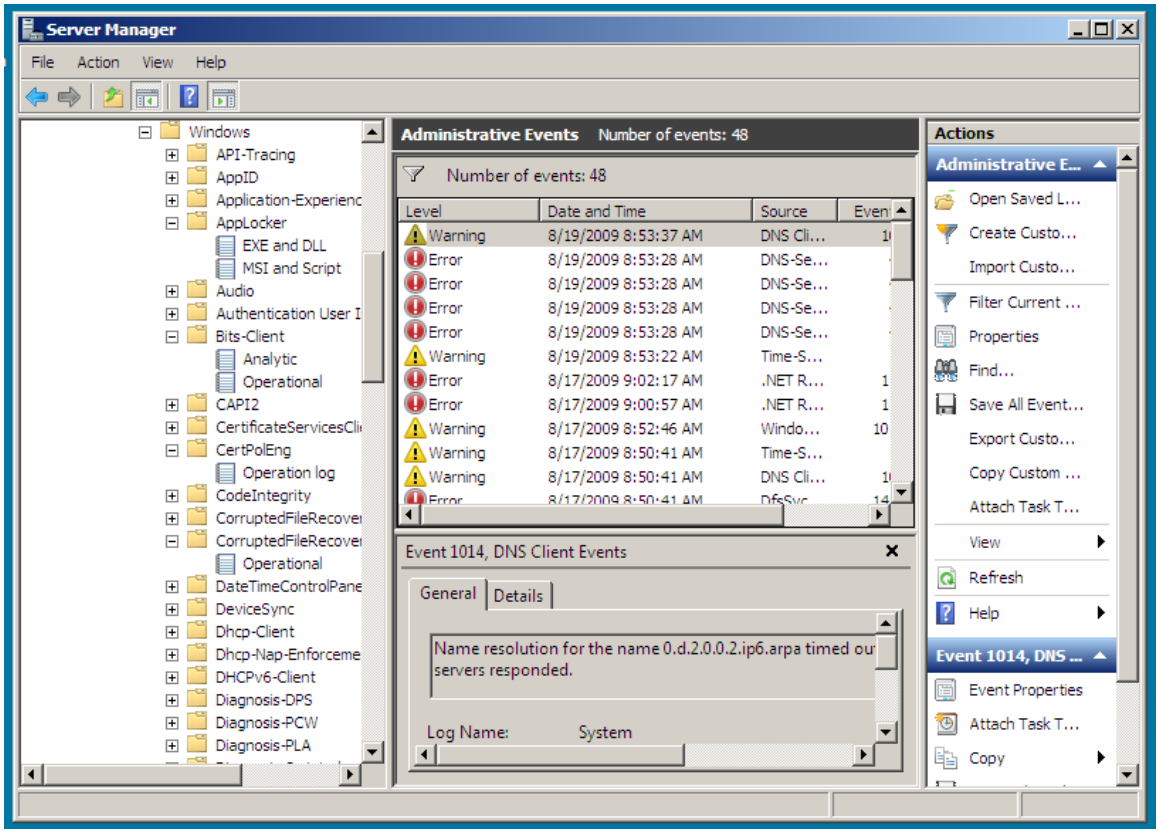

Figure 32: Multiple logs help categorize information better.

Event forwarding and subscriptions provide a syslog-like capability to forward selected events to a central Windows server for consolidation. It took more than a decade to get this feature in Windows, but you should be glad you have it! You can set it up through *event subscriptions*, allowing you to set up a central "log server" that aggregates all your logs. Figure 33 shows the configuration for a subscription, and you can see that you can even select specific events to be collected.

Resource

You'll find a great article at http://redmondmag.com/articles/2007/08/01/syslog--20-years-later.aspx that goes into more detail about how to use these.

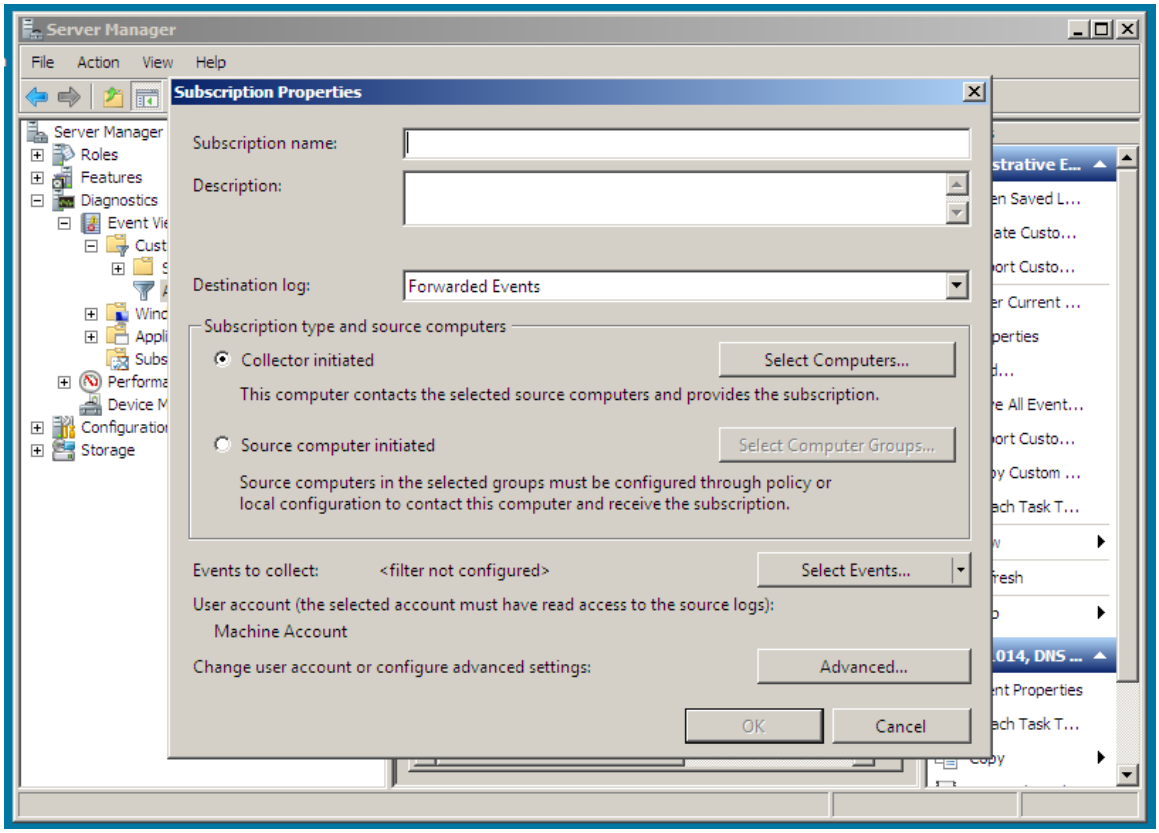

Figure 33: Setting up event subscriptions.

Not everything is perfect, though. In some cases, the old event IDs you're used to seeing are gone, replaced by event IDs that have had 4,096 added to their numeric ID. This was done to help make room for new event IDs, and can be frustrating until you realize what's happened.

Tip, Trick, Technique 16: Geographically-Dispersed Cluster Nodes

Multi-site clustering is the official name of the improvement to Windows' built-in clustering capabilities that allows cluster nodes to exist in different geographic locations. The idea is that a dispersed cluster can survive even major facility disasters, like fire or flood, because the individual nodes are widely separated. Like other types of Windows Server clusters, multi-site clusters offer automatic failover when a node fails. Each site has at least one storage array, and nodes are connected to storage in such a way that each node can access the storage at their own site in the event of a communications failure.

Thus, the cluster nodes in Denver can access storage in Denver, and cluster nodes in Las Vegas can access storage in Las Vegas. The Denver nodes can function without talking to the Las Vegas storage—as would be the case in the event of a disaster there. The storage fabric must provide a way to mirror or replicate data between sites so that data in Denver is being replicated to Las Vegas and vice versa. This is the tricky bit, and you'll need third-party help to solve it, because Windows doesn't provide that replication functionality itself. However, some Microsoft applications *do* provide the needed capability—such as Exchange Server 2007's Continuous Cluster Replication feature.

Windows clusters have in the past relied primarily upon a shared storage resource that is *always* accessible to *every* node, so some changes needed to be made. Quorums, for example, have moved to the concept of *votes.* Each node gets a vote to decide which node gets to control which resources; a *witness*—a Windows server that isn't in the cluster—serves as an independent tiebreaker.

Think of a cluster that has Node 1 and Node 2 and an independent witness. Node 1 votes for itself, Node 2 votes for itself, and the witness votes for one or the other, breaking the tie. That vote determines which cluster node is "active" and which is on "standby" for particular resources. Ideally, the witness lives at a different site from the two nodes; whichever node site the witness can "see" must be alive and online, so it makes sense for that cluster node to be active within the cluster.

Multi-site clusters are a great new feature, especially for larger organizations with distributed data centers.

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