

## **Hidden Jobs, Hidden Schedules and the Impact on your Server**

*A look at the real-world impact of your SQL Server Agent job subsystem and the not-so-obvious loads it can place on your systems.*

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**Stephen Wynkoop**

*Microsoft SQL Server MVP  
SSWUG.ORG Founder*

## Hidden Jobs, Hidden Schedules and the Impact on Your Server

We've been troubleshooting some intermittent performance issues on some SQL Servers and have stumbled into a bit of a revelation about jobs, scheduling jobs and the not-so-obvious overlaps you can experience in your job scheduling system.

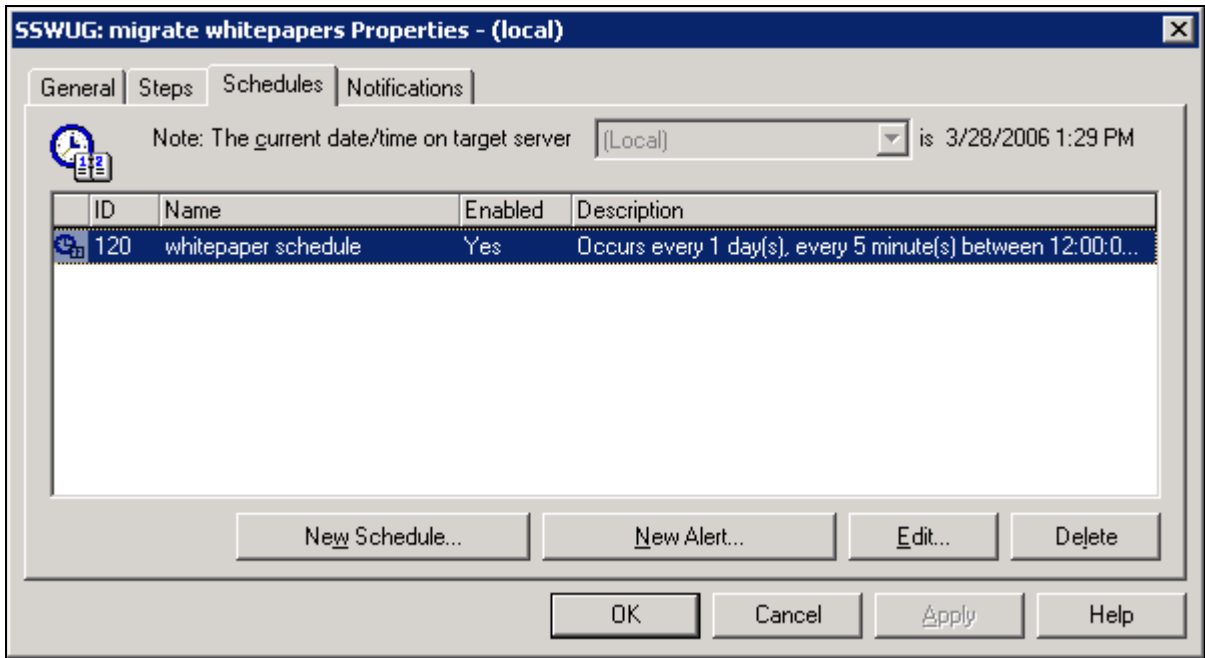
It all started when we noticed that our servers would seem to slow down markedly at a specific time of day. Of course this leads you to look at automated and scheduled processes - things like SQL Agent jobs, operating system jobs that are scheduled and so-forth. No problem. We can check all of those out pretty readily using Enterprise Manager (this article pertains to SQL Server 2000), and the scheduling system at the Windows Server OS level.

Name	Category	Enabled	Runnable	Sched...	Statu
update tbl_transactions	[Uncategorized (L...	Yes	Yes	Yes	Not R
update sql turbo indexes	[Uncategorized (L...	Yes	Yes	Yes	Not R
update promotions of whitepapers	[Uncategorized (L...	Yes	Yes	Yes	Not R
Start_Incremental on Table newsfeed.dbo.headlines[7.1397580017]	Full-Text	Yes	Yes	Yes	Not R
Start_Incremental on sswug.sswug_discussion_ftindex.[11.5]	Full-Text	Yes	Yes	Yes	Not R
Start_Incremental on sswug.site_ft_index_for_ssswug.[11.8]	Full-Text	Yes	Yes	Yes	Not R
Start_Incremental on sswug.newsfeed_stories.[11.14]	Full-Text	Yes	Yes	Yes	Not R
Start_Incremental on sswug.msg_archive.[11.7]	Full-Text	Yes	Yes	Yes	Not R
Start_Incremental on sswug.idx_usergroups.[11.15]	Full-Text	Yes	Yes	Yes	Not R
Start_Incremental on sswug.bookstore.[11.6]	Full-Text	Yes	Yes	Yes	Not R
Start_Incremental on sswug.article.[11.11]	Full-Text	Yes	Yes	Yes	Not R
Start_Incremental on sswug.adsearches.[11.10]	Full-Text	Yes	Yes	Yes	Not R
Start_Incremental on newsfeed.artidetext.[7.5]	Full-Text	Yes	Yes	Yes	Not R
Start_Full on sswug.faq.[11.9]	Full-Text	Yes	Yes	Yes	Not R
Start_Full on sswug.editorial_ft_index.[11.12]	Full-Text	Yes	Yes	Yes	Not R
Start_Full on Northwind.myNewCatalog.[6.5]	Full-Text	Yes	Yes	Yes	Not R

Not a scary assortment of jobs at the SQL Server level - only 48 total, and nothing showing as running at our suspect time of day. OK, off to the servers to do the same sort of exploration. Find out if the servers have scheduled tasks that run at the particular hour in question. After working through all of the servers in the farm, we find that we don't seem to have jobs running at the suspect time. Doesn't appear to be a job scheduling issue after all.

### Where Oh Where are My Jobs Coming From?

Still, as watch the system, the traffic on the applications using the system and so-forth, it becomes clear that the traffic hits and spikes simply cannot be coming from the applications - just not possible. We re-visit the job system, thinking there must be something there, but we just can't seem to find it. When we look into the properties associated with the various jobs, there doesn't seem to be anything odd in the scheduling - just a lot of maintenance-type jobs in the system. Indexes, transaction log backups, the standard stuff.



The answer, and an important lesson, is staring us in the face, but we didn't see it. More on that in a minute. We kept on checking jobs - jobs were working as expected, running as needed and, as I indicated before, we only had 48 total jobs on this system, so we had little confidence that our jobs were the culprit.

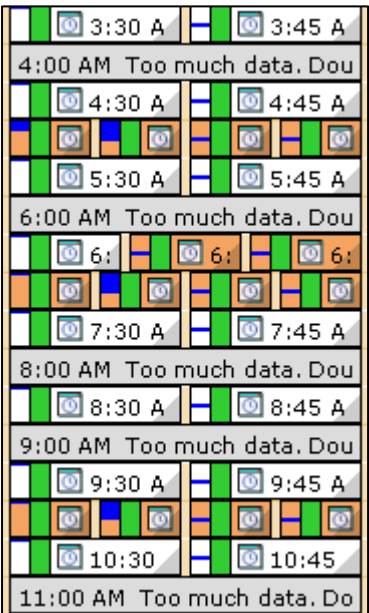
**Performance Bottleneck under a Microscope**

We are just starting an evaluation of sqlSentry - a tool that was supposed to give you a better view on your job system. We fired it up to start working with it and it did its thing of gathering up jobs, showing the schedules and mapping them out over the course of the day. More on this tool in an upcoming review.

We expected to see a big batch of work being done early in the morning (backups, updates, etc.) and then a large blank area in the middle of the day, following by some late-night wrap-up activity.

HA!

Instead, what we really saw was sqlSentry showing us that our schedule was incredibly packed, even to the point where you had to zoom in to the minute level to see some periods of time during the day. The jobs were stacked upon each other and so tightly packed, it was no wonder we had issues.



**But... There Aren't Many Jobs in the System, So, What Gives?**

What we learned was a very important lesson and one that was clearly staring us in the face as we investigated this, but we simply missed. It's not the number of jobs you have, but the number

of times and the associated schedules you have for those jobs that makes the difference.

The display at the right here is created by sqlSentry- it's just a very small snippet of the display of jobs, run times, average run times, and other information associated with your job subsystem. If you go back up and look at the job properties associated with the schedule above, you'll notice that the particular job runs every 5 minutes.

What appears in SQL Server to be a single job entry (and it is, but...) is actually 288 job entries! This job isn't a single-instance, single point in time thing that will be running on your system, but rather a job that will fire every 5 minutes, and therefore later in the day, will be contending with other jobs that stack up on it as time goes on.

This was extremely clear in the sqlSentry look on the world, not so clear at all if you just look at the job listing in SQL Server. You can compare them a bit here, but of course these figures are just small excerpts from each of the tools.

### **The Moral to the Story**

The moral is easy - pay attention not to the number of jobs, or their first run time on your system. Instead, you need to have intimate knowledge of the job instances - the times they'll be running throughout the day - and know about that information and how it impacts other jobs on your system. Keep in mind too that you may still have issues at the operating system level, or even other servers that are referencing your server. Perhaps replication jobs, backup jobs, log shipping or other types of things.

The key take away is to understand how jobs are implemented, the timing, the schedule, the run times (all of them) and the duration for jobs - only then can you really understand what's happening in your job subsystem with SQL Server.

*Stephen Wynkoop is the founder of SSWUG.ORG ([www.sswug.org](http://www.sswug.org)) and a Microsoft SQL Server MVP. He writes a daily column on the database industry for SSWUG and is also host of a weekly podcast on the site. He's also a frequent presenter at conferences and produces webcasts several time monthly for SSWUG. He can be reached at [swynk@sswug.org](mailto:swynk@sswug.org).*