

K2SERVER.SETUP THREAD POOL SETTINGS

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On the K2 server, a number of threads are created to perform a list of tasks queued in a database table (either the Server.Async or Server.IPCAsync). As one task is completed, the thread becomes available for another task.



Thread attributes can be customized in the K2Server.setup file. You may want to change the default settings to improve performance, for example if there are a great number of IPC items you may want to increase the number of IPC threads available.

The default settings used at installation time are intended to work for most customers across varying configurations and hardware types. However, these values can be adjusted to take advantage of servers with more processors and more cores per processor.

Thread pool settings are per server in the K2 farm. The total number of threads available to service requests in a farm are the number of servers times the thread pool size on each server. For example, if the size of the worker thread pool (described below) is left at the default value of 20 and there are 4 K2 servers in the farm, then 4X20=80 threads are available for processing.

Thread pool settings are grouped into four types: Worker threads, Asynchronous threads, IPC threads, and Log threads. Each type has three settings:

- Number: The maximum number of threads in the pool
- Limit (true / false): When set to true, a limit of **Number** work items will be queued to the thread pool by the dispatch thread at a time. When set to false, all waiting items will be queued to the thread pool by the dispatcher. In both cases all requests will be queued so they are not lost, this settings affects how many waiting items are queued at a time to the thread pool.



 Priority (Low / Below normal / Normal / Above normal / High / Realtime): A thread's Priority property determines how much execution time it gets relative to other active threads in the operating system. This becomes relevant only when multiple threads are simultaneously active.

Task Manager											
File Options View											
Processes Performance	App hist	ory Startup Use	rs Details Ser	vices							
Name	PID	Status	User name	CPU	Memory (p	Description					
K2HostServer.exe	9708	Running	wynand	00	366,288 K	K2HostServer.exe					
sqlservr.exe	2188	Running	MSSQLSER	00	305,616 K	SQL Server Windows NT - 64 Bit					
OUTLOOK.EXE	4308	Running	wynand	00	280,280 K	Microsoft Outlook					
devenv.exe	6476	Running	wynand	00	267,756 K	Microsoft Visual Studio 2012					
👓 devenv.exe	6176	Running	wynand	Ende	450.000.14	ft Visual Studio 2010					
devenv.exe	1144	Running	wynand	Endi	ask	oft Visual Studio 2012					
lync.exe	6964	Running	wynand	End	process tree		oft Lync				
ysms.exe	7512	Running	wynand	Set p	riority	•	Realtime				
🥽 explorer.exe	4280	Running	wynand	Set a	ffinity		High				
MsMpEng.exe	2528	Running	SYSTEM	Jera	initie y		Above exempt				
🔑 SearchIndexer.exe	4964	Running	SYSTEM	Anal	ze wait chain		Above normal				
POWERPNT.EXE	9400	Running	wynand	Debu	ig		Normal				
💷 svchost.exe	960	Running	SYSTEM	UAC	virtualization		Below normal				
<i>i</i> explore.exe	10896	Running	wynand	Creat	e dump file		Low				
💷 svchost.exe	336	Running	SYSTEM	Creat	e dump me		ocess for Windows Services				
<i>i</i> explore.exe	8624	Running	wynand	Oper	Open file location		Explorer				
💷 dwm.exe	320	Running	DWM-1	Searc	Search online Window Manager		Window Manager				
svchost.exe	1620	Running	LOCAL SE	Prop	Properties ocess for Windows Services		ocess for Windows Services				
🔄 Evernote.exe	6468	Running	wynand	Got			e				
💷 svchost.exe	1004	Running	LOCAL SE				ocess for Windows Services				

Thread	Description	Default setting	
Туре			
Worker	Worker threads handle service requests such as: client and	Number:	20
	management communications, normal process execution (which	Limit:	False
	includes the starting of process instances), and Worklist retrieval.	Priority:	High
Async	Responsible for service requests such as Escalations, Start rules,	Number:	5
	and Worklist Item sleep. A single thread is used to monitor the	Limit:	True
	Async table for work items. The specified number of threads are	Priority:	Normal
	available for processing the queued tasks.		
IPC	Responsible for IPC processing. A single thread is used to monitor	Number:	5
	the IPCAsync table for work items. The specified number of	Limit:	True
	threads are available for processing the queued tasks.	Priority:	Normal
Log	Responsible for moving items from the transaction database to the	Number:	15
	reporting database.	Limit:	False
		Priority:	Normal

Another important setting in the k2server.setup configuration file is the **IPCThreadInterval**. This setting controls how often new items in the IPC table are dispatched to the IPC thread pool. The default for this is 60 seconds; lowering this interval may speed up IPC processes but for performance reasons this setting should never be set to less than 5 seconds.



If settings in k2server.setup are changed, the K2 server must be restarted for them to take effect.

RELEVANT TAGS IN THE 'K2SERVER.SETUP' FILE

The following code snippets are found in the <k2server>...</k2server> tag group.

Worker Thread Type

```
<ThreadPool Name="K2ThreadPool" Assembly="SourceCode.Workflow.Runtime"
Type="SourceCode.Workflow.Runtime.K2ThreadPool" />
<K2ThreadPool Name="K2ThreadPool">
<ThreadS Count="20" Limit="False" />
<Priority Value="Normal" />
</K2ThreadPool>
```

Async Thread Type

IPC Thread Type

IPCSettings Parameters

```
<IPCSettings ExpireOnDelete="false" IPCThreadInterval="60" />
```

Log Thread Type

The Log thread type settings are found in the <K2LogServer>...</K2LogServer> tag group.

```
<ThreadPool Name="K2ThreadPool" Assembly="SourceCode.Workflow.Runtime"
Type="SourceCode.Workflow.Runtime.K2ThreadPool" />
<K2ThreadPool>
<Threads Count="20" Limit="True" />
<Priority Value="Normal" />
</K2ThreadPool>
```