

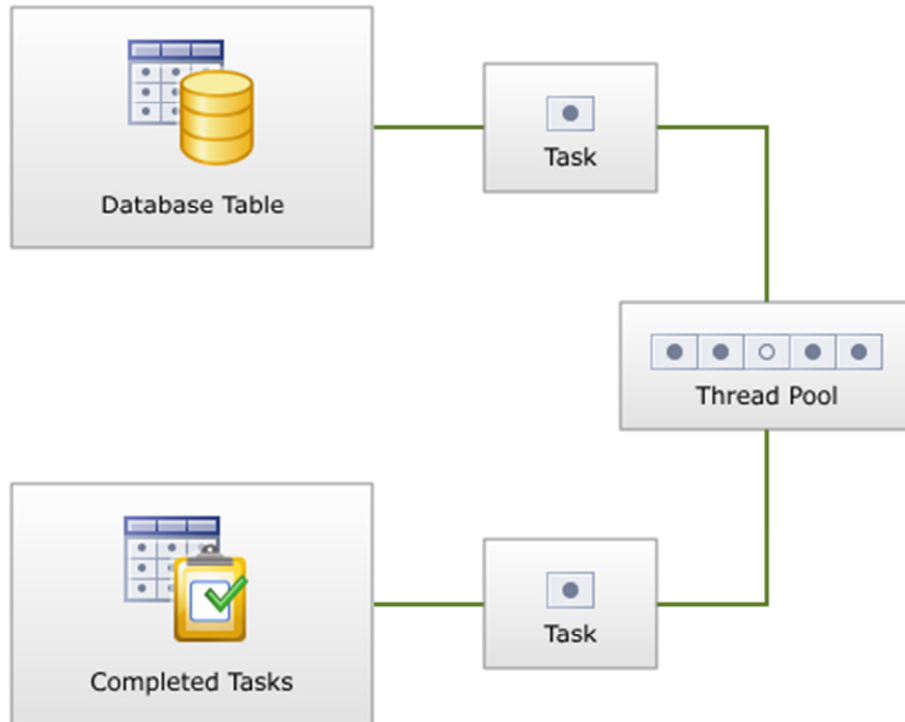


K2SERVER.SETUP THREAD POOL SETTINGS

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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 $4 \times 20 = 80$ threads are available for processing.

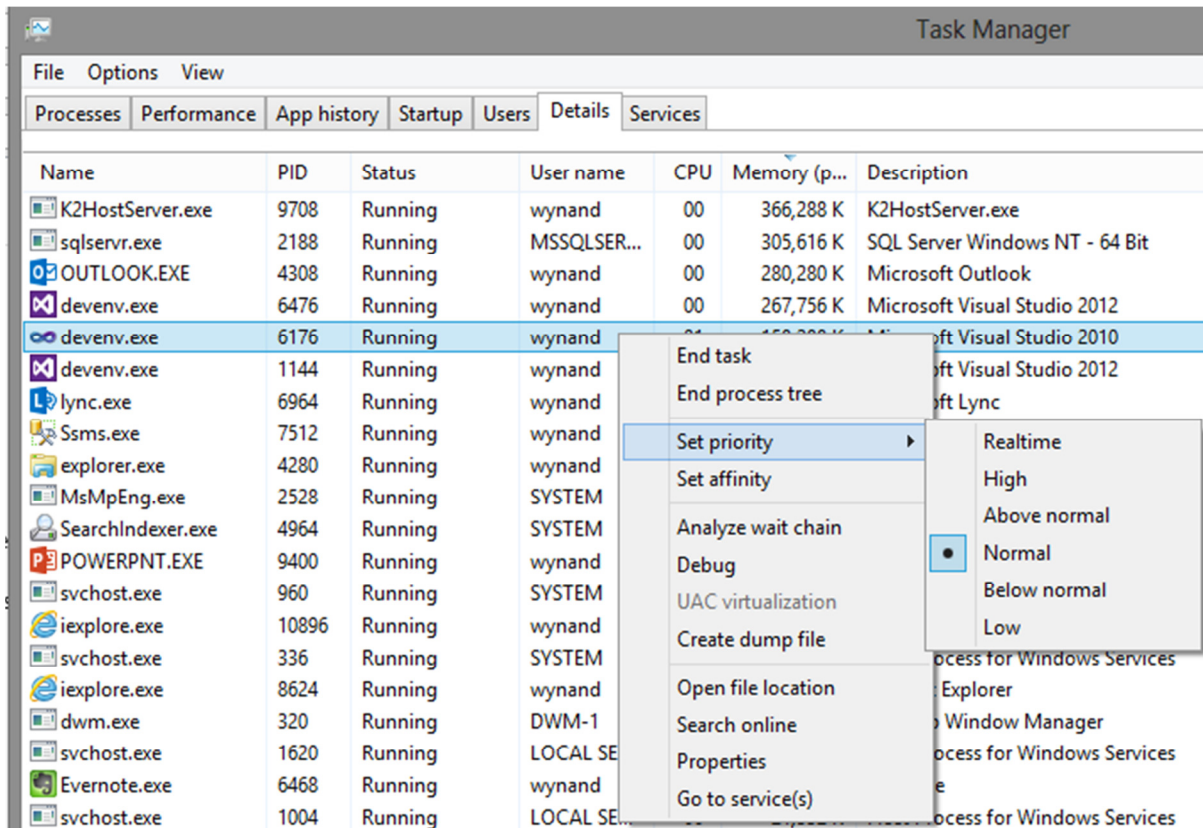
Thread pool settings are grouped into four types: Worker threads, Asynchronous threads, IPC threads, and Log threads. Each type has three settings:

- **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.

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- 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.



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



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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

```
<AsyncThreadPool Name="K2AsyncThreadPool"
Assembly="SourceCode.Workflow.Runtime"
Type="SourceCode.Workflow.Runtime.K2ThreadPool" />
<K2AsyncThreadPool>
  <Threads Count="5" Limit="True" />
  <Priority Value="Normal" />
</K2AsyncThreadPool>
```

IPC Thread Type

```
<IPCThreadPool Name="K2IPCThreadPool"
Assembly="SourceCode.Workflow.Runtime"
Type="SourceCode.Workflow.Runtime.K2ThreadPool" />
<K2IPCThreadPool>
  <Threads Count="5" Limit="True" />
  <Priority Value="Normal" />
</K2IPCThreadPool>
```

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>
```