ntcrond/ntctab

Version 2.1 (Release Build 57)

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This file contains the following sections:

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1. Description and Background

WHAT?

ntcrond is a Microsoft Windows NT service that emulates the crond utility developed by AT&T and Hewlett Packard for UNIX. It allows Windows NT users to schedule the execution of commands at specified dates and times -- down to a granularity of one minute. Unlike other shareware crond emulators, ntcrond runs completely as a Windows NT service, and utilizes the user-level security architecture of Windows NT. Therefore, if a user account does not normally have access to a file, command or operation, it won't have it using ntcrond either. Also, ntcrond achieves outstanding performance gains by using multiple threads for multiple processes, resulting in near instantaneous execution of many processes that are scheduled to execute at the same time.

The companion application to ntcrond is called **ntctab**. ntctab is a Windows NT-based graphical administration tool used expressly for the purpose of scheduling tasks for ntcrond to run.

Here are the new features included with Version 2.1:

1. a new group called 'ntcrond Admins' is now created by the setup.exe program that will allow you to assign specific users the ability to administer ntcrond entries without giving them Administrator rights
2. remote administration priviledges are still ONLY available to members of the Administrators group

Here are some of the previous features of Version 2.0:

1. ability to remotely manage crontab entries via a "connect to server"
2. graphical user administration tool
3. enhanced security (i.e., tighter integration with NT's SAM)
4. crontab password entries encrypted in registry (RSA)
5. global ntctab administration limited to "admin" users (NT accounts)
6. use of Windows '95 Common Controls
7. full UNICODE support for ntcrond service messages and ntctab administration tool
8. ability to "impersonate" a specific account while running a task

9. ability to establish network connections via a "net use" within a crontab entry
10. ability to enable/disable task interaction with screen for each task
11. complete logging of each task run into the NT Event Log (optional)

NOTE: Only the registered version of ntcrond/ntctab will allow "remote administration"

WHY?

ntcrond was developed primarily because of (1) the lack of such a service for Windows NT, and (2) the "AT" service provided by Microsoft was inadequate for commands that need to run every 5 minutes, et cetera. . . .

ntcrond/ntctab was developed using Microsoft Visual C/C++ 2.1, several UNIX manuals, an auto-dialer for the Microsoft Developer Support line, and several gallons of coffee.

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2. Reporting Problems or Suggestions

The best way to contact Extreme Software is to send E-Mail to ***gparsons@dfw.net***

If you wish to register your copy of ntcrond with Extreme Software, you may send $25.00 (U.S. please) to the below address. You won't get a fancy bound manual, but you WILL get support, and help fund future Extreme Software development projects. If you like the product, PLEASE let us know! Any feedback is appreciated -- negative or otherwise. We can not, and will not make further enhancements to ntcrond without your support.

Corporate site licenses and source code licenses are also available. Please contact Extreme Software at the below email, or postal address for more information.

If you have questions or problems with ntcrond or ntctab, we may already be aware of them, or already have a fix for them. Please check the *"Known Bugs and Limitations"* section of this document.

As ever, if you need to contact us, we are available at the following numbers/addresses:

Snail Mail: Extreme Software
1603 Kingspoint Drive
Carrollton, TX 75007

Email: gparsons@dfw.net

FAX: (214) 242-5712

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3. System Requirements

You must have **AT LEAST** Windows NT 3.51 (Release ONLY -- we do NOT support beta versions) or later to run either the ntcrond service, or the administration tool.

You must also have a network adaptor **OR** the Remote Access Service installed in your machine. Due to the "remote management" component, and the restrictions of the MFC 3.0, this is a MUST! Installed protocols aren't really important.

Also, you must have some sort of pointing device in order to use the graphical administration tool, ntctab.

(Try using a Windows '95 tree-control without one!)

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4. Installation

Installation of the service and administration tool is quite easy. Simply run the standard "**SETUP.EXE**" program. If you retrieved the compressed file *ntcrnd2r.zip*, you must first use PKUNZIP (c) version 2.04g or an equivalent to unzip the package. The files in this release of ntcrond are:

mfc30.dll   **(the MFC 3.0 release DLL)**
mfc30u.dll   **(the MFC 3.0 UNICODE release DLL)**
mscomstf.dll   **(setup.exe helper DLL)**
mscuistf.dll   **(setup.exe helper DLL)**
msdetstf.dll   **(setup.exe helper DLL)**
msinsstf.dll   **(setup.exe helper DLL)**
msshlstf.dll   **(setup.exe helper DLL)**
msuilstf.dll   **(setup.exe helper DLL)**
msvcrt20.dll   **(common MFC DLL)**
ntcrond2.exe   **(the cron service)**
ntctab2.exe   **(the administration tool)**
readme.wri   **(this file)**
setup.exe   **(the installation program)**
setup.inf   **(setup.exe helper file)**

IMPORTANT!
If you have a previous version of ntcrond installed, you should remove it from your services entry table by typing:

>   ntcrond -remove *(ntcrond version 1.x)*
>   OR
>   ntcrond2 -remove *(previous version of ntcrond version 2.0)*

This should stop the ntcrond service, and remove it from the services table.

We recommend that you extract the files into a working (read: *temporary*) directory.

Once you have verified that you have the correct files and de-installed any previous versions of ntcrond, simply run the **setup.exe** to install ntcrond/ntctab. The setup program will perform several tasks for you. First, it will copy the necessary files to a directory called "C:\EXTREME", although you may choose a different location if you wish. Some files will also be copied to your %SystemRoot%\System32 directory. If you have older versions of these files, they will be backed up. The setup program will then install the ntcrond service, and prepare all of the necessary registry entries. Finally, a new Program Manager group will be created, as well as two new icons -- one for this file, and another for the ntctab2 administration tool.

Congratulations, you now have a cron service for Windows NT, and are ready to begin scheduling tasks!

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5. Usage

The key to successfully using ntcrond, is the creation and management of "crontab" entries, or the command lines that ntcrond uses to run your scheduled tasks. To do this, you must use the companion

administration tool, **ntctab2.exe**.

When you start ntctab2 for the first time, you will be asked for a registration key. The shareware version of ntcrond/ntctab uses a pseudo-registration key of:

37284029382

This key is valid for all evaluation copies of ntcrond/ntctab. However the "remote administration" feature of ntcrond/ntctab will be disabled while this key is used. All other functions of ntcrond are enabled.

CASE IS IMPORTANT!!!! You will be asked for this key when you start ntctab2 for the first time, and each time you do a remove/install of the ntcrond2 service. Bear in mind that each time you "remove" the ntcrond service, you will have to re-type all of your ntcrond entries.

Each time you start ntctab, you will see a graphical list (tree) containing the list of valid accounts on your local machine. By double-clicking on each account entry, you can see the list of tasks associated with that account.

Since we've included all of the management tools in this graphical administration tool, you should never have a need to go back to the Control Panel again for task scheduling! ntctab2 provides everything that you should ever need to perform ntcrond administration.

* use the right mouse button as much as possible
* services may take a bit of time to start, stop, pause, et cetera -- give it about 10 seconds

To schedule a job for ntcrond, simply "right-click" on one of the accounts listed, and select "Create New Entry". You will be presented with a screen similar to:

Although the "new entry" screen is fairly self-explanatory, we'll go though some of the options. Starting with the "Task Runtime Options".

Task Runtime Options
The settings here allow you to "impersonate" a user, in order to run a task. For example, if you want all of your nightly backups to be done as the "Administrator" account, you could create a "new entry" from ANY user account, but impersonate the administrator by selecting this option. Of course, this requires that you know the administrator's password!! Although the practical use of this option is not immediately apparant, its purpose is two-fold. First, by using the "impersonate" option, it gives you the ability to validate account credentials with a "trusted domain" -- if you're using one. Secondly, it is the ONLY way that you can allow a task to be "network aware"; that is, establish network connections within a script.

For example, suppose you had a .cmd file that you wanted to schedule as a task, and it was as follows:

        crontest.cmd
        ----
        net use x: \\my_server\cdrive
        copy x:\some_report.txt c:\my_server_report.txt
        net use x: /d

This is a fairly straightforward approach to do "network aware" tasks. However, because of the NT Security Manager, without the "impersonate" option, you will be unable to access the "x:" drive (even though 'net use' will tell you that the command completed successfully). By the way, all passwords are encrypted in the registry.

In order to allow ntcrond scheduled tasks to interact with the desktop window, use the 'Allow Service to Interact with the Desktop' checkbox. Be warned however, that if you check this box, ANY task that is scheduled with ntcrond WILL BE DISPLAYED ON THE DESKTOP OF ANY USER THAT IS CURRENTLY LOGGED ON (at the console only -- not via network connection). So, if you're scheduling a "eyes-only" task to run, be careful.

If you do NOT check this box, ntcrond will run tasks as previous versions did -- independant of any desktop window, which raises the same issue of the previous versions. Namely; If you schedule a task with ntctab such as **notepad.exe** ntcrond will start a copy of notepad at every minute you specified for as long as your machine has available memory and swap space (we've tried it...). However, YOU WILL NEVER SEE IT ON YOUR SCREEN! So, as a warning, be VERY careful WHAT you allow ntcrond to run. Typically, anything that can be successfully run as a console process is OK to use with ntcrond. A good rule of thumb to follow is that any task that is "self-terminating" -- or will run their course, and then exit of their own accord -- are good candidates for ntcrond.

Command
This is simply the command string of the program that you want to execute at a specified time.

Priority
Although these are fairly self-explanatory, a word of warning is appropriate. Be VERY careful for any task that you schedule as "Real Time". When a task is real-time, it has almost complete control of the system. In general, the different priorities are as follows:

Real Time - The task has the highest possible priority. The threads of the process will preempt the threads of all other processes, including operating system processes.

High Priority - The threads of a high priority task will preempt the threads of other processes running at normal or idle priority. You should also be very careful when using this priority, as you could certainly cause CPU-starvation of other processes.

Normal Priority - No special priority

Idle Priority - Only run when the system is idle, and may be preempted by any other process. The example Microsoft uses is a screen saver.

IMPORTANT!!! - After changing anything in an entry, you MUST click the "Save Changes" button on the toolbar (or from the File menu) in order to notify the ntcrond service that you are ready to commit the changes that you have made. If you do NOT, these changes will not take effect!

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6. Known Bugs and Limitations

The following is a list of known bugs and problems in the current release of ntcrond.

Limitation:
Unable to do standard out (stdout) redirection from a crontab task entry (Command)

Workaround: If you need to do I/O (file or otherwise) redirection, simply encapsulate all of the commands into a .cmd file, and setup the crontab entry to call the .cmd file. For example:

>   A command of:
>   dir d:*.* > out.dat

>   will not work. Instead, create a .cmd file with this line, and run the .cmd.

>   DOIT.CMD
>   ========
>   dir d:*.* > out.dat

>   New Command:
>   doit.cmd

>   Also, see discussion below about ntcrond interaction with
>   the desktop window...

Limitation:
ntcrond does not appear to support user-level environment variables

Workaround:
By using the "impersonate" option for each task, you can gain access to that account's environment variables.

Limitation:
The "new shell" (Windows 95-like interface) distributed with the MSDN Level II CD causes ntcrond to choke and die!

Workaround:
C'mon!! The "new shell" is only a preview! The fact is, the shell does not handle UNICODE very gracefully, and since ntctab / ntcrond are both fully UNICODE, there are some problems. We will make every effort to ensure that when (if) Microsoft releases the "new shell" for NT, ntcrond/ntctab will work!

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7. Changes from Previous Versions

[Version 1.0 A1]
- First Beta Release

[Version 1.0 A2]
- Second Beta Release
- ntcrond now interacts with the desktop window if you so desire
- Fixed some VERY obscure memory leaks
- Implemented unicode messages that now appear correctly in Event Viewer
- Added additional semaphores and threading to improve performance
- Fixed a "service stop" error that caused problems on ntcrond stop
- Added "-trace" startup parameter to trace ALL ntcrond operations
 (be VERY careful with this as it can chew up memory pretty fast,
  and slow down your system...)

[Version 1.1]
- removed debugging information from binaries
- first official release

[Version 2.0]
- new release
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8. Legal Restrictions

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