

Migrating from Cron to Opswise Automation Center

The Downside of Cron

It seemed like a good idea at the time. It's free, it's embedded in the system, and standard across nearly all UNIX environments.

However, as the usage grew and spread across servers, and the requirements became much more sophisticated, the limitations of Cron began to show.

- Limited to local server, no cross-server dependencies
- Limited scheduling, no calendar management to adjust for holiday processing rules
- No conditional processing based on completion status
- No ability to connect tasks in a job flow sequence
- Limited notification framework
- Inability to redirect workload is server down or to load balance across servers

Then as processing environments continued to expand and more and more servers were rolling onto the floor, things got ugly...

- If a process needed to run on each server, you had to logon to that server and define the Crontab entry there.
- No central point of control. User would have to logon to individual servers to define cron and to verify work was actually done.
- No notifications, unless you included in a MAILTO line
- No auditability, no details on who defined the Cron.

These limitations have led many IT departments to seek a replacement for Cron, that could eliminate all the downside effects and provide a much more comprehensive solution that prevents the high level of errors that can be caused by such a limited solution.

This paper will look at the details of Cron, compared to the more advanced, enterprise-wide automation features of Opswise Automation Center.

Defining the Workload

When defining workload tasks on only a few servers, Cron was a good choice. But as the number of servers expanded, the cost of defining and maintain the Cron increased. It was no longer an efficient option and could not provide a centralized view.

Unless an expert at Cron, the scheduling definitions can quickly look like a mish-mash of numbers and special symbols, that cannot give you a clear picture of what to run, and when.

Format for entering crontabs:

Minute Hour Day Month Day Task

Minute = Minute of the hour, 00 to 59. * Will indicate every minute (details later)

Hour = Hour of the day in 24-hour format, 00 to 23. * Will indicate every hour (details later)

Day = Day of the month, 1 to 31. * Will indicate every day (details later)

Month = Month of the year, 1 to 12. * Will indicate every month (details later)

Day = Day of the week, 3 chars - sun, mon, tue, or numeric (0=sun, 1=mon etc).... * Will indicate every day (details later)

Task = The command you want to execute

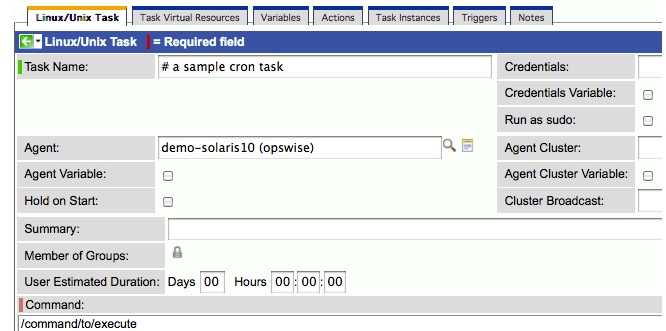
It was strongly advised to include an email line, so that any errors or output could be sent back and addressed.

[MAILTO=cron@username.plus.com](mailto=cron@username.plus.com)

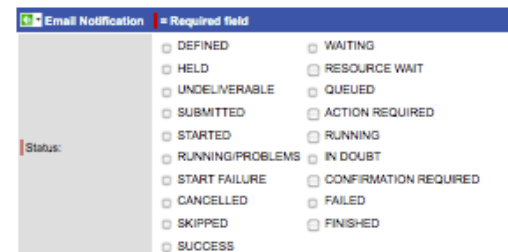
To schedule a crontab to execute at 6pm every night, you would enter the following:

```
00 18 * * * /command/to/execute
```

To schedule this work in Opswise, you would define a task, simply indicating **what** command to execute, and **where** to execute it.



Using the ACTIONS tab you could setup email on specific conditions, and include the Standard output and Standard error in the email. You could also automatically attach a file.



Notification could be emailed if the task started or ended late, even if it ended too early! You could also specify the email to be sent based on certain exit codes.

The **when**, or the start time would be defined in the Trigger tab in your task definition. A trigger could be time-based, file-based, or application based.

At this point, you might be thinking, cron seems like the easier way to go... but what if...

You did not want to run this task on a holiday?

You could simply add a restriction on the trigger in Opswise Automation Center

You CAN'T DO THIS in cron!

You needed to abort the task if it got an exit code of 12?

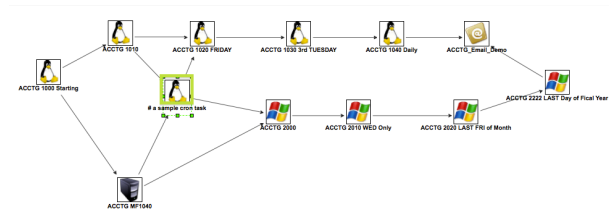
You have the ability to define actions to take based on exit codes

You CAN'T DO THIS in cron!

Maybe you want to set a variable or send an SNMP trap to open a problem ticket...

You CAN'T DO THAT in cron!

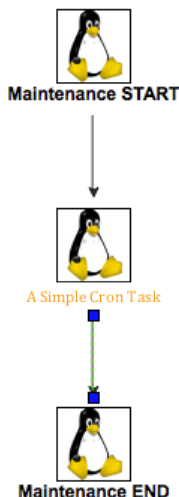
What if the task had dependencies on other tasks on the same server...or different platforms and servers?



You CAN'T DO THAT in cron!

What if the task needed to run on every server in your installation?

With Opswise Automation Center you could just define one task, even within a workflow... and it will execute that same task on every server defined in the cluster.



You CAN'T DO THAT in cron!

Or in any other automation product for that matter!

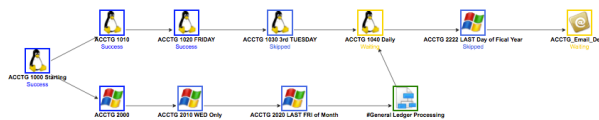
Adding Visibility

Visibility to tasks executed by Cron require the user to log on to each server and display the crontab output, or rely on the emails that were coded, if they were coded.

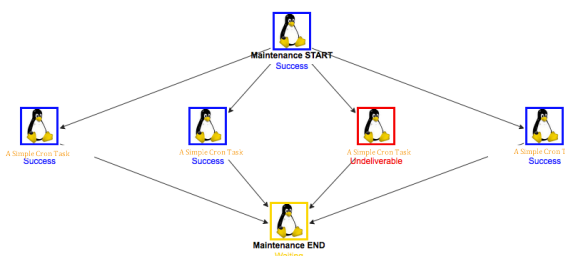
In Opswise, you can define activity screens or dashboards that will show you precisely the status of all workload activity across the enterprise.

Instance Name	Type	Status	Start Time
ACCTG 1010	Linux/Unix	Success	2011-08-05 11:
ACCTG 1000 Starting	Linux/Unix	Success	2011-08-05 11:
ACCTG 1020 FRIDAY	Linux/Unix	Success	2011-08-05 11:
ACCTG 1030 3rd TUESDAY	Linux/Unix	Skipped	
ACCTG 1040 Daily	Linux/Unix	Waiting	
ACCTG 2000	Windows	Success	2011-08-05 11:
ACCTG 2010 WED Only	Windows	Skipped	
ACCTG 2020 LAST FRI of Month	Windows	Skipped	
ACCTG_Email_Demo	Email	Waiting	
ACCTG 2222 LAST Day of Fical Year	Windows	Skipped	
GENLGR 4005	Linux/Unix	Waiting	
GENLGR Start of Processing	Windows	Success	2011-08-05 11:
GENLGR Accruals	Windows	Success	2011-08-05 11:
GENLGR Chargebacks	Windows	Waiting	
GENLGR Adjustments	Windows	Waiting	
GENLGR 1000	Linux/Unix	Running	2011-08-05 11:

Unlike Cron, Opswise allows you to group related tasks into logical business workflows. This visually defines the relationship between all tasks within the workflow, regardless of their operating system, server, or even their run frequency, into a single cohesive definition.



Opswise can also include FTP file transfers across the enterprise, giving you the ability to manage the input files and the output files to ensure accuracy and delivery.



Auditing the Workload

This is another area that prompts companies to move away from Cron.

Their environments have become too large and complex to maintain control of **whom** is doing what processing, **where** they are doing it, and **why** they do it.

Many customers have lost the security and auditability and with today's penalties reaching IT managers where it hurts, this is becoming a more pressing issue that must be resolved.

Opwise Automation Center provides excellent audit tools, including Audit reports which shows managers exactly **who** changed **what** and **when**.

Audit Records		Go to	Audit Date	Created by	Description
	Create		2011-08-04 16:25:33 -0400	jnorris	Create: TimeTrigge
	Create		2011-08-04 15:32:17 -0400	jnorris	Create: TaskUnixB

You can even drill down to get detailed information on exactly what changes were made.

Summary: Transitioning from Opwise to Cron

Opwise Automation Center is a third generation automation tool, entirely web-based, and designed for more than just workload automation.

The user interface is a full functioning entirely web-based application, with no archaic scheduling techniques to understand to be able to simply design, test, and execute a workload process using any web-enabled device.

Using the powerful variable substitution techniques, users can design a generic form of a workflow, migrate that workflow throughout the application lifecycle, and put it into production without making any changes to the definition along the way, eliminating the risk of introducing errors.

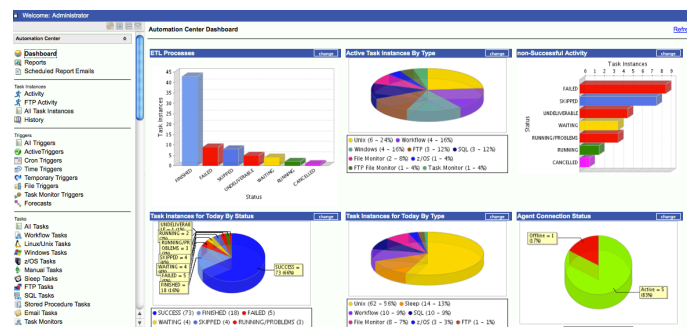
Business-initiated triggers are included in the base software product

and the agents, and are easy to implement, without requiring the use of Professional Services personnel.

Instead of relying on Cron's date and time, file triggers can be leveraged and also may include the contents of the file as well as changes in the file size.

Triggers can be initiated based on SOA processes like MQ Series, HTTP objects, etc.

What if you could manage all your workload processing and display exceptional information in a high-level dashboard view?



Wouldn't you rather trust your automation to a solution that:

- Is Auditable and Secure
- 100% web-based
- Provides complete Visibility, Accessibility, and Manageability of workload
- Provides cross-server, application, and operating system dependencies
- Has Flexible triggering mechanisms
- Manages file transfers
- Enables centralized notification

Conclusion

When your IT infrastructure was small, Cron was a great way to get started.

As complexity increases across operating systems, applications, virtual servers and into the cloud, bringing in a new breed of management tool will enable growing organizations to get a handle on the management of business data.

Let's recap the areas, which Opswise Automation Center provides superior capabilities compared to Cron.

Technical Challenge	Using Opswise
No ability to link tasks together in a workflow	Tasks of varying types can be connected graphically using a drag-n-drop, fill-in-the-blank interface.
No ability to act upon exit codes	Various actions can be taken upon exit code information
No holiday processing alterations	Easily adjust scheduling around holiday processing requirements
No auditability	Extensive audit information showing what actions were taken and specifically WHAT was changed.
No visibility without individual server logon	Customizable activity screens and graphical dashboards displaying the activity across the enterprise.
Limited to individual server time zone	Full Time zone Support
Limited to execute cron on individual server	Command can be "broadcast" to every server defined within the cluster, using a single task definition

Let me leave you with the following questions...

- Do you know where all the Crontab entries even exist in your UNIX/Linux network and who has the access to define and control actions?
- How much energy daily is being spent, by your staff, to check on the status of jobs scheduled by Cron?
- Could their time be better spent working on more productive activities to support and service the business?
- Are you willing to take the audit risk by continuing to use un-auditable methods, like cron, to process tasks?

Getting started with Opswise is simple. You will see the improvements in the visibility of your workload and the ability to reduce errors very quickly. We provide a free 45-day trial with video tutorials to get you started.

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