

Introduction

Keeping up with software patches is a constant challenge for IT departments. With the growing number of vulnerabilities and increased sophistication of attacks, it is more important than ever to ensure that servers have the most up to date security patches applied.

Finding a suitable time for an outage so patches can be applied is one thing, but what do you patch first? How do you determine the dependencies between servers and the applications that reside on them? That's where a CMDB with accurate relationship links pays dividends.

The SupaCMDB server patching extension provides the ability to configure the dependencies between your servers, and set a patching schedule so that you can efficiently manage the rotation of your server patches and minimise risk. SupaCMDB generates a Request for Change (RFC) using the patching schedule that you define, so you have a clear forward schedule of when patching will take place, and automatically takes care of server dependencies to ensure patching occurs in the correct order.

Device Settings

Each Device has a number of patch settings that control the automatic scheduling as described below.

Details
Patching Schedule
Hardware
Networking

Depends on Server: Set... Edit Clear +

Patching Enabled: Patch Week: Patch Day: Patch Hour:

Last Patch Date: Next Patch Date:

Patch Status:

Depends on Server	The other Device(s) that this server depends on. Dependent servers must be patched prior to this server. Any alteration to the Next Patch Date will automatically recalculate the Next Patch Date of dependent servers.
Patching Enabled	Must be set to Y in order for the Device to be included in the patching rotation, otherwise will be ignored.
Patch Week	An optional week (1-4) that patching must occur in. Set to zero if patching can occur any week of the month. This provides the ability to spread the volume of patching throughout the month.
Patch Day	A day of the week (Monday – Sunday) that patching for this Device may occur.



Patch Hour	The start time in 24-hr format that patching may commence on the Patch Day.
Last Patch Date	Set automatically by the system upon successful completion of the patching Task
Next Patch Date	<p>Set automatically by the system when any of the following events occur:</p> <ul style="list-style-type: none"> - Patching completed successfully (Task completed) - Patching unsuccessful or device unlinked from patching change request. - Patch settings manually altered by administrator <p>Note: any manual change of Next Patch Date will also impact the Next Patch Date of any dependent servers.</p>
Patch Status	<p>Set automatically by the system as follows:</p> <ul style="list-style-type: none"> - "Pending" : Device is awaiting next patching event - "Scheduled" : Device has been linked to an open Patching RfC - "Cancelled" : Device was previously "Scheduled" but has been removed from the RfC, either because it could not be patched or patching failed. <p>Status changed occur as follows:</p> <p>"Pending" >> "Scheduled" : RfC created and Device linked "Scheduled" >> "Pending" : Successful patching "Scheduled" >> "Cancelled" : Unsuccessful patching "Cancelled" >> "Scheduled" : RfC created and Device linked (re-attempt)</p>

The automation of your patch dates in SupaCmdb means it's very easy to extract a forward patching schedule, plus the Patch Status enables you to extract a list of servers that were not able to be patched in the last run so they can be reviewed and dealt with.

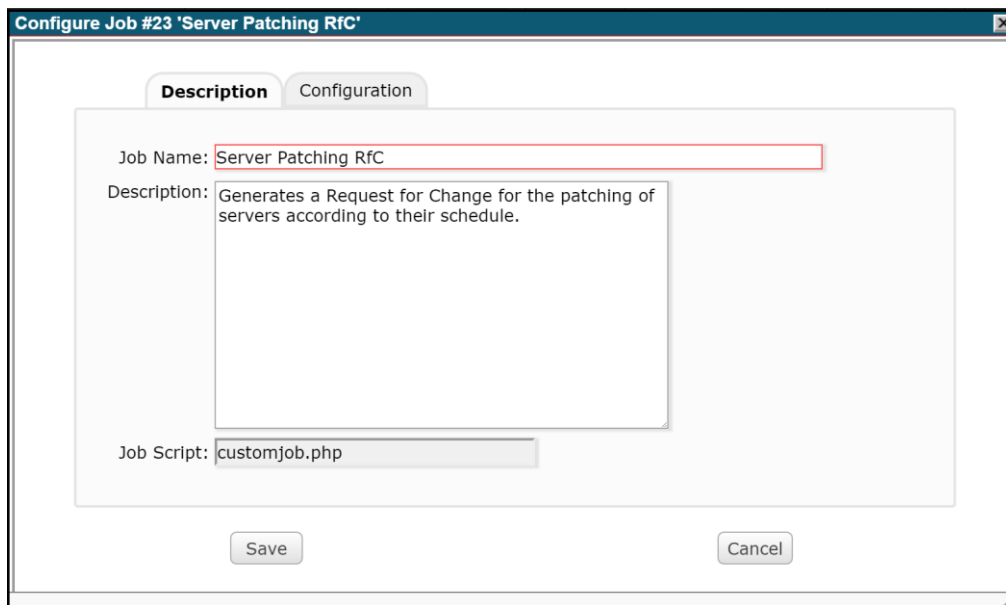
X	Name	Designation	Depends on Server	Patch Day	Patch Hour	Patch Week	Last Patched Date	Next Patch Date	Patch Status	Action
<input type="checkbox"/>	#PDQDEPLOYT1	Production	-	Tuesday	21:00	1	Tue, 20 Dec 2016 00:00	Tue, 7 Feb 2017 21:00	Pending	Edit
<input type="checkbox"/>	#EXPDEVPOLL1	Development	-	Sunday	21:00	2	Tue, 20 Dec 2016 00:00	Sun, 12 Feb 2017 21:00	Scheduled	Edit
<input type="checkbox"/>	#EXPNETBRAIN1	Production	-	Sunday	21:00	2	Tue, 20 Dec 2016 00:00	Sun, 12 Feb 2017 21:00	Scheduled	Edit
<input type="checkbox"/>	#EXPFAQ1	Production	-	Sunday	21:00	3	Tue, 20 Dec 2016 00:00	Sun, 19 Feb 2017 21:00	Pending	Edit
<input type="checkbox"/>	#EXPDEVTS1	Development	-	Tuesday	21:00	3	Tue, 20 Dec 2016 00:00	Tue, 21 Feb 2017 21:00	Pending	Edit
<input type="checkbox"/>	#EXPTLBVM020	Production	-	Sunday	21:00	4	Tue, 20 Dec 2016 00:00	Sun, 26 Feb 2017 21:00	Pending	Edit
<input type="checkbox"/>	#EXPMSP1	Production	-	Tuesday	21:00	4	Tue, 20 Dec 2016 00:00	Tue, 28 Feb 2017 21:00	Pending	Edit
<input type="checkbox"/>	#EXPNSUTL2	Production	-	Tuesday	21:00	4	Tue, 20 Dec 2016 00:00	Tue, 28 Feb 2017 21:00	Pending	Edit
<input type="checkbox"/>	#EXPALLRDS1	Production	#EXPDEVTS1	Sunday	21:00	1	Tue, 20 Dec 2016 00:00	Sun, 5 Mar 2017 21:00	Pending	Edit
<input type="checkbox"/>	#EXPJAT1	UAT	#EXPDEVPOLL1	Saturday	21:00	2	Tue, 20 Dec 2016 00:00	Sat, 11 Mar 2017 21:00	Pending	Edit
<input type="checkbox"/>	#EXPBUT3	Production	#EXPJAT1	Tuesday	21:00	2	Tue, 20 Dec 2016 00:00	Tue, 11 Apr 2017 21:00	Pending	Edit

Patching Request for Change (RfC)

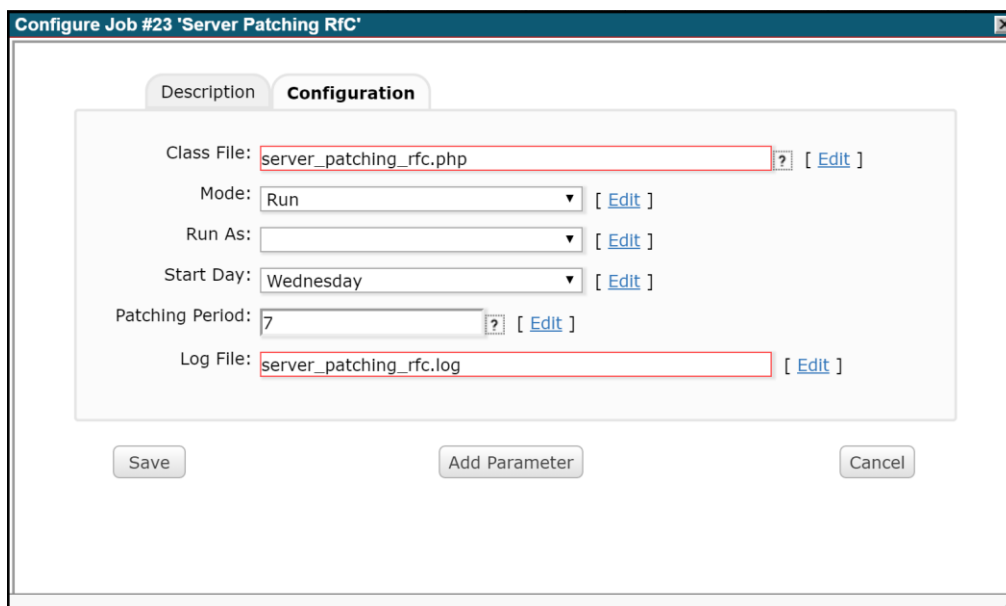
The Patching RfC is generated automatically by the “Server Patching RfC” Job under Tools & Utils > Job Manager.

This job uses the T-SERVER-PATCHING Change Template to create the RfC. The Template provides the form and approval workflow needed for the patching process.

The settings for the Server Patching RfC job follow:



The screenshot shows the 'Configure Job #23 Server Patching RfC' dialog box with the 'Description' tab selected. The 'Job Name' field contains 'Server Patching RfC'. The 'Description' field contains the text: 'Generates a Request for Change for the patching of servers according to their schedule.' The 'Job Script' field contains 'customjob.php'. There are 'Save' and 'Cancel' buttons at the bottom.



The screenshot shows the 'Configure Job #23 Server Patching RfC' dialog box with the 'Configuration' tab selected. The 'Class File' field contains 'server_patching_rfc.php'. The 'Mode' dropdown is set to 'Run'. The 'Run As' dropdown is empty. The 'Start Day' dropdown is set to 'Wednesday'. The 'Patching Period' field contains '7'. The 'Log File' field contains 'server_patching_rfc.log'. There are 'Save', 'Add Parameter', and 'Cancel' buttons at the bottom.

The patching job can be run in either **Init** or **Run** mode. Init mode is used to initialise the patching Next Patch Date for all enabled servers, and would typically be run once at setup time.

In Run mode, the job generates the RfC and creates a Task for each Server whose Next Patch Date is between the next **Start Day** and calculated end day according to the **Patching Period**.

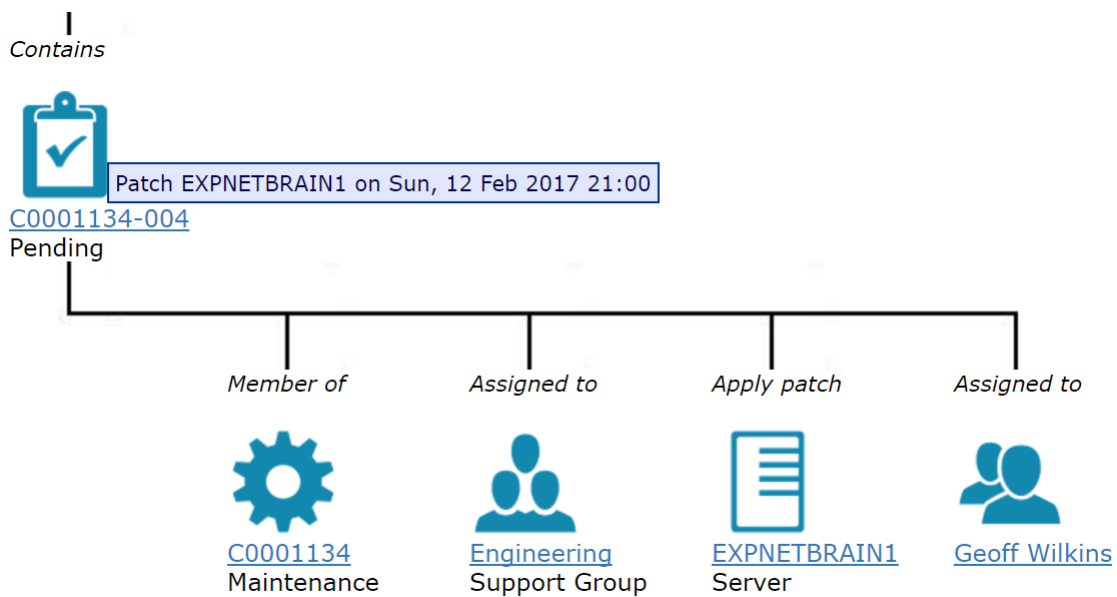
Notes * **Tasks** Forms E-mails Devices * Documents

Summary Notes Type: Show closed

Tasks 1 - 3 of 3

Task No	Due Date	Title	Assigned Group	Assigned Person	Status	Closed	Action
C0001134-002	Fri, 10 Feb 2017 18:02	PLEASE REVIEW: Weekly patching 02/07/2017 - 02/14/2017	-	Geoff Wilkins	New	N	Edit
C0001134-003	Sun, 12 Feb 2017 21:00	Patch EXPDEVOLL1 on Sun, 12 Feb 2017 21:00	Engineering	Geoff Wilkins	Waiting on status 'Approved'	N	Edit
C0001134-004	Sun, 12 Feb 2017 21:00	Patch EXPNETBRAIN1 on Sun, 12 Feb 2017 21:00	Engineering	Geoff Wilkins	Waiting on status 'Approved'	N	Edit

The Device Patch Status is set to “Scheduled” for all Servers that are linked to the patching RfC, and a Task generated for each Server. The relationships for a patching Task can be seen below:



Patching Tasks are not released until the RfC has been reviewed and approved. A server can be unlinked from the RfC at any time which results in the associated Task record being deleted from the RfC. The unlinked Device Patch Status will be set to “Cancelled” and the Next Patch Date incremented by the **Patching Period** (e.g. 7 days)

A Server can be unlinked from the patching RfC at any time, by clicking on the “Unlink” option beneath the Devices tab of the Change.

Notes * **Tasks** * Forms E-mails **Devices** Documents

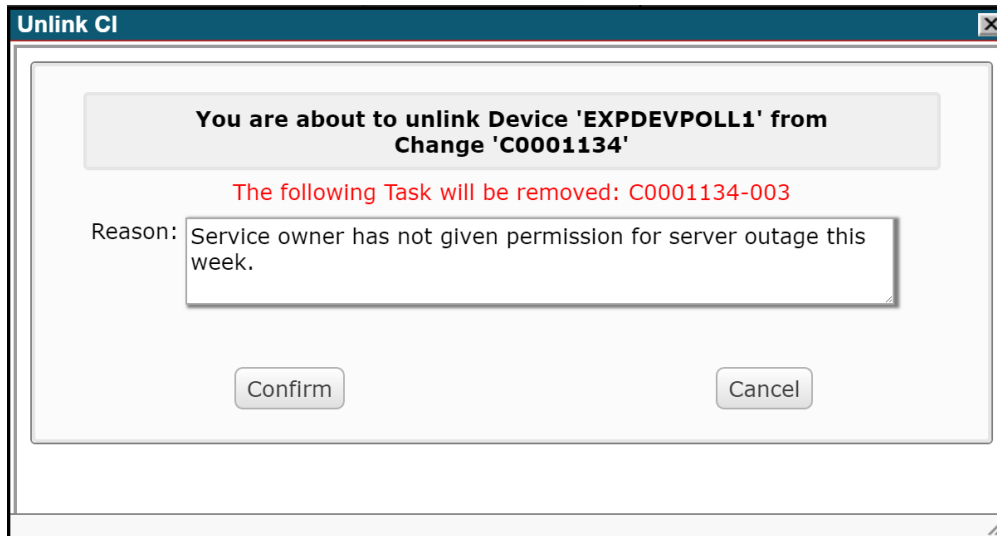
Devices 1 - 2 of 2 [[Bulk Update](#)]

Relationship	Name	Description	Make	Model	Type	Status	Modified Date	Action
Apply patch	EXPDEVOLL1	-	-	-	Server	In Service	-	Unlink
Apply patch	EXPNETBRAIN1	-	-	-	Server	In Service	-	Unlink

[[Bulk Update](#)]

[New Link](#) [Unlink All](#)

A reason for unlinking the Server can be captured. This will be written as a note against the Server and the Change request.



Successful patching of a Server is recorded by the engineer completing the associated Task for that server. Completing the patching Task will:

- Set the Last Patch Date of the Server
- Change the Patch Status from “Scheduled” to “Pending”
- Recalculate the Next Patch Date for the next patch run

The patching RfC can also capture the patches that were applied, along with any notes about testing outcomes. Patching data can be included on Dashboard to show the success/fail rate of patches, and the forward schedule of future patching.

The same mechanism can be implemented for other CI types, such as Software Products and Datastores, where frequent patching is also an important consideration.

In summary, the SupaCMDB patching extension can dramatically reduce risk and introduce efficiency in your patch management process.