

## State of Ohio Private Cloud

### Installing Patches on Windows, Linux and UNIX Servers



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# Installing Patches on Windows, Linux and UNIX Servers

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# Installing Patches on Windows, Linux and UNIX Servers

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## 1 Patch Management: Installing Patches on Windows, Linux and UNIX Servers

The procedures in this document cover installing patches on Windows, UNIX, and Linux servers.

### 1.1 Action or Event that Requires the Procedure

The Patch Management procedures are implemented when patches are released for the operating systems used by Ohio DAS. The operating systems used are Windows, UNIX, and Linux.

Patches are released by vendors on the following schedule:

- **For Windows:** Microsoft releases patches on the second Tuesday of the month. Advanced notice at a high level is released on the Friday before second Tuesday of the month.
- **For UNIX:** Vendor releases Technology Level (TL) updates as needed.
- **For Linux:** Vendor releases Technology Level (TL) updates as needed.

This document includes the following procedures:

- Installing Patches on Windows and Linux Servers
- Installing Patches on UNIX Servers

### 1.2 Goals of the Procedures

The goals of the procedures are to:

- Alert all service lines and customers about patches that become available and are applicable to the environment.
- Gain agreement to install the patches.
- Install the patches.
- Verify that the patches were installed correctly without incident.

Success is defined as:

- Installing patches as required on a regular basis for the different operating systems
- Installing patches without disruption to the various systems and without impact to security requirements

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## **1.3 Roles that Participate in the Procedures**

The Technical Team, System Admins, and Server Owners participate in the procedures in this document. The Technical Team can consist of representatives from Network, Security, Database, Shared Hosting, and other areas as required.

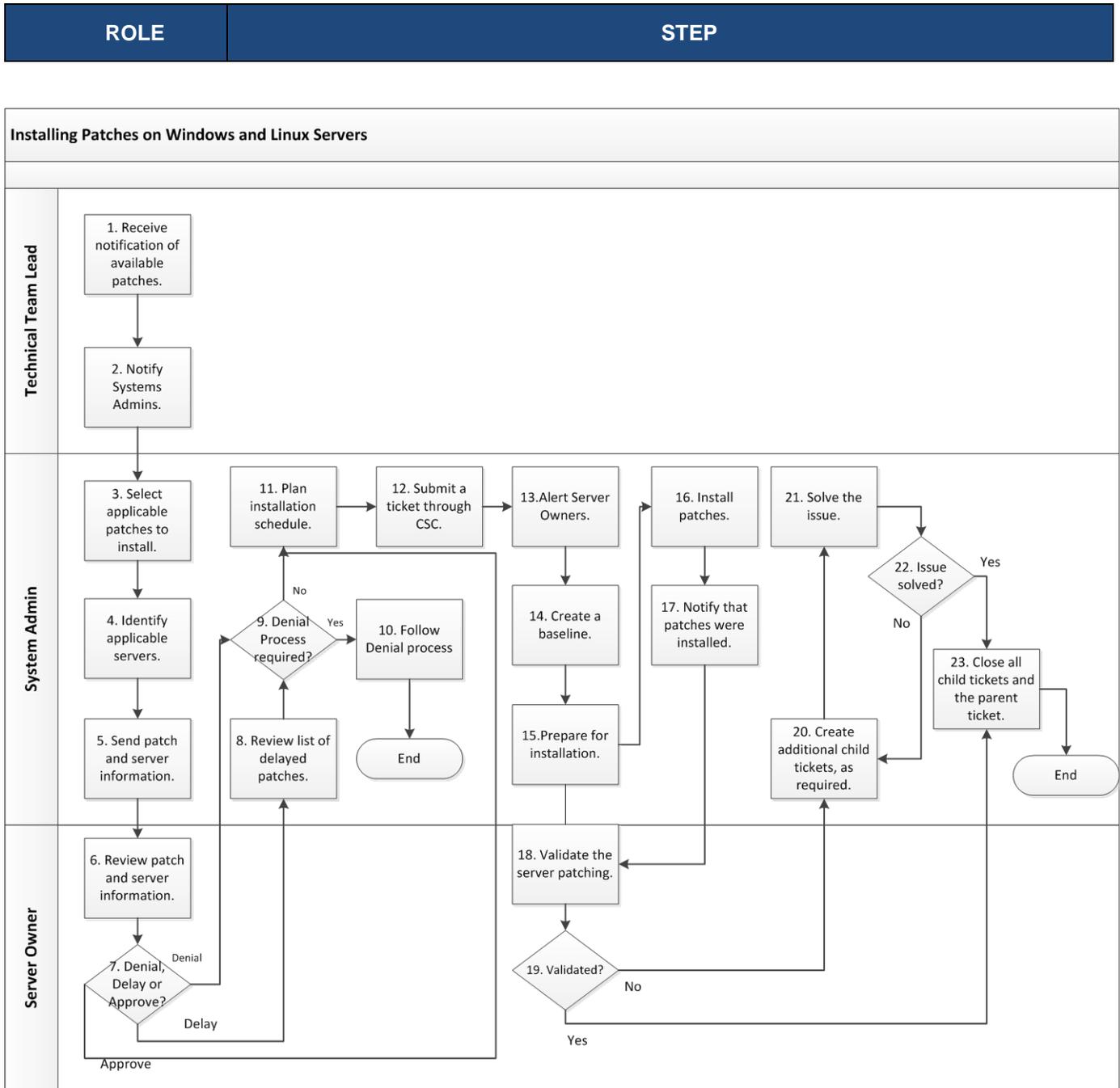
## **2 Windows and Linux: Procedure Flow and Narrative**

### **2.1 Installing Patches on Windows and Linux Servers**

# Installing Patches on Windows, Linux and UNIX Servers

The following illustrates the interactions between OIT personnel installing patches on Windows servers.

## 2.2 Installing Patches on Windows and Linux Servers Narrative



## Installing Patches on Windows, Linux and UNIX Servers

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<b>Technical Team Lead</b>	1. Receive notification of available patches.  <b>For Windows:</b> Microsoft releases Windows patches on the second Tuesday of the month. Advanced notice at a high level is released on the Friday before.  <b>For Linux:</b> Vendor releases patches as needed.
	2. Notify System Administrators.  Send patch information to the System Admins so they can complete planning for installing patches.
<b>System Admin</b>	3. Select applicable patches to install.  Review information about the patches and apply security guidelines to ensure mandatory patches are selected for installation.
	4. Identify applicable servers.  Assess the impact of all patches to be installed. Review the patches to determine which servers are impacted.
	5. Send patch and server information.  Server Owners can review the information to approve or delay particular patches on particular servers.
<b>Server Owner</b>	6. Review patch and server information.  Review the patch information and the impacted servers. Consider impacts of both delaying and installing patches.
<b>ROLE</b>	<b>STEP</b>

## Installing Patches on Windows, Linux and UNIX Servers

	<p>7. Approve or delay?</p> <p>The Server Owner may approve or delay installation of a particular server being updated with patches.</p> <p>Send via email the approval and delay decisions to the System Admin.</p> <p><b>Note:</b> System Admins consider a non-response from the Server Owner to the patching notification as <b>approval</b> to install patches.</p> <ol style="list-style-type: none"> <li>a. Approve, go to step 10.</li> <li>b. Non-response, go to step 10.</li> <li>c. Delay, go to step 8.</li> <li>d. Denied, go to step: 9.</li> </ol>
<b>System Admin</b>	<p>8. Review list of delayed patches.</p> <p>Review to determine agreement with the delayed patches. If a selected patch is not to be delayed as requested by the Server Owner, inform the Server Owner.</p>
	<p>9. Denial process required?</p> <p>If the patch request has been denied, then follow the Denial process by proceeding to step 10. If not proceed to step 11.</p>
	<p>10. Follow Denial process</p> <p>If agency denies applying patches / updates, then refer them to OISP / Security team and follow 'exception process'</p> <p><b>Note:</b> While OISP team follows exception process, there might be need to follow IBM CIRATs process, as applicable.</p>
	<p>11. Plan installation schedule.</p> <p>Review maintenance windows. Installing patches must be completed around the maintenance windows of the impacted servers.</p>
<b>ROLE</b>	<b>STEP</b>

## Installing Patches on Windows, Linux and UNIX Servers

	<p>12. Submit a ticket through Customer Service Center (CSC).</p> <p>Submit an After Hours Change ticket through the Customer Service Center to apply the selected patches. Patch installation is completed overnight.</p> <p><b>Note:</b> The <b>After Hours</b> checkbox on the ticket form must be selected.</p> <p>Selecting the <b>After Hours</b> checkbox sets up the After Hours Change report. The automatically generated report notifies System Admins about the overnight installation of patches.</p> <p><b>Note:</b> Work cannot begin until the After Hours Change ticket is submitted through the Customer Service Center (CSC).</p>
	<p>13. Alert Server Owners.</p> <p>Notify Server Owners (customers) via email on the day before their server's maintenance window that patches will be installed.</p> <p><b>Note:</b> The notification must include the server impacted and the patch to be installed.</p>
	<p>14. Create a baseline.</p> <p>This step identifies on which servers to apply the patches. The action is completed in IBM Endpoint Manager (IEM).</p>
	<p>15. Prepare for installation.</p> <p>The patches to be installed are selected through IEM Console.</p>
	<p>16. Install patches.</p> <p>IEM installs the selected patches on the selected servers overnight.</p>
	<p>17. Notify that patches were installed.</p> <p>Inform Server Owners that the patches were installed as scheduled on their servers.</p>
<b>Server Owner</b>	<p>18. Validate the server patching.</p> <p>Validation includes confirming that:</p> <ul style="list-style-type: none"> <li>• Patch installation was successful.</li> <li>• No unexpected impacts occurred.</li> </ul>
<b>ROLE</b>	<b>STEP</b>

## Installing Patches on Windows, Linux and UNIX Servers

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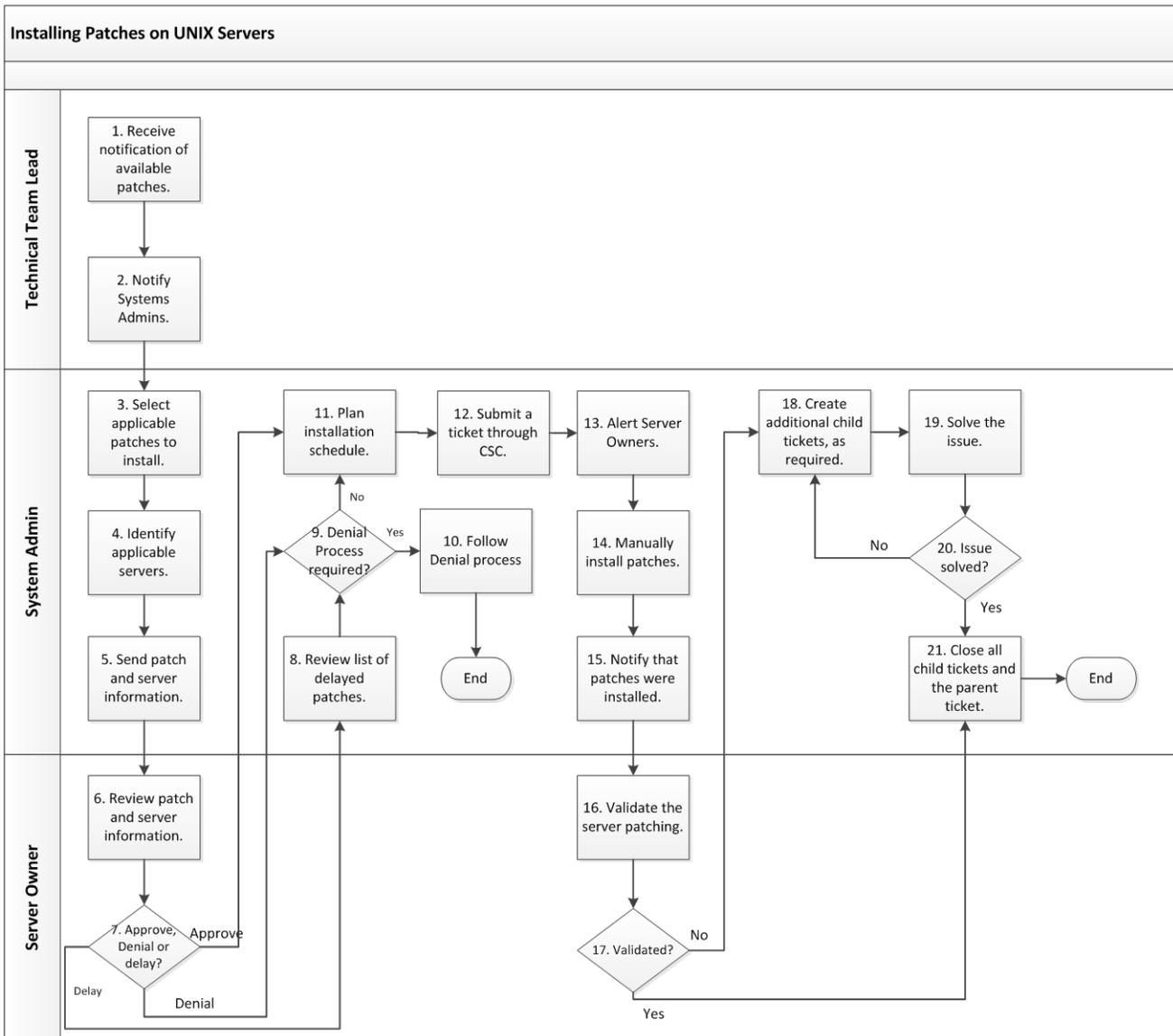
	19.
	<p>20. Validated?</p> <ul style="list-style-type: none"> <li>a. No, go to step 18.</li> <li>• Yes, go to step 21.</li> </ul>
<b>System Admin</b>	<p>21. Create additional child tickets as required.</p> <p>Additional child tickets are submitted to engage the appropriate support teams.</p>
	22. Solve the issue.
	<p>23. Issue solved?</p> <ul style="list-style-type: none"> <li>a. No, go to step 16.</li> <li>b. Yes, go to step 21.</li> </ul>
	24. Close all child tickets and the parent ticket.

# Installing Patches on Windows, Linux and UNIX Servers

## 3 UNIX: Procedure Flow and Narrative

### 3.1 Installing Patches on UNIX Servers

The following flow illustrates the interactions between OIT personnel to install patches on UNIX servers.



## Installing Patches on Windows, Linux and UNIX Servers

### 3.2 Installing Patches on UNIX Servers Narrative

The following table describes the steps for installing patches on UNIX Servers.

ROLE	STEP
<b>Technical Team Lead</b>	1. Receive notification of available patches. Vendor releases TL updates as needed.
	2. Notify System Admins. Send patch information to the System Admins so they can complete planning for installing patches.
<b>System Admin</b>	3. Select applicable patches to install. Review information about the patches and apply security guidelines to ensure mandatory patches are selected for installation.
	4. Identify applicable servers. Assess the impact of all patches to be installed. Review the patches to determine which servers are impacted.
	5. Send patch and server information. Send patch information to the Server Owners so they can approve or delay particular patches on particular servers.
<b>Server Owner</b>	6. Review patch and server information. Review the patch information and the impacted servers. Consider impacts of both delaying and installing patches.
	7. Approve or delay? The Server Owner may approve or delay a particular server being updated with patches. <b>Note:</b> System Admins consider a non-response from the Server Owner to the patching notification as <b>approval</b> to install patches. a. Approve, go to step 10. b. Non-response, go to step 10. c. Delay, go to step 8. d. Denied, go to step: 9.
<b>System Admin</b>	8. Review list of delayed patches. Review to determine agreement with the delayed patches. If a selected patch is not to be delayed as requested by the Server Owner, inform the Server Owner.

## Installing Patches on Windows, Linux and UNIX Servers

ROLE	STEP
	<p>9. Denial process required?</p> <p>If the patch request has been denied, then follow the Denial process by proceeding to step 10. If not proceed to step 11.</p>
	<p>10. Follow Denial process</p> <p>If agency denies applying patches / updates, then refer them to OISP / Security team and follow 'exception process'</p> <p><b>Note:</b> While OISP team follows exception process, there might be need to follow IBM CIRATs process, as applicable.</p>
	<p>11. Plan installation schedule.</p> <p>Review maintenance windows. Installing patches must be completed around the maintenance windows of the impacted servers.</p>
	<p>12. Submit a ticket through Customer Service Center (CSC).</p> <p>Submit an After Hours Change ticket through the Customer Service Center to apply the selected patches. Patch installation is completed manually overnight.</p> <p><b>Note:</b> The <b>After Hours</b> checkbox on the ticket form must be selected.</p> <p>Selecting the <b>After Hours</b> checkbox sets up the After Hours Change report. The automatically generated report notifies System Admins about the overnight installation of patches.</p> <p><b>Note:</b> Work cannot begin until the After Hours Change ticket is submitted through the Customer Service Center (Customer Service Center (CSC)).</p>
	<p>13. Alert Server Owners.</p> <p>Notify Server Owners (customers) via email on the day before their server's maintenance window that patches will be installed.</p> <p><b>Note:</b> The notification must include the server impacted and the patch to be installed.</p>
	<p>14. Manually install patches.</p> <p>The selected patches are installed manually on the selected servers.</p>
	<p>15. Notify that patches were installed.</p> <p>Inform Server Owners that the patches were installed as scheduled on their servers.</p>
<p><b>Server Owner</b></p>	<p>16. Validate the server patching.</p> <p>Validation includes confirming that:</p> <ul style="list-style-type: none"> <li>• Patch installation was successful.</li> <li>• No unexpected impacts occurred.</li> </ul>

## Installing Patches on Windows, Linux and UNIX Servers

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ROLE	STEP
	17. Validated? a. No, go to step 16. b. Yes, go to step 19.
<b>System Admin</b>	18. Create additional child tickets as required. Additional child tickets are submitted to engage the appropriate support teams.
	19. Solve the issue.
	20. Issue solved? a. No, go to step 16. b. Yes, go to step 19.
	21. Close all child tickets and the parent ticket.