

Remediate software licensing

Lab 4.6

20-25 minute

Lab objectives

You will achieve the following objectives:

- Adobe Systems Acrobat DC Professional is reconciled
- Purchase Order created for additional licenses of Citrix Systems XenApp Enterprise to become compliant

Lab Dependency: *Requires the completion of Labs 1.1,2.1, 3.2, 3.3 and 4.4*

Required Resources: *None*

Scenario

Remediation actions are automatically generated for Software Model Results when software is reconciled. Rick Lemm, Software Asset Manager at Cloud Dimensions, Ltd. (CloudD), needs to improve their software compliance position by remediating licensing issues identified during reconciliation.

Requirements Summary

User Stories

- STRY040601 – Eliminate non-compliant reconciliation results

As a software asset manager, I need to remediate reconciliation issues, so that I can improve my compliance position.

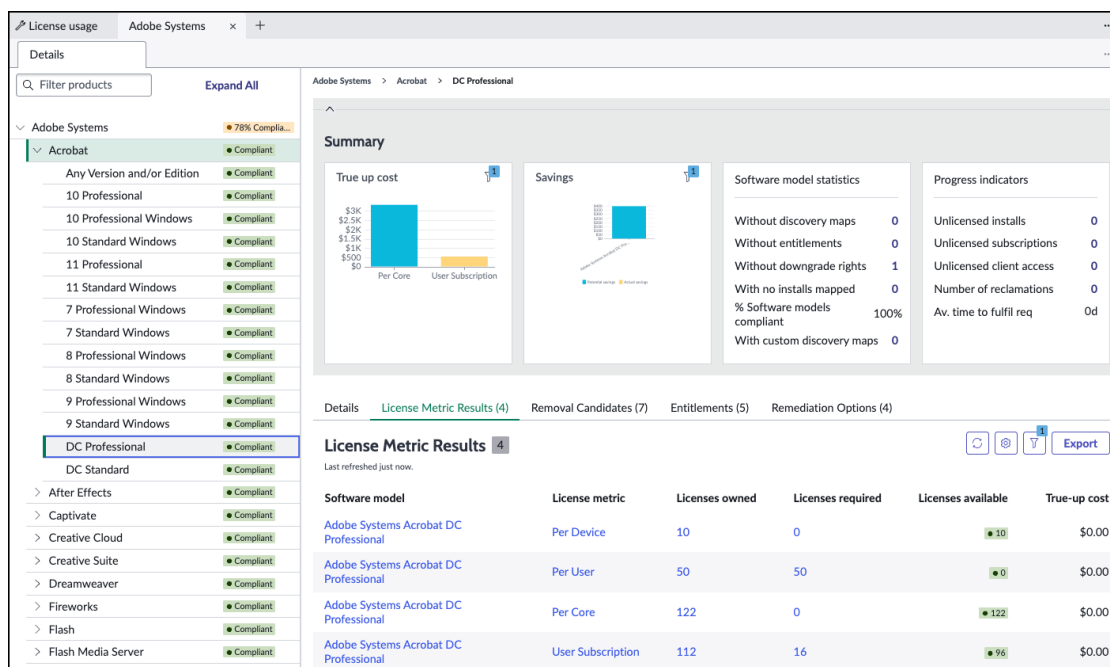
STRY040601 – Eliminate non-compliant reconciliation results

Section 1 Remove allocations

Allocations identify who or what should have installations of software. Allocations are useful in tracking where licenses are being consumed and how often. Rick wants to analyze his compliance for Adobe Acrobat Professional DC.



1. If not already, impersonate **Rick Lemm**.
2. Run a reconciliation for **Adobe Systems**.
3. Navigate to **Software Asset Workspace > License usage** then click on the **Publishers** tab.
4. Open the product result for **Adobe Systems Acrobat DC Professional** and observe the results.



Note: Your values may differ slightly from the screenshot above depending on when you run the lab. The important thing is that you learn how to resolve the reconciliation issues.

5. View **Remediation Options**.

The screenshot shows the Adobe Systems license usage dashboard. On the left, a sidebar lists various Adobe products and their compliance status. The main area displays a 'Summary' section with charts for 'True up cost' and 'Savings', and a table for 'Software model statistics'. Below this, the 'Remediation Options' tab is selected, showing a table of available actions.

Remediation action	Status	Affects compliance	Display name	Actionable rights	True-up cost
Create Allocations	New	false	Per User	50	\$0.00
Create Allocations	New	false	User Subscription	15	\$0.00
Remove Unallocated Installs	New	false	Per User	50	\$0.00
Remove Allocations	New	false	User Subscription	1	\$0.00

6. Make a note of the status of each available remediation option.

7. Since the allocated rights are not being used, click **Remove Allocations** to take back the rights.

8. Click **Remove All Allocations**.

The screenshot shows the 'User Subscription' Remediation Option details page. It includes a 'Remove All Allocations' button in the top right corner. The page displays details for the 'Remove Allocations' action, including its status, whether it affects compliance, the license metric, and the software model result.

Remediation Option	Status
Remove Allocations	New

License metric	Actionable rights
User Subscription	1

Knowledge Check: Refer to the Answer Guide at lab's end.

1. What happened to the statuses of the available Remediation Options?

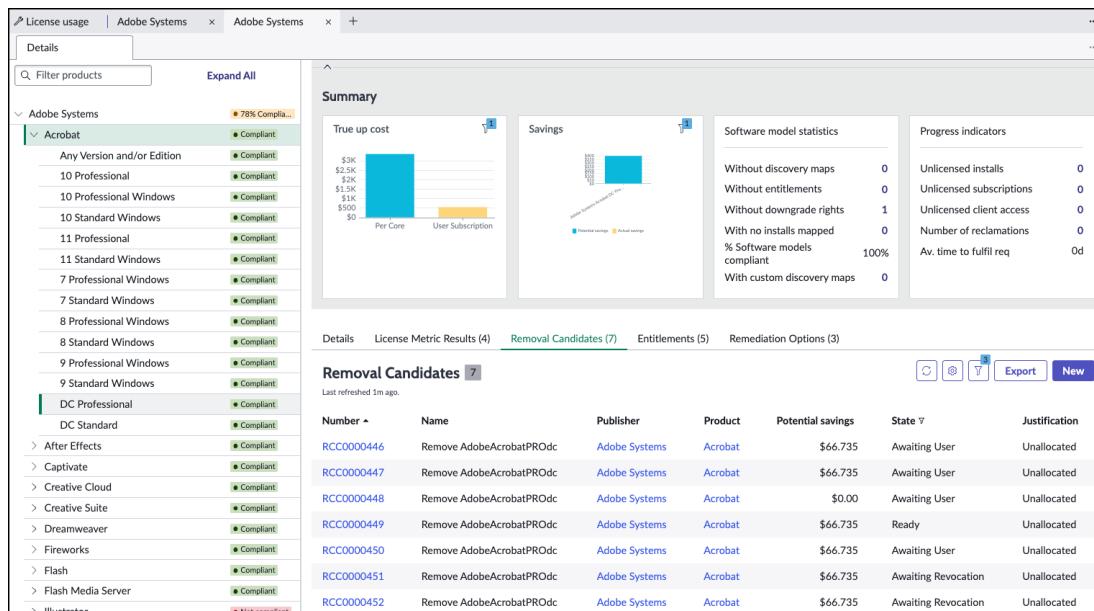
Section 2 Remove unallocated installs

Rick now wants to manage the installations that are in use but have not been allocated for use.



Section 2.1 Create removal candidates

1. As **Rick Lemm**, navigate to **Software Asset Workspace > License Usage**.
2. Click **Run Reconciliation**.
3. Run the reconciliation only for **Adobe Systems**.
4. When the reconciliation is complete, view the results for **Adobe Systems Acrobat DC Professional** again on the license usage view.
5. View **Removal Candidates**.



Knowledge Check: Refer to the Answer Guide at lab's end.

2. How many records are identified on this tab? Why?
6. View **Remediation Options**.
7. Make a note of the status of each available remediation option.

8. Click **Remove Unallocated Installs**.

Details

License Metric Results (4)

Removal Candidates (7)

Entitlements (5)

Remediation Options (3)

Remediation Options

3

Export

Last refreshed just now.

Remediation action	Status	Affects compliance	Display name	Actionable rights	True-up cost
Create Allocations	New	false	User Subscription	15	\$0.00
Create Allocations	New	false	Per User	50	\$0.00
Remove Unallocated Installs	New	false	Per User	50	\$0.00

9. Click **Create All Removal Candidates**.

Knowledge Check: Refer to the Answer Guide at the lab's end.

- How many actionable rights still need to be resolved for Remove Unallocated Installs?
- What happens to the Statuses of the available Remediation Options? Why?

10. View the updated list of **Removal Candidates**.

License Metric Results (3)

Remediation Options (3)

Licensed Installs (79)

Unlicensed Installs

Unlicensed Subscriptions

Removal Candidates (61)

Purchase

Actions on selected rows...

▼

Removal Candidates

<input type="checkbox"/>	Number ^	Name	Justification	Product	Publisher	State	Potential savings	Reclamation error
	RCC0000008	Remove Adobe Systems Acrobat DC Professi...	Unallocated	Acrobat	Adobe Systems	Ready	\$379.99	
	RCC0000009	Remove Adobe Systems Acrobat DC Professi...	Unallocated	Acrobat	Adobe Systems	Ready	\$379.99	

Note: Some installations may have multiple reasons to be removed from the environment.

Note: You may have to click the DC Professional Software Model on the navigator to refresh current displays.

Section 2.2 Remove installations

To simulate the removal of the software, you run a script that was created for this lab to remove the unallocated software installations associated with the Removal candidates. This needs to be performed as a System Administrator.

1. Impersonate **System Administrator**.
2. Navigate to **System Definition > Fix Scripts**.
3. Open **Remove installs for Removal Candidates** from the list of Fix Scripts and review the description of the script as well as the text highlighted in yellow.



Note: The text highlighted in yellow (below in the script), is taken from the removal candidate list.

Removal Candidates 7	
Last refreshed just now.	
Number	Name
RCC0000111	Remove AdobeAcrobatPROdc
RCC0000110	Remove AdobeAcrobatPROdc
RCC0000109	Remove AdobeAcrobatPROdc

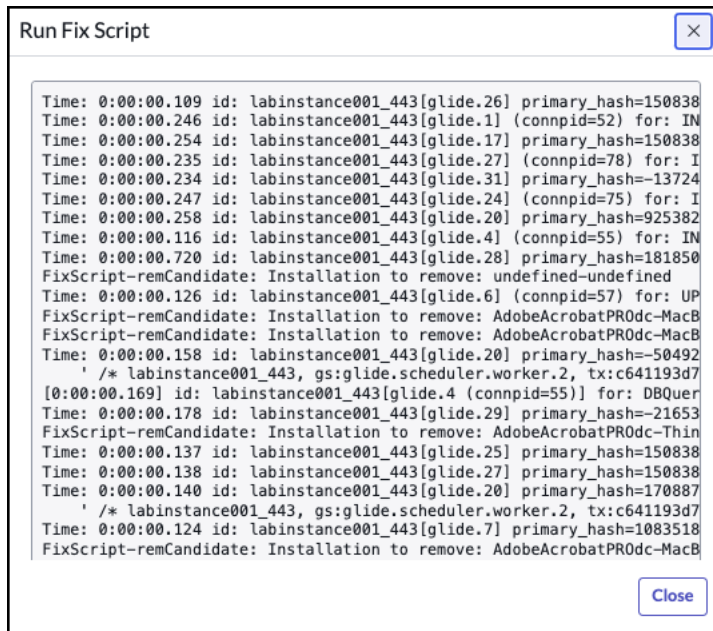
Note: The script will take the value "Remove AdobeAcrobatPROdc" and find all records in the Removal Candidate [sam_sw_reclamation_candidate] table that match and has a justification value = "unallocated".

Note: The script then performs the following for each matched record:

1. Deletes the associated Software Installation [cldb_sam_sw_install] record.
2. Sets the state of the Removal Candidate record to Closed Complete.

Name	Remove installs for Removal Candidates	Application	Global
Unloadable	<input checked="" type="checkbox"/>	Before	<input type="checkbox"/>
		Record for rollback	<input type="checkbox"/>
Description	Script created to support the SAM training course to remove installations associated with a Removal Candidate to facilitate understanding of what happens after the installations are removed using the candidate process.		
Script	<pre>1 var candidateName = "Remove AdobeAcrobatPROdc"; 2 3 var remCandidate = new GlideRecord('sam_sw_reclamation_candidate'); 4 remCandidate.addQuery('name','CONTAINS',candidateName); 5 remCandidate.addQuery('justification','=','unallocated'); 6 remCandidate.query(); 7 8 while (remCandidate.next()) { 9 var swInstall = new GlideRecord('cldb_sam_sw_install'); 10 swInstall.get(remCandidate.software_install); 11 gs.log("Installation to remove: " + swInstall.display_name + "-" + swInstall.installation_id); 12 swInstall.deleteRecord(); 13 remCandidate.state = 15; // Set Removal Candidate record to closed completed 14 remCandidate.active = false; 15 remCandidate.setWorkflow(false); 16 remCandidate.update(); 17 }</pre>		

4. Click **Run Fix Script**.
5. Click **Proceed**.
6. View the results of the script log.



The screenshot shows a window titled "Run Fix Script" with a close button in the top right corner. The window contains a text area with a log of script execution. The log entries include timestamps, IDs, primary hashes, and connection IDs for various Glide components. It also shows several "FixScript-remCandidate: Installation to remove: undefined-undefined" and "FixScript-remCandidate: Installation to remove: AdobeAcrobatPR0dc-MacB" messages. The log ends with a "Close" button.

```
Time: 0:00:00.109 id: labinstance001_443[glide.26] primary_hash=150838
Time: 0:00:00.246 id: labinstance001_443[glide.1] (connpid=52) for: IN
Time: 0:00:00.254 id: labinstance001_443[glide.17] primary_hash=150838
Time: 0:00:00.235 id: labinstance001_443[glide.27] (connpid=78) for: I
Time: 0:00:00.234 id: labinstance001_443[glide.31] primary_hash=-13724
Time: 0:00:00.247 id: labinstance001_443[glide.24] (connpid=75) for: I
Time: 0:00:00.258 id: labinstance001_443[glide.20] primary_hash=925382
Time: 0:00:00.116 id: labinstance001_443[glide.4] (connpid=55) for: IN
Time: 0:00:00.720 id: labinstance001_443[glide.28] primary_hash=181850
FixScript-remCandidate: Installation to remove: undefined-undefined
Time: 0:00:00.126 id: labinstance001_443[glide.6] (connpid=57) for: UP
FixScript-remCandidate: Installation to remove: AdobeAcrobatPR0dc-MacB
FixScript-remCandidate: Installation to remove: AdobeAcrobatPR0dc-MacB
Time: 0:00:00.158 id: labinstance001_443[glide.20] primary_hash=-50492
' /* labinstance001_443, gs:glide.scheduler.worker.2, tx:c641193d7
[0:00:00.169] id: labinstance001_443[glide.4] (connpid=55)] for: DBQuer
Time: 0:00:00.178 id: labinstance001_443[glide.29] primary_hash=-21653
FixScript-remCandidate: Installation to remove: AdobeAcrobatPR0dc-Thin
Time: 0:00:00.137 id: labinstance001_443[glide.25] primary_hash=150838
Time: 0:00:00.138 id: labinstance001_443[glide.27] primary_hash=150838
Time: 0:00:00.140 id: labinstance001_443[glide.20] primary_hash=170887
' /* labinstance001_443, gs:glide.scheduler.worker.2, tx:c641193d7
Time: 0:00:00.124 id: labinstance001_443[glide.7] primary_hash=1083518
FixScript-remCandidate: Installation to remove: AdobeAcrobatPR0dc-MacB
```

Note: The results of your script log will likely look different than the image above.

7. Click **Close**.

Challenge: Challenge (Required):

Navigate back to the License usage view and review the Removal Candidates for Acrobat DC Professional. Modify and run the Remove installs for Removal Candidates Fix Scripts to remove the remaining Removal Candidates. Finally, navigate back to the License usage for Acrobat DC Professional and verify there are no more Removal Candidates. **Hint** – You will change the candidateName to Remove Adobe Systems Acrobat DC Professional

Important: If you need assistance, refer to the Lab Challenge Verification section at lab's end for detailed steps. Remember to execute the section below, validate unallocated install removal, before moving on the exercise C.

Section 2.3 Validate unallocated install removal

1. Impersonate **Rick Lemm**.
2. Navigate to **Software Asset Workspace > License usage > Reconciliation**.
3. Click **Run reconciliation** and run the reconciliation only for **Adobe Systems**.
4. When the reconciliation is complete, view the results for **Adobe Systems Acrobat DC Professional** again on the License usage view.



Knowledge Check: Refer to the Answer Guide at lab's end.

6. Why does the Software Model Result still show Remediation Options?

Section 3 Create allocations

Allocation creation affects compliance for Per Device, Per User, and User Subscription entitlements. As this software model is using all of these entitlement license metrics, Rick needs to fully reconcile all unallocated in-use rights to be compliant.

1. As **Rick Lemm** on the Acrobat DC Professional software model results, view the **Remediation Options**.

Details	License Metric Results (4)	Removal Candidates	Entitlements (6)	Remediation Options (3)
Remediation Options 3				
Last refreshed just now.				
Remediation action	Status	Affects compliance	Display name	Actionable rights
Remove Unallocated Installs	New	false	Per User	50
Create Allocations	New	false	Per User	50
Create Allocations	New	false	User Subscription	15

2. For the fifteen (15) remaining unallocated **User Subscription** installations, click **Create Allocations**.
3. Click **Create All Allocations**.
4. Navigate back to the **Remediation Options** tab. The status of the Create Allocations Remediation action for the User Subscription installations is set to Complete and the Actionable rights are now 0.

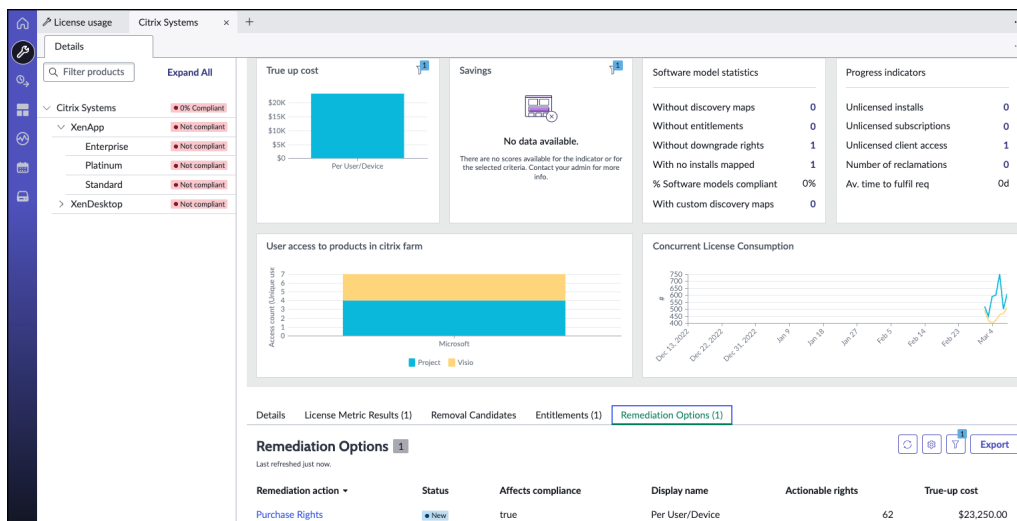
Remediation Options 3				
Last refreshed 2m ago.				
Remediation action	Status	Affects compliance	Display name	Actionable rights
Remove Unallocated Installs	New	false	Per User	50
Create Allocations	New	false	Per User	50
Create Allocations	Complete	false	User Subscription	0

- Run a reconciliation only for **Adobe Systems** and, when complete, view the results for **Adobe Systems Acrobat DC Professional** again on the License usage.
- Using the knowledge gained in the previous steps, remove the allocations for the last remaining **Per User** rights that remain for Adobe Systems Acrobat DC Professional.

Section 4 Purchase rights

The most common remediation action taken today by companies to ensure compliance is to purchase more rights to use the software. This approach assumes ensured compliance through over-licensing is better than an audit, but it can lead to large overpayment. Other remediation options should be explored first, with data and processes put in place to support those efforts.

- As **Rick Lemm**, navigate to **Software Asset Workspace > License usage > Publishers**.
- Open the product result for **Citrix Systems XenApp Enterprise**.
- View **Remediation Options**.



- Click **Purchase Rights**.

5. Click **Create Purchase Order**.

Remediation Option
Per User/Device

Remediation action: Status:

Affects compliance: ☒ Rights needed:

License metric: True-up cost:

Software model result: Actionable rights:

Note: This feature is only available if the ServiceNow Procurement product is enabled.

6. Select the **Purchase order line items** tab, and then click the line **Number** for the purchase order.

License usage Citrix Systems x +

Details Per User/Device x PO0010001 x

PO0010001

Details Purchase order line items (1) Assets Receiving Slips

Purchase order line items 1

Last refreshed just now.

Number	Product Model	Product Catalog	Part number	Status	Cost
POL0010001	Citrix Systems XenApp Enterprise	(empty)		Requested	\$0.00

7. Update Cost to **\$23,250**.

Purchase order line items

Number: Purchase order:

Vendor *: Status:

Product Model *: Ordered quantity *:

Part number: Received quantity:

Metric group *: Remaining quantity:

License metric *: List price:

Product Catalog: Cost:

Request line: Total cost:

8. Make a note of the quantity being ordered.

Note: The cost here represents the **cost per right**.

9. Click **Save**.
10. Navigate to the **Details** tab of the purchase order.

The screenshot shows a web interface for a purchase order. At the top, there are tabs: 'Details' (highlighted with a red box), 'Per User/Device', 'PO0010001', and 'POL0010001'. Below the tabs, the purchase order number 'PO0010001' is displayed. Underneath, there are four sub-tabs: 'Details' (highlighted with a red box), 'Purchase order line items (1)', 'Assets', and 'Receiving Slips'. The main content area is titled 'Purchase Order' and contains several fields: 'Number' (PO0010001), 'PO date' (2023-03-13 17:32:32), 'Due by' (YYYY-MM-DD HH:mm:ss), 'Status' (Requested), 'Vendor' (Citrix Systems), 'Assigned to' (empty), 'Ship to *' (empty), and 'Bill to' (empty). The 'Ship to *' field is highlighted with a red border.

11. Update Ship to field to **San Diego Border - Pickup/Dropoff**.
12. Click **Save**.

Note: This is simply a purchase order request to an organization's purchasing department. The approval and actual "cutting" of the PO to the appropriate vendor is based on defined workflows and an organization's policies and processes.

Important: If you run another reconciliation at this point, Citrix Systems XenApp Enterprise will still show as Not Compliant because the purchase order has not yet been processed and the licenses obtained. Once the licenses are obtained and assigned to the individual users, running another reconciliation would show the product as being Compliant.

Lab Challenge Verification

This section provides screenshots of steps performed in the lab challenge.

Challenge: Navigate back to the License usage view and review the Removal Candidates for Acrobat DC Professional. Modify and run the Remove installs for Removal Candidates Fix Scripts to remove the last Removal Candidates. Finally, navigate back to the License usage view for Acrobat DC Professional and verify there are no more Removal Candidates.

- View Removal Candidates

Details	License Metric Results (4)	Removal Candidates (3)	Entitlements (5)	Remediation Options (3)
Removal Candidates 3				
Last refreshed just now.				
Number	Name	Publisher	Product	
RCC0000112	Remove Adobe Systems Acrobat DC Professional	Adobe Systems	Acrobat	
RCC0000114	Remove Adobe Systems Acrobat DC Professional	Adobe Systems	Acrobat	
RCC0000115	Remove Adobe Systems Acrobat DC Professional	Adobe Systems	Acrobat	
Showing 1-3 of 3				

Note: You will need to update the Fix Script with the name "Remove Adobe Systems Acrobat DC Professional" for the final 3 Removal Candidates.

- Update Fix Script (line 1); remember to save the script after updating it!

Name	Remove installs for Removal Candidates	Application	Global
Unloadable	<input checked="" type="checkbox"/>	Before	<input type="checkbox"/>
		Record for rollback	<input type="checkbox"/>
Description	Script created to support the SAM training course to remove installations associated with a Removal Candidate to facilitate understanding of what happens after the installations are removed using the candidate process.		
Script	<pre>1 var candidateName = "Remove Adobe Systems Acrobat DC Professional"; 2 3 var remCandidate = new GlideRecord('smp_sw_reclamation_candidate'); 4 remCandidate.addQuery('name', 'CONTAINS', candidateName); 5 remCandidate.addQuery('justification', '=', 'unallocated'); 6 remCandidate.query(); 7 8 while (remCandidate.next()) { 9 var swInstall = new GlideRecord('cndb_sam_sw_install'); 10 swInstall.get(remCandidate.software_install); 11 gs.log("Installation to remove: " + swInstall.display_name + "-" + swInstall.installe 12 swInstall.deleteRecord(); 13 remCandidate.state = 15; // Set Removal Candidate record to closed completed 14 remCandidate.active = false; 15 remCandidate.setWorkflow(false); 16 remCandidate.update(); 17 }</pre>		

- Run modified Fix Script
- Verify there are no more Removal Candidates

DetailsLicense Metric Results (3)Removal CandidatesEntitlements (5)Remediation Options (3)

Removal Candidates0

Last refreshed just now.

ExportNew

Number	Name ▾	Publisher	Product	Potential savings	State ▾	Justification
<div><div></div><div>No records to display.</div></div>						

A solid green rectangular bar.

Congratulations! You have completed this lab!

You are now ready to begin learning about Software Product Lifecycles.

Knowledge Check Answer Guide

1. **What happened to the statuses of the available Remediation Options?**
 - Remove Allocations – Changed from New to Complete
 - All others remain in New status
2. **How many records are identified on this tab? Why?**
 - 7
 - There are pre-existing removal candidates identified that are running unallocated software.
3. **What's the status of Remove Unallocated Installs? Why?**
 - In Progress
 - Some, but not all, have been removed.
4. **How many actionable rights still need to be resolved for Remove Unallocated Installs?**
 - 0
5. **What happens to the Statuses of the available Remediation Options? Why?**
 - Remove Unallocated Installs – Remained In Progress – they are only marked as removals. A process still needs to occur to remove them.
 - Create Allocations (Per User) – Changed from New to Void – this option is now unavailable since the records were all processed by the Remove Unallocated Installs action.
6. **Why does the Software Model Result still show Remediation Options?**
 - There are still User Subscription issues that need to be resolved.

Lab takeaways



- What would be a good way to avoid unlicensed and unallocated software?
- What is the value of creating and removing allocations?