



## Hosted RPKI Hands on Workshop

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Understanding why RPKI is important and the part we all play to make it better.

**Adopting RPKI** helps establish a more trusted and collaborative environment among Internet number resource holders and network operators. With ARIN's RPKI service, companies can rely on verifiable information about the legitimacy of route announcements, which can help resolve routing issues and combat network attacks. This leads to a more reliable and secure Internet infrastructure for everyone.

**Creating ROAs and ASPA's for your resources benefits more than just you — they are the foundational components in RPKI. ROA and ASPA objects are stored in ARIN's RPKI repository, which allows network operators to use that data to make more informed routing decisions,** leading to a more reliable and secure Internet infrastructure. RPKI has been proven to interrupt hijacking attempts before they impact the operation of the global Internet. If your Internet number resources do not have a ROA or ASPA associated with them, they are not protected by ARIN's RPKI services.

**A growing number of Internet service providers require you to create ROAs for your resources** before a business relationship is established. Becoming familiar with how RPKI works can help you prepare for future requests.

## How RPKI works

1. Legitimate resource holders obtain a resource certificate from ARIN.
2. That certificate allows resource holders to make cryptographically signed statements regarding their Internet resources in ROAs and ASPAs.
3. RPKI data is fetched from ARIN to confirm the signed statements are valid.

This allows network operators to make more informed routing decisions, enhancing routing security on a global scale.

**Commented [BG1]:** This is the paragraph I updated to include references to ASPAs. I was something we all missed during proofreading, prior to printing.

## Planning for this Training Event


This training uses IPv6 addresses exclusively. All the addresses we will use today are included with your student credentials. If you are not familiar with IPv6 addressing, check out the information on the ARIN website at the following link (<https://www.arin.net/resources/guide/ipv6/>)

Additional free online resources can be found at the end of this workbook.



**To better serve everyone in the workshop, please do not work ahead. This allows us to work through each step together.**

## Parts of your Login Student Card

Login Information 

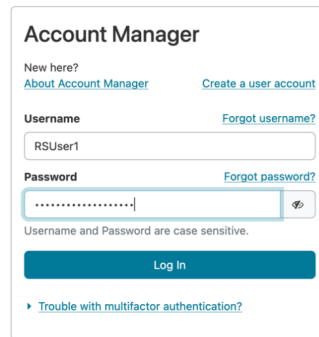
User ID: RSUser1

Password: RoutingSecurityUser1!

Token Pin: RSUser2

Recovery Code!

- Open a browser window and navigate to <https://account.arin.net/public/login>
- Log in to the ARIN Online environment using the provided student credentials and USB-C security token.
- Follow the on-screen instructions to complete the login process.



### Account Manager

New here?  
[About Account Manager](#) [Create a user account](#)

Username [Forgot username?](#)

Password [Forgot password?](#)

Username and Password are case sensitive.

[Trouble with multifactor authentication?](#) ✕

#### Recovery Code

Use one of the recovery codes provided when you set up MFA.

Log In

❗ If you do not have your recovery codes, please call ARIN Registration Services at +1.703.227.0660 Monday – Friday, 7:00 AM – 7:00 PM and provide the answers to your account security questions to remove multifactor authentication.

**NOTE:** If using the security token is not an option, enter the student credentials and select the **“Trouble with multifactor authentication?”** link below the password field. Then enter the multifactor recovery code in the **Recovery Code** field and select **Log In** to complete the login process.

The left navigation menu of the Account Manager provides access to information associated with your organization, as well as tools and reports ARIN has developed for our members.

The Account Snapshot tiles provide a shortcut to helpful information related to your account or organization.

Select **Routing Security** from the Left Navigation Menu.

## Routing Security Dashboard

The Routing Security dashboard lists all organizations your user account is linked to and whether they are eligible to use routing security features developed by ARIN.

### Routing Security Dashboard

ARIN supports routing security with two services: [Internet Routing Registry \(IRR\)](#) and [Resource Public Key Infrastructure \(RPKI\)](#). Registrants can use these services to help secure Internet routing for their eligible resources.

Your Organizations				
Organizations associated with your user account are listed alphabetically by Org ID.				
Org ID	IRR		RPKI	
	Eligibility	Action	Eligibility	Action
ARIN-2	✓	<a href="#">Manage IRR</a>	✓	<a href="#">Sign up for RPKI</a>
ARIND-1	✓	<a href="#">Manage IRR</a>	✓	<a href="#">Sign up for RPKI</a>

**NOTE:** Neither organization linked to your account is signed up to use RPKI services.

***If you use a student account, please pay attention to which organization you should use.***

Students 1 and 2 will sign up the organizations for the rest of the group. The remaining students will observe this process, but not act until this portion is complete.

The first time you reach the Manage RPKI page, you are presented with information and choices related to the use of the RPKI features at ARIN.

## Manage RPKI

Org ID: ARIND-1

ARIN's Resource Public Key Infrastructure (RPKI) service allows you to publish authorized originations for your routes to help secure Internet routing. On sign-up, ARIN generates a Resource Certificate for the number resources that are both directly assigned to the Org ID and covered under a signed Services Agreement (RSA/LRSA) with ARIN.

Use of the RPKI services via ARIN Online or through a RESTful API, including but not limited to the creation, modification, and usage of RPKI objects, is subject to [ARIN's RPKI Terms of Service](#).

### Choose Between Two Models of RPKI

Hosted RPKI	Delegated RPKI
<p>Use ARIN's infrastructure to create and manage your ROAs. <a href="#">Learn more about Hosted RPKI.</a></p> <ul style="list-style-type: none"><li>• Uses ARIN's CA and repository</li><li>• You can start right away</li><li>• Create ROAs with a simple web form</li><li>• ROAs are automatically renewed</li><li>• You can also automate with ARIN's <a href="#">Reg-RWS API</a></li></ul> <p><a href="#">Sign up for Hosted</a></p>	<p>Run your own Certificate Authority (CA) to create and manage your ROAs. <a href="#">Learn more about Delegated RPKI.</a></p> <ul style="list-style-type: none"><li>• Use your CA</li><li>• To start, get the <a href="#">Child Request XML</a> from your CA software</li><li>• Run your own publication server or use <a href="#">ARIN's Publication Service</a></li></ul> <p><a href="#">Sign up for Delegated</a></p>

Select **Sign up for Hosted**.

When an organization is **first successfully enrolled**, there will be a green success bar at the top of the page.

## Manage RPKI

✓ Success! Your organization is now enrolled in RPKI.

Org ID: ARIND-1 ▾ Hosted RPKI: [Overview](#) [ROAs](#) [IRR Auto-Manager](#)

During any subsequent returns to the Manage RPKI overview page, the banner is not displayed, and the overview table replaces this model.

## Certified Resources

Select **Certified Resources**.

The Certified Resources page lists all eligible ASNs and IP networks on your Organization's RPKI resource certificate.

The related ROAs column shows the count of instances where related Internet number resources are identified.

ASNs		
No Autonomous System Numbers (ASNs) are covered by the Resource Certificate.		
IP Networks		
The following IPv4 and IPv6 network allocations are covered by the Resource Certificate.		
Prefixes (Net Range)	Net Handle and Name	Related ROAs
2602:FC3B:E000::/36	NET6-2602-FC3B-E000-1 (ARIND-1)	0
2620:10F:F000::/44	NET6-2620-10F-F000-1 (ARIN-DEPLOYATON)	0

## Route Origin Authorizations (ROAs)

Select the **ROAs** tab in the top navigation menu.

This provides a clear table of the existing ROAs for these resources.

The search field is used to filter specific instances of a resource in existing ROAs.

Route Origin Authorizations (ROAs)		
Filter ROAs by Origin AS or Prefix.		
Resource:	<input type="text"/>	<input type="button" value="Search ROAs"/>
Example: AS64496 or 64496, 2001:db8::/48 or 192.0.2.0/24		
Org ID ARINL has 7 ROAs in ARIN's RPKI Repository.		
Origin AS	Prefixes	ROA Name
12076	149.112.154.0/24	Azure BYOIP <input type="button" value="Manage ROA"/>
399970	149.112.152.0/22	BG Services <input type="button" value="Manage ROA"/>
399970	149.112.152.0/23 Max Length: 24	corporate offices <input type="button" value="Manage ROA"/>
399970	149.112.152.0/24 Max Length: 32	<input type="button" value="Manage ROA"/>
399970	2602:FC3B::/33	training block <input type="button" value="Manage ROA"/>
399970	2602:FC3B:1000::/36	East Coast datacenters <input type="button" value="Manage ROA"/>
399970	2602:FC3B:1500::/40 2602:FC3B:1600::/40 2602:FC3B:1700::/40 2602:FC3B:1800::/40	Winchester-Hickory-Savannah-Annapolis <input type="button" value="Manage ROA"/>

This example is a representation of a typical Org's ROA table. If no ROAs have been created, this table will be blank.

## Creating a ROA

The form to Create a ROA contains two mandatory fields — Origin AS and Prefixes — and two optional fields — Max Length and ROA name.

Refer to the student information card attached to your security key and identify the first IPv6 address block assigned to your student account.



### Create a Route Origin Authorization (ROA)

\* denotes required field

\*Origin AS:

Prefix ?

\*Prefixes:

Additional Prefix

Max Length ?

ROA Name:

Optional: Provide a helpful nickname, such as DDOS\_Mitigation

## Single Prefix ROA

Complete the following steps to create a single prefix ROA:

- Enter the required information:
  - Enter the Origin AS. (Students can use 399970)
  - Enter a prefix. (Students can use a /40 prefix from your first IP block on your cards)
  - Note that while ROA Name is optional, naming your ROAs can be helpful for future identification and management.
  - Leave the Max Length field empty for now.
- Select **Next Step**.

### Review ROA

**Origin AS:** 399970  
**Prefixes:** 2602:fc3b:ef00::/40  
**Auto-renewing:** Yes  
**ROA Name:** NET-2602-fc3b-ef00-40

Allow IRR Auto-Manager to create and link 1 matching route object ?

[View the object](#)

*Create and auto-manage* AS399970 - 2602:FC3B:EF00::/40

[Previous Step](#) [Submit](#)

E.g., one route object for each prefix listed in the ROA, disregarding maxLength.

Confirm that the data you entered in the form is what you intended.

- If you are happy with the ROA data, select **Submit**.
- Select **Previous Step** if you want to make changes.

Once the ROA request is submitted, your newly created ROA will be listed in the table.

All ROAs created using ARIN Online or the Reg-RWS RESTful endpoint auto-renew every 90 days.

The IRR Auto-Manager creates an IRR route object that matches the Origin AS and prefix in the ROA. (more details to come)

### Route Origin Authorizations (ROAs)

Filter ROAs by Origin AS or Prefix.

**Resource:**  [Search ROAs](#)

Example: AS64496 or 64496, 2001:DB8::/48 or 192.0.0.0/24

Org ID ARIND-1 has 1 ROA in ARIN's RPKI Repository.

Origin AS	Prefixes	ROA Name
399970	2602:FC3B:EF00::/40	NET-2602-fc3b-ef00-40 <a href="#">Manage ROA</a>

## Multi-Prefix ROA

**Note:** There is no limit to the number of prefixes that can be entered into an individual ROA.

### Create a Route Origin Authorization (ROA)

\* denotes required field

\*Origin AS:

Prefix <span style="font-size: x-small;">?</span>	Max Length <span style="font-size: x-small;">?</span>	
<input type="text" value="2602:fc3b:ef10::/44"/>	<input type="text"/>	<input type="button" value="✕"/>
<input type="text" value="2602:fc3b:ef20::/44"/>	<input type="text"/>	<input type="button" value="✕"/>
<input type="text" value="2602:fc3b:ef30::/44"/>	<input type="text"/>	<input type="button" value="✕"/>
<input type="text" value="2602:fc3b:ef40::/44"/>	<input type="text"/>	<input type="button" value="✕"/>
<input type="button" value="➕ Additional Prefix"/>		

ROA Name:

Optional: Provide a helpful nickname, such as DDOS\_Mitigation

To Create a Multi-prefix ROA:

- Enter the required information:
  - Enter the Origin AS. (Students can use 399970)
  - Enter as many prefixes as needed. (Students can use 4 /44 prefixes from your first IP block provided on your cards)
  - Note that while ROA Name is optional, naming your ROAs can be helpful for future identification and management.
  - Leave the Max Length field empty for now.
- Select **Next Step**.

**NOTE:** A review of the multi-prefix ROA shows the information for each individual prefix.

### Review ROA

**Origin AS:** 399970

**Prefixes:** 2602:fc3b:ef10::/44  
2602:fc3b:ef20::/44  
2602:fc3b:ef30::/44  
2602:fc3b:ef40::/44

**Auto-renewing:** Yes

**ROA Name:** NET-2602-fc3b-ef10

Allow IRR Auto-Manager to create and link 4 matching route objects [?](#)

[View the 4 objects](#)

Create and auto-manage	AS399970 - 2602:FC3B:EF10::/44
Create and auto-manage	AS399970 - 2602:FC3B:EF20::/44
Create and auto-manage	AS399970 - 2602:FC3B:EF30::/44
Create and auto-manage	AS399970 - 2602:FC3B:EF40::/44

[Previous Step](#) [Submit](#)

The ROA table has been updated with the newly created multi-prefix ROA.

### Route Origin Authorizations (ROAs)

Filter ROAs by Origin AS or Prefix.

**Resource:**  [Search ROAs](#)

Example: AS64496 or 64496, 2001:DB8::/48 or 192.0.0.0/24

Org ID ARIND-1 has 2 ROAs in ARIN's RPKI Repository.

Origin AS	Prefixes	ROA Name	
399970	2602:FC3B:EF00::/40	NET-2602-fc3b-ef00-40	<a href="#">Manage ROA</a>
399970	2602:FC3B:EF10::/44 2602:FC3B:EF20::/44 2602:FC3B:EF30::/44 2602:FC3B:EF40::/44		<a href="#">Manage ROA</a>

## Troubleshooting Errors

Now let's create a ROA with your second IP block. (Student accounts)

### Create a Route Origin Authorization (ROA)

\* denotes required field

\*Origin AS:

Prefix ?

Max Length ?

\*Prefixes:

ROA Name:

Optional: Provide a helpful nickname, such as DDOS\_Mitigation

Complete the following steps to create a single prefix ROA:

- Enter the required information:
  - Enter the Origin AS. (Students can use 399970)
  - Enter a prefix. (Students can use a /40 prefix from your SECOND IP block on your cards)
  - Note that while ROA Name is optional, naming your ROAs can be helpful for future identification and management.
  - Leave the Max Length field empty for now.
- Select **Next Step**.

### Create a Route Origin Authorization (ROA)

\* denotes required field

\*Origin AS:

Prefix ?

Max Length ?

\*Prefixes:

❗ The CIDR block you specified is not covered by this resource certificate.

ROA Name:

❗ A ROA name must only contain the following characters: a-z A-Z 0-9 \_ - and space.

Optional: Provide a helpful nickname, such as DDOS\_Mitigation

It didn't work!

In this scenario students learn to troubleshoot why some prefixes are ineligible for RPKI services. If you use OT&E, follow the instructor example on the screen. Where can we look to troubleshoot?

Select the **Overview Tab** and click **Certified Resources**.

Why is the aggregate /36 of your second IP block in the IP Networks table?

### ASNs

No Autonomous System Numbers (ASNs) are covered by the Resource Certificate.

### IP Networks

The following IPv4 and IPv6 network allocations are covered by the Resource Certificate.

Prefixes (Net Range)	Net Handle and Name	Related ROAs
2602:FC3B:E000::/36	NET6-2602-FC3B-E000-1 (ARIND-1)	1
2620:10F:F000::/44	NET6-2620-10F-F000-1 (ARIN-DEPLOYATON)	0


For more information about resources and ROAs, please visit [Resource Certification \(RPKI\)](#).

Select **Dashboard** in the left-hand navigation bar and read the yellow alert at the top of the screen.





## Dashboard

### Alerts

 You have an **unread message**.

 **1 Network** is ineligible for routing security services such as RPKI and ARIN's IRR. [Learn more](#).

### Account Snapshot

 <p><b>ARIND5-ARIN</b> <small>Point of Contact record (POC)</small></p>	 <p><b>2</b> <small>Organization Identifiers (Org IDs)</small></p>
 <p><b>4</b> <small>Networks (NETs)</small></p>	 <p><b>0</b> <small>Autonomous System Numbers (ASNs)</small></p>

Select **1 Network** in the yellow alert banner.

Search

Include the 0 networks you've reassigned in your search  
 Limit search to the 1 network not covered by RSA/LRSA

Net Handle	Net Range	Net Type	Net Name	Org ID
<a href="#">NET6-2602-FC3B-C000-1</a>	2602:FC3B:C000::/36	Reallocated	NET-2602-FC3...	ARIND-1
<a href="#">NET6-2602-FC3B-E000-1</a>	2602:FC3B:E000::/36	Direct Alloca...	ARIND-1	ARIND-1
<a href="#">NET6-2620-10F-F000-1</a>	2620:10F:F000::/44	Direct Alloca...	ARIN-DEPLOYA..	ARIND-1
<a href="#">NET-205-196-98-0-1</a> *	205.196.98.0/24	Direct Alloca...	WEBINAR-TEST	ARIN-2

Download CSV

Networks highlighted and marked with an asterisk (\*) are not covered by an ARIN Registration Services Agreement (RSA) or Legacy RSA (LRSA).  
 To use ARIN's IRR and RPKI services, the network issued directly from ARIN must be under a signed RSA or LRSA. For assistance, call Registration Services at +1.703.227.0660.

Note in this example that only direct assignments that are covered by an ARIN Registration Services Agreement can participate and create ROAs with ARIN.

An alternative way to get to this table:

- Select **IP Addresses** then **Manage Networks** in the left navigation bar.

## Modifying ROAs

In the Manage ROAs section, you can do four things:

- Add prefixes
- Remove prefixes if there is more than one
- Change the ROA name
- Change the max length value



Let's practice removing one of the prefixes in the ROA that we created with four prefixes.

### Route Origin Authorizations (ROAs)

Filter ROAs by Origin AS or Prefix.

Resource:  Search ROAs

Example: AS64496 or 64496, 2001:DB8::/48 or 192.0.0.0/24

Org ID ARIND-1 has 2 ROAs in ARIN's RPKI Repository.





Origin AS	Prefixes	ROA Name	
399970	2602:FC3B:EF00::/40	NET-2602-fc3b-ef00-40	<span style="background-color: #ccc; padding: 2px 5px; border-radius: 3px;">Manage ROA</span>
399970	2602:FC3B:EF10::/44 2602:FC3B:EF20::/44 2602:FC3B:EF30::/44 2602:FC3B:EF40::/44		<span style="background-color: #ccc; padding: 2px 5px; border-radius: 3px;">Manage ROA</span>

- Navigate back to the Manage RPKI Overview page.
- Select the **ROAs** tab.
- Select **Manage ROA** in the row of the multi-prefix ROA.

### Modify Route Origin Authorization (ROA)

\* denotes required field

Origin AS: 399970

Prefix ?	Max Length ?	
*Prefixes: 2602:FC3B:EF10::/44		
2602:FC3B:EF20::/44		
2602:FC3B:EF30::/44		
2602:FC3B:EF40::/44		
<input type="button" value="Additional Prefix"/>		

ROA Name: NET-2602-fc3b-ef10

Optional: Provide a helpful nickname, such as DDOS\_Mitigation




Select the **trash can** icon next to any prefix in the list.

Below, you will see the prefix has been removed.

### Modify Route Origin Authorization (ROA)

\* denotes required field

Origin AS: 399970

Prefix ?	Max Length ?	
*Prefixes: 2602:FC3B:EF10::/44		
2602:FC3B:EF20::/44		
2602:FC3B:EF40::/44		
<input type="button" value="Additional Prefix"/>		

ROA Name: NET-2602-fc3b-ef10

Optional: Provide a helpful nickname, such as DDOS\_Mitigation

Select **Next Step**.

Review the changes and select **Submit**.

### Review Changes

**Origin AS:** 399970

**Prefixes:** 2602:FC3B:EF10::/44  
2602:FC3B:EF20::/44  
2602:FC3B:EF40::/44

**Auto-renewing:** Yes

**ROA Name:** NET-2602-fc3b-ef10

**IRR Auto-Manager:**  Delete the route object linked to the 1 prefix you removed ?

[View the 1 object](#)

<a href="#">Delete</a>	descr: ARIN	AS399970 - 2602:FC3B:EF30::/44
------------------------	-------------	--------------------------------

[Previous Step](#)
[Submit](#)

## Removing ROAs

From the ROAs table, select **Manage ROA** of the ROA you want to remove.



### Route Origin Authorizations (ROAs)

Filter ROAs by Origin AS or Prefix.

**Resource:**  [Search ROAs](#)

Example: AS64496 or 64496, 2001:DB8::/48 or 192.0.0.0/24

Org ID ARIND-1 has 2 ROAs in ARIN's RPKI Repository.

Origin AS	Prefixes	ROA Name	
399970	2602:FC3B:EF00::/40	NET-2602-fc3b-ef00-40	<a href="#">Manage ROA</a>
399970	2602:FC3B:EF10::/44 2602:FC3B:EF20::/44 2602:FC3B:EF40::/44	NET-2602-fc3b-ef10	<a href="#">Manage ROA</a>

Select **Remove**.

### ROA Details

**Origin AS:** 399970  
**Prefixes:** 2602:FC3B:EF10::/44  
2602:FC3B:EF20::/44  
2602:FC3B:EF40::/44  
**Auto-renewing:** Yes  
**IRR Auto-Manager:** ▶ 3 linked route objects

[Modify](#) [Remove](#)

When a ROA is selected for removal, you will be notified that this action is permanent and cannot be undone.

### Are You Sure?

Are you sure you want to remove this ROA?  
There is no undo for this action.

**Origin AS:** 399970  
**Prefixes:** 2602:FC3B:EF10::/44  
2602:FC3B:EF20::/44  
2602:FC3B:EF40::/44

Also delete the **3** route objects linked to this ROA

[Cancel](#) [Remove](#)

Select **Remove** to confirm your decision.

## Creating ASPAs

Unlike the Origin AS in a ROA, the Customer AS must be allocated to your organization by ARIN.

The list of Provider ASNs should include upstream providers and non-transparent IXP route servers.



## ASPA Entry Form

**DO NOT** include peer ASNs or customer ASNs.

Select **Create ASPA**.

### Create an Autonomous System Provider Authorization (ASPA)

\* denotes required field

**\*Customer AS:**

Specify an ASN registered to the selected Org ID.  
Example: AS64496 or 64496

**Set of Provider ASes**  
Enter each upstream Provider AS that you authorize to handle traffic from the ASN.

**\*Provider AS:**

Example: AS64496 or 64496

**Provider AS:**

After selecting **Create ASPA** on the entry form, you will receive a green banner confirming the object creation was successful.

✓ ASPA for "AS399970" with 2 providers was saved successfully.

The ASPA will be listed in the table along with any others that were previously created.

Autonomous System Provider Authorizations (ASPAs)	
Org ID ARINL has 1 ASPA in ARIN's RPKI Repository.	
Customer AS	Set of Provider ASes
<a href="#">399970</a>	10745 20473

## Modifying an ASPA

Modifying an ASPA works the same as modifying a ROA.



In the ASPA table, identify which object you want to modify and select the **Customer AS number**.

Autonomous System Provider Authorizations (ASPAs)	
Org ID ARINL has 1 ASPA in ARIN's RPKI Repository.	
Customer AS	Set of Provider ASes
<a href="#">399970</a>	10745 20473

Select **Modify** to continue.


ASPA Object
Customer AS: 399970 Set of Provider ASes: 10745 20473
<a href="#">Modify</a> <a href="#">Remove</a>

**Modify Autonomous System Provider Authorization (ASPA)**


\* denotes required field

Customer AS: 399970

**Set of Provider ASes**  
Update the list of upstream Provider ASes that you authorize to handle traffic from the ASN.

\*Provider AS:  

Example: AS64496 or 64496

Provider AS:  

- Here you can:
  - Change a provider AS number.
  - Add a new provider AS.
  - Delete a provider AS from the ASPA.
- In this example, we are going to remove a provider AS from the ASPA.
- Select the **trash can** icon next to provider **AS 20473**.

**Modify Autonomous System Provider Authorization (ASPA)**

\* denotes required field

Customer AS: 399970

**Set of Provider ASes**  
Update the list of upstream Provider ASes that you authorize to handle traffic from the ASN.

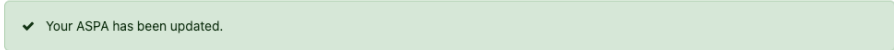
\*Provider AS:

Example: AS64496 or 64496

- The row with provider **AS 20473** has been removed.
- You may continue modifying the ASPA by changing the remaining provider AS number or adding a new one. The changes can still be canceled at this point.

Select **Submit** to apply the changes.

You will receive a green banner confirming the ASPA has been updated.



The ASPA table shows the results of the modification.

Autonomous System Provider Authorizations (ASPAs)	
Org ID ARINL has 1 ASPA in ARIN's RPKI Repository.	
Customer AS	Set of Provider ASes
<a href="#">399970</a>	10745

## Removing an ASPA

Removing an ASPA begins similarly to modifying an ASPA.



In the ASPA table, identify which object you want to remove and select the **Customer AS number**.

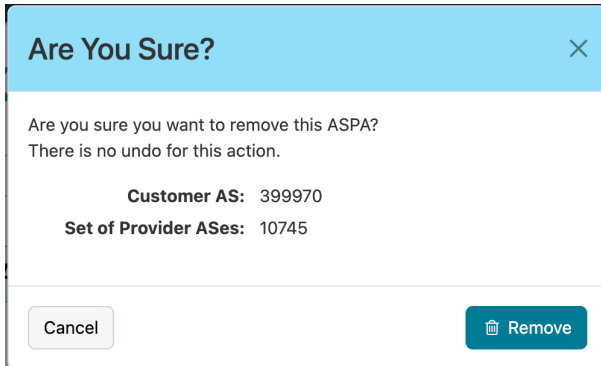
Autonomous System Provider Authorizations (ASPAs)	
Org ID ARINL has 1 ASPA in ARIN's RPKI Repository.	
Customer AS	Set of Provider ASes
<a href="#">399970</a>	10745

Select **Remove** to continue.

ASPA Object
<p>Customer AS: 399970 Set of Provider ASes: 10745</p>
<p style="text-align: right;"> <input type="button" value="Modify"/> <input type="button" value="Remove"/> </p>

When an ASPA is selected for removal, you will be given notice that this action is permanent and cannot be undone.

You may still end the operation by selecting **Cancel**.



Select **Remove** to confirm your decision.

You will receive a green banner confirming the ASPA was removed.



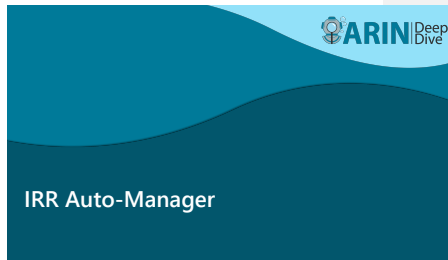
The table below shows no ASPAs for the Org ID remain in the repository.

Autonomous System Provider Authorizations (ASPAs)	
Org ID ARINL has 0 ASPAs in ARIN's RPKI Repository.	
Customer AS	Set of Provider ASes
None found	

## IRR Auto-Manager

The IRR Auto-Manager is intended to bring two routing security tools (IRR and RPKI) data sets into parity.

The IRR Auto-Manager detects either ROAs that do not have matching IRR objects or IRR objects that are not linked to matching ROAs. The user is given the option to create and link IRR objects to the existing ROAs.



### Manage IRR Auto-Manager

Set the default behavior of IRR Auto-Manager in the web interface for Org ID **ARIND-1**.

**IRR Auto-Manager:**  On - Yes, create and delete matching IRR objects by default.  
 Off - No, do not create or delete matching IRR objects by default.

**Note:** This setting does not affect the API. Review the [API User Guide](#) to use this feature in automation scripts. Submit

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### Create/Link Matching IRR Route Objects for Your ROAs

IRR Auto-Manager can create and/or link matching route objects for existing ROAs in batches of up to 100.

Select existing ROAs listed below to create and/or link matching route objects, then use **Create/Link Route Objects for Selected ROAs**.

Select All (2) on Page

Select	Origin AS	Prefixes	Matching IRR Route Objects?
<input type="checkbox"/>	399970	2620:10F:F001::/48	Yes
<input type="checkbox"/>	399970	2620:10F:F002::/48	No

Create/Link Route Objects for Selected ROAs (0)

Users can select all or make individual decisions for each row in the table.

If there are no unlinked IRR objects, the table will be empty.

## RPKI API Endpoint: Reg-RWS

### Do I need to use the API?

- No one *needs* to use the Reg-RWS API.
- Making bulk changes in the ARIN Online web interface is inefficient and time consuming.
- The Reg-RWS API enables resource holders the opportunity to script RPKI updates.
- No programming experience is necessary.

## Other Resources

### Free Helpful Tools

- RPKI ROA Planner - <https://roa-planner.internet2.edu/>
- NIST RPKI Monitor - <https://rpki-monitor.antd.nist.gov/ROV>
- Hurricane Electric Super Looking Glass - <https://bgp.he.net/super-lg/>
- IRR Explorer - <https://irrexplorer.nlnog.net/>
- Routinator web UI - <https://rpki-validator.ripe.net/ui/>
- Cloudflare RPKI portal - <https://rpki.cloudflare.com/?view=validator>
- RPKI ASPA Planner - <https://rootbeer.testing.ns.internet2.edu/aspa>
- PacketVis BGP/RPKI Monitoring - <https://packetvis.com/>
- rpki-client console - <https://console.rpki-client.org/>

### Documentation

- RPKI documentation - <https://rpki.readthedocs.io/en/latest/index.html>
- RPKI deployment hub - <https://rpkihub.au/>
- IETF SIDROPS - <https://datatracker.ietf.org/group/sidrops/documents/>
- RPKI Community Discord board (invite) - <https://discord.gg/nGvKa3Yc>
- ARIN RPKI FAQ - <https://www.arin.net/resources/manage/rpki/faq/>
- ARIN Suggestions - <https://www.arin.net/participate/community/acsp/>
- BGP Filter Guide - [https://bgpfilterguide.nlnog.net/guides/reject\\_invalids/](https://bgpfilterguide.nlnog.net/guides/reject_invalids/)

### Contact Information

Need more help? Reach out to us.

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