

# Working with IP Aggregates

## Working with IP Aggregates

IPAMv2

IPAM

VLAN

Logging

Manage aggregate

8.8.3.0/24 - 1918

Switch to Parent view

Netblock Tree

export to CSV

actions +

Search within this aggregate.

filter >

It Address	It Mask	It Assigned to	It Tags	It LIR	It ASN	It Region	It VLAN	It Updated	It ID Code	It Host Count	It Notes
8.8.3.0/25	25	Hermes Mu...	Cable, Customer	-	5504	Boston, MA	-	2024-01-08 13:...	-	128	test
8.8.3.128/27	27	QA Test Res...	Cable, Customer	-	-	Boston, MA	VLAN 5	2023-12-08 15:...	-	32	Internal space
8.8.3.160/27	27	available	Cable, Customer	-	-	Boston, MA	Test ...	2024-01-26 11:15	-	32	Internal space
8.8.3.192/28	28	available	Cable, Customer	1918 Test LIR	-	Boston, MA	-	2024-01-26 11:15	-	16	test
8.8.3.208/28	28	available	Cable, Customer	-	-	Boston, MA	-	2024-01-26 11:14	-	16	test
8.8.3.224/28	28	available	Cable, Customer	-	-	Boston, MA	-	2024-01-26 11:14	-	16	test
8.8.3.240/28	28	available	Cable, Customer	-	-	Boston, MA	-	2024-01-26 11:14	-	16	test

Displaying 1 to 7 of 7 blocks

### IPAM Aggregates

IP Aggregates are edited and managed from the [IPAM](#) Tab and IPAM Manage page.

Aggregates may be viewed, filtered, created, and deleted from the [IPAM](#) Tab, and setting IPAM alerts and using Aggregate Templates are performed in IPAM Manage.

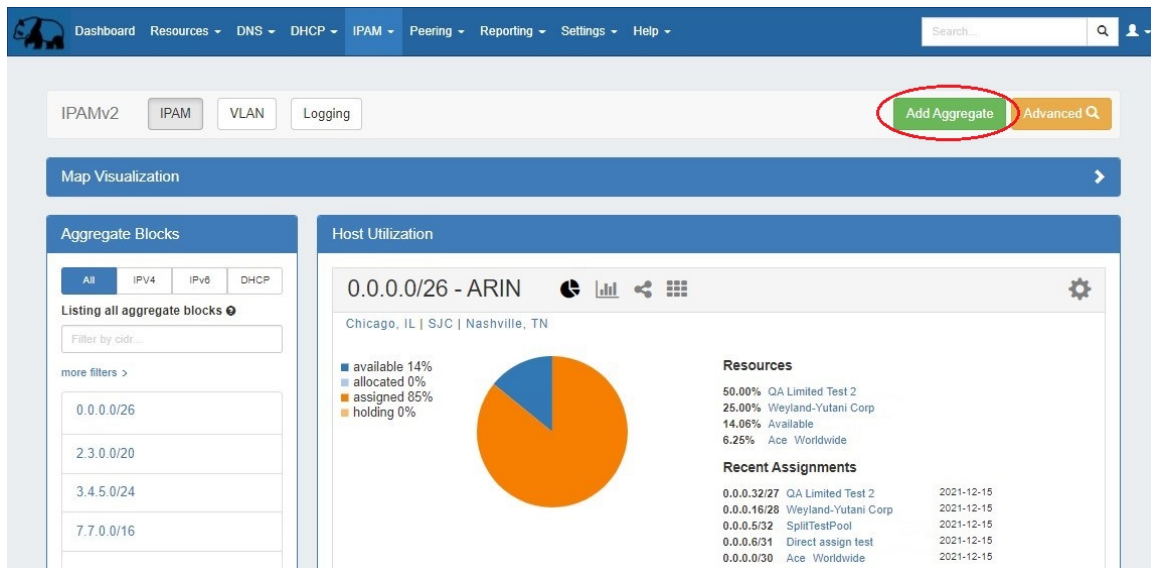
For an overview of the IPAM Tab, see [IPAM Tab](#). For information on working with individual blocks, continue to [Working with IP Blocks](#).

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## Working with IP Aggregates - Common Tasks

### Add an Aggregate

On the main [IPAM](#) Tab, click the "Add Aggregate" button. A new page will open to fill in details for a new aggregate block.



Enter in the desired IPv6 / IPv6 CIDR and RIR, at minimum. Region, Tags, Resource, Domain, VLAN, and subassignment status are optional, if desired.

The 'Add aggregate' form is a web interface for adding a new aggregate. It contains several input fields and dropdown menus. The 'Subnet' field is required and has a placeholder 'x.x.x.x/yy OR xxxxxxxx:xxxx:xxxx:yyyy'. The 'Resource' field is a dropdown menu with a 'Create & Assign' button next to it. The 'RIR' field is a dropdown menu. The 'Domain' field is a dropdown menu. The 'Region' field is a dropdown menu. The 'VLAN' field is a dropdown menu. The 'Tags' field is a dropdown menu. There are 'Clear', 'Add aggregate', and 'Back' buttons at the bottom.

To enable subassignments, a resource must be selected. The "Allow sub assignments" selector will be visible once a resource is selected from the dropdown.

Add aggregate

Subnet \*
12.0.0.0/32

RIR \*
ARIN

Region
Saskatoon, Saskatchewan

Tags
QA Test

Resource
QA Test Resource

Domain
Select...

VLAN
Select...

Allow sub assignments
OFF

Clear
Add aggregate
Back

Select "Create & Assign" to create a new resource to which to assign the aggregate.

Add aggregate

Subnet \*
x.x.x.x/yy OR xxxc:xxxc:xxxc:xxxc::/yyy

RIR \*
Select...

Region
Select...

Tags
Select...

Resource
Select...

Domain
Select...

VLAN
Select...

Create & Assign

Clear
Add aggregate
Back

If creating the aggregate for a specific use, keep in mind that certain uses may require additional information is provided in the aggregate, such as requiring 1918 space (DHCP Pools), a region to be provided (DHCP Customer Configuration Gadget), or a resource to be assigned with subassignments enabled. In such cases, it may be useful to assign a specific IPAM tag to associate with that use to assign at aggregate creation (such as "DHCP" )

When done, click "Add Aggregate", and a link to the newly created aggregate will be available. You may also click "Clear" and create another aggregate. Aggregates will be listed under the Host Utilization and Aggregate Blocks list of the IPAM Tab.

Add aggregate

Subnet \*

72.0.0.0/27

RIR \*

APNIC

Region

Boston, MA

Tags

DHCP Available

Resource

Select...

Create & Assign

Domain

Select...

VLAN

Select...

Clear

☐ Add duplicate aggregate?

Add aggregate

Back

Block 72.0.0.0/27 was added successfully

Open aggregate here

## Delete an Aggregate

Aggregates may be deleted from the Gear Icon in the top right corner of their Host Utilization box display.

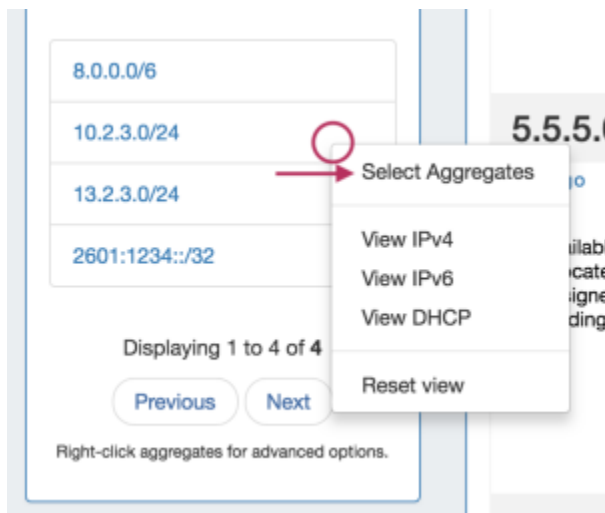


A warning dialog box will appear confirming the deletion, and noting whether assigned blocks exist in the aggregate that would also be deleted.

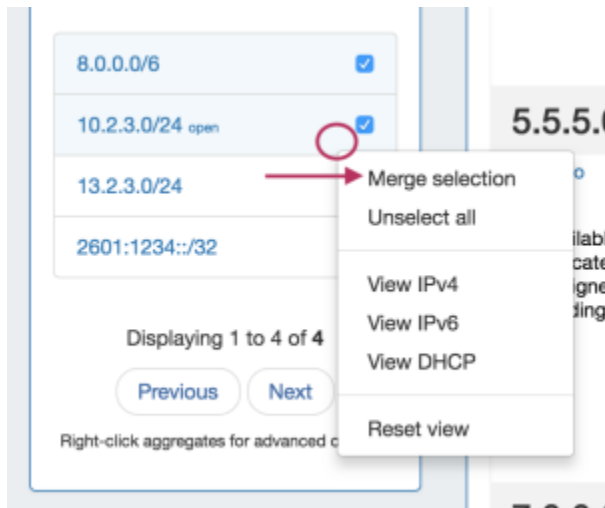
## Merge Aggregates

Adjacent Top Level Aggregates may be merged into a single aggregate, if meeting validity criteria (adjacent, but not overlapping).

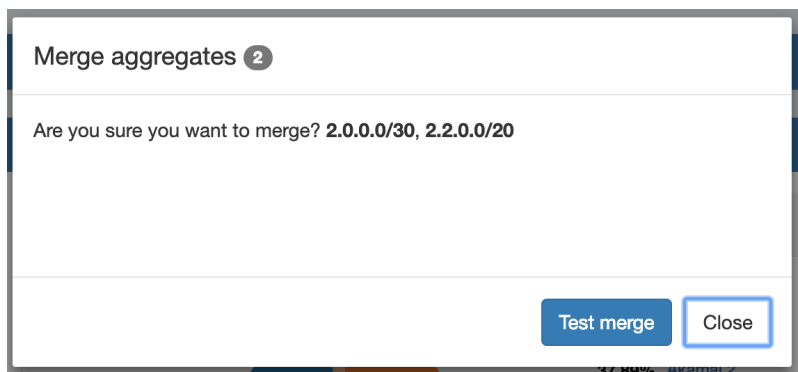
To do so, right click anywhere on the Aggregate Blocks list, and choose "Select Aggregates" from the menu.



Then, click the check boxes for the two aggregates you wish to merge, and then right click and select "Merge Selection".

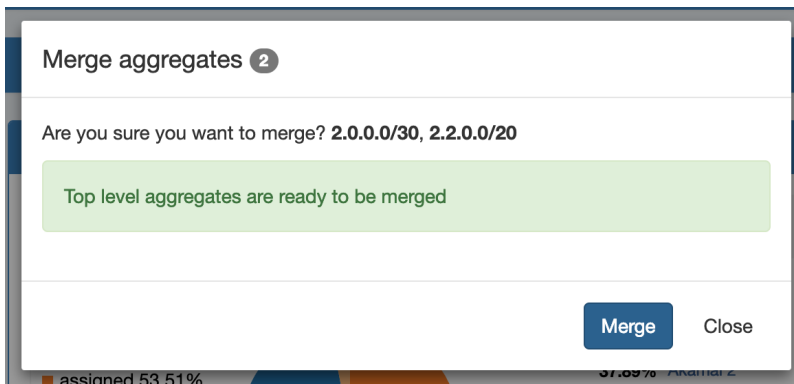


A confirmation dialog box appears to confirm the blocks to merge, and proceed with testing to see if the merge is valid. Click "Test Merge" to proceed.



ProVision will pre-test the merge, and if valid, give you the option to proceed.

Otherwise, an error message will display detailing why the aggregates are unable to be merged.



**Merge aggregates 2**

Are you sure you want to merge? **2.0.0.0/30, 2.2.0.0/20**

Top level aggregates are ready to be merged

**Merge** Close

Complete the aggregate merge by clicking "Merge".

To Exit out of the selection prior to merging, select "Close".

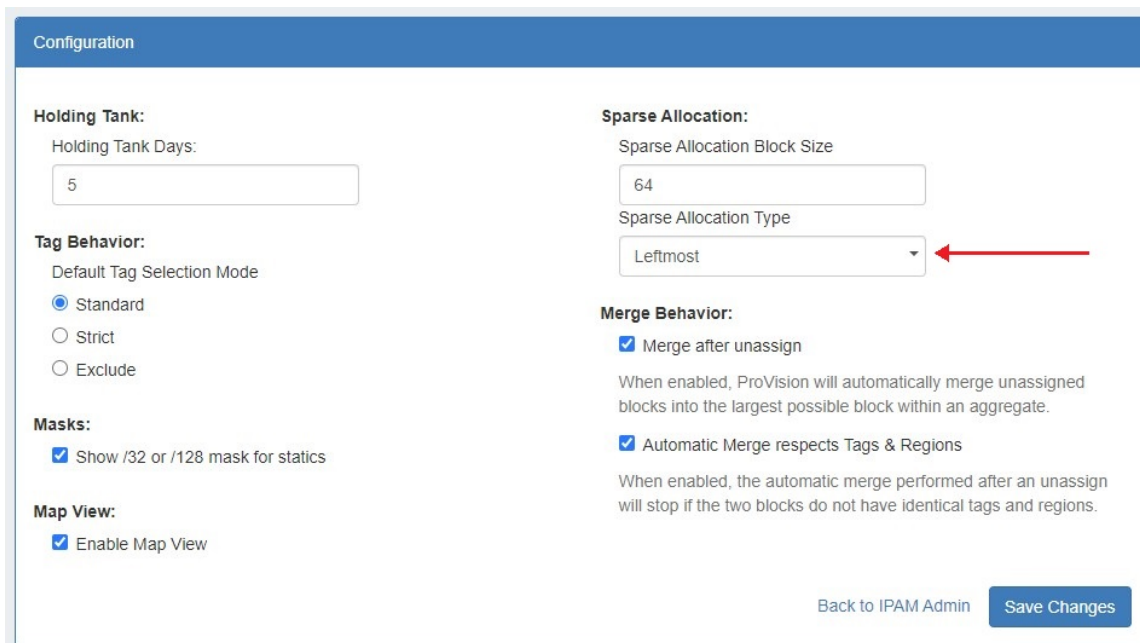
## Sparse Allocate in an IPv6 Aggregate

Sparse allocation evenly distributes assignments throughout an IPv6 range, using either a manually configured or automatically generated "Sparse Allocate" Numbering Authority domain algorithm to calculate the next block to assign.

## Sparse Allocation Schemes

Admins may select a system default Sparse Allocation scheme to use for IPv6 Sparse Allocation. Available values are Leftmost, Center, and Rightmost. If not otherwise specified, Leftmost is the default.

To edit the Sparse Allocation Scheme, select the desired scheme in [IPAM Configuration](#), then enable sparse allocation for the desired IPv6 aggregate. The Sparse allocation scheme is applied to the aggregate when sparse allocation is enabled for the aggregate, thus, pre-existing sparse allocation schemes will not be altered by later changes.



**Configuration**

**Holding Tank:**  
Holding Tank Days:

**Tag Behavior:**  
Default Tag Selection Mode  
☒ Standard  
☐ Strict  
☐ Exclude

**Masks:**  
☒ Show /32 or /128 mask for statics

**Map View:**  
☒ Enable Map View

**Sparse Allocation:**  
 Sparse Allocation Block Size:   
 Sparse Allocation Type:  ←

**Merge Behavior:**  
☒ Merge after unassign  
 When enabled, ProVision will automatically merge unassigned blocks into the largest possible block within an aggregate.  
☒ Automatic Merge respects Tags & Regions  
 When enabled, the automatic merge performed after an unassign will stop if the two blocks do not have identical tags and regions.

Back to IPAM Admin **Save Changes**

If you wish to change the scheme for an existing sparse allocated-enabled aggregate, you must

1) Disable sparse allocation for the aggregate 2) Edit the selected scheme 3) re-enable sparse allocate for the aggregate.

To verify which scheme is applied to aggregates, you may view the aggregate and scheme details in the [Numbering Authority](#) Sparse Allocate listings.





Then, select the resource to assign (or create a new one) and click "Assign".

**Sparse Assign: 1006:4567::/32**

Select a resource and click 'assign' to sparse assign this aggregate. You can also click on 'New Resource' to create and assign in one step.

**Filters**

Resource Holder x | v QA Test Category x | v

An Example Resource x | v

Aggregate was successfully assigned

New Resource Assign Close

The resource will be assigned according to the distribution algorithm and may be further managed in IPAM Manage for the aggregate.

## Manage an Aggregate

Managing an aggregate is mostly performed in the IPAM Manage screen for the aggregate.

From IPAM Manage, you can perform the aggregate template actions of Auto-Split / Clean-Up, Set IPAM Alert information, export the block list, as well as manage individual blocks.

For detailed information on using the IPAM Manage screen and managing at a block level, see [Working with IP Blocks](#).



IPAMv2 IPAM VLAN Logging											
Manage aggregate											
8.8.3.0/24 - 1918 Switch to Parent view Netblock Tree export to CSV actions + Search within this aggregate... filter >											
IP Address	IP Mask	IP Assigned to	IP Tags	IP LIR	IP ASN	IP Region	IP VLAN	IP Updated	IP ID Code	IP Host Count	IP Notes
8.8.3.0/25	25	Hermes Mu...	Cable, Customer	-	5504	Boston, MA	-	2024-01-08 13:...	-	128	test
8.8.3.128/27	27	QA Test Res...	Cable, Customer	-	-	Boston, MA	VLAN 5	2023-12-08 15:...	-	32	Internal space
8.8.3.160/27	27	available	Cable, Customer	-	-	Boston, MA	Test ...	2024-01-26 11:15	-	32	Internal space
8.8.3.192/28	28	available	Cable, Customer	1918 Test LIR	-	Boston, MA	-	2024-01-26 11:15	-	16	test
8.8.3.208/28	28	available	Cable, Customer	-	-	Boston, MA	-	2024-01-26 11:14	-	16	test
8.8.3.224/28	28	available	Cable, Customer	-	-	Boston, MA	-	2024-01-26 11:14	-	16	test
8.8.3.240/28	28	available	Cable, Customer	-	-	Boston, MA	-	2024-01-26 11:14	-	16	test

Displaying 1 to 7 of 7 blocks

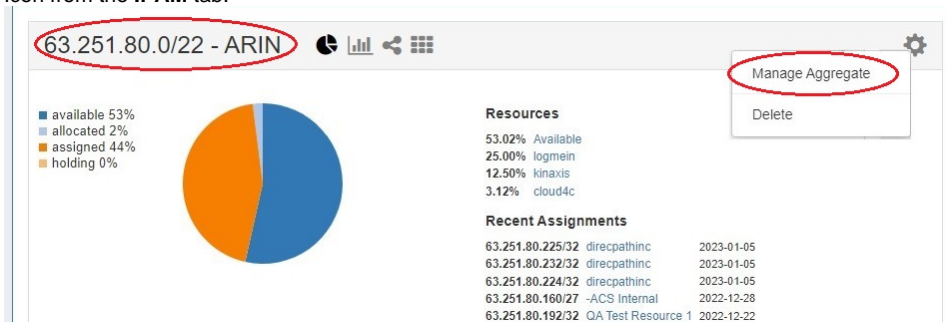
## Open IPAM Manage for an Aggregate

Open the IPAM Manage screen for a block by:

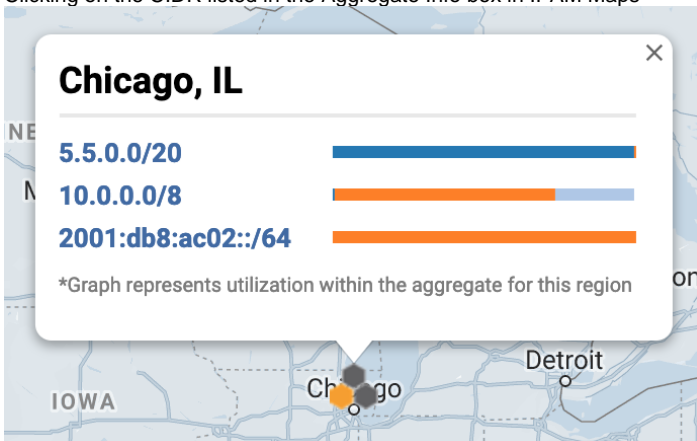
- Searching for the block in the Global search, and clicking on the resulting CIDR
- Clicking the "Open" link in the aggregate blocks list from the **IPAM** tab.



- Clicking on the CIDR header of the Aggregate Block Host Utilization module, or selecting "Manage Aggregate" from the module's Gear icon from the **IPAM** tab.



- Clicking on the CIDR listed in the Aggregate Info box in IPAM Maps



## Aggregate Actions

Open up aggregate level actions in IPAM Manage by clicking on the "Actions" link in the Manage Aggregate header.

Three options are available - Auto Split, Clean Up, and Manage Alerts.

The screenshot shows the 'Manage aggregate' interface for the aggregate 8.8.3.0/24 - 1918. The 'actions' link in the top navigation bar is circled in red. Below the navigation bar, there are three main sections: 'Auto Split', 'Clean Up', and 'Manage Alerts'. The 'Auto Split' section has a description, 'Size' and 'Limit' input fields, and a 'Split' button. The 'Clean Up' section has a 'Clean up split blocks into larger block of size:' dropdown, a description, an 'Ignore assignments when cleaning up?' checkbox, and a 'Clean up' button. The 'Manage Alerts' section has a description, 'Email to:' and 'Level (%)' input fields, and 'clear' and 'Save Alert' buttons. Below these sections is a table with columns: IT Address, IT Mask, IT Assigned to, IT Tags, IT LIR, IT ASN, IT Region, IT VLAN, IT Updated, IT ID Code, IT Host Count, and IT Notes. The table contains three rows of data.

IT Address	IT Mask	IT Assigned to	IT Tags	IT LIR	IT ASN	IT Region	IT VLAN	IT Updated	IT ID Code	IT Host Count	IT Notes
8.8.3.0/25	25	Hermes Mu...	Cable, Customer	-	5504	Boston, MA	-	2024-01-08 13:...	-	128	test
8.8.3.128/27	27	QA Test Res...	Cable, Customer	-	-	Boston, MA	VLAN 5	2023-12-08 15:...	-	32	Internal space
8.8.3.160/27	27	available	Cable, Customer	-	-	Boston, MA	Test ...	2024-01-26 11:15	-	32	Internal space

## Auto Split Aggregate

Auto Split an available aggregate into blocks of a specific size, up to a specific quantity of blocks by selecting "Size" and "Limit" under "Auto Split".

The block limit must be a power of two, or an error will appear. When done, click "Split".

The screenshot shows the 'Manage aggregate' interface for the aggregate 24.50.100.0/24 - 1918. The 'Auto Split' section is highlighted. The 'Size' field is set to /27 and the 'Limit' field is set to 8. Both fields have red circles around them. The 'Split' button is also circled in red. The 'Clean Up' and 'Manage Alerts' sections are visible but not highlighted. The table below shows one row of data.

IT Address	IT Mask	IT Assigned to	IT Tags	IT LIR	IT ASN	IT Region	IT VLAN	IT Updated	IT ID Code	IT Host Count	IT Notes
24.50.100.0/24	24	available		-	-	-	-	2024-01-03 16:...	-	256	string

## Clean Up Aggregate

Clean up an Aggregate into fewer blocks of a specific size, by selecting your desired block size and clicking "ignore assignments" (if blocks have assignments that would prevent merging).

When done, click the "Clean Up" button.

Manage aggregate

8.8.3.0/24 - 1918   Switch to Parent view   Netblock Tree   export to CSV   actions -   Search within this aggregate:  filter >

Auto Split

Automatically split block into sub-blocks of a specified size. Specifying a limit will split only the specified number blocks of selected size from the aggregate.

Size:  Limit:

\* The provided limit must always be a power of 2 (2,4,8,...)

Split

Clean Up

Clean up split blocks into larger block of size:

Block contains 4 assignment/s. Aggregating block may remove some or all of these assignments.

☒ ignore assignments when cleaning up?

Clean up

Manage Alerts

Send an alert email when available space for falls below a specified level.

Email to:

Level (%):

clear Save Alert

A confirmation modal will display the scope of the potential change.

Please confirm.

This action will modify 12 Resources and unassign 8 IP addresses, are you sure?

Continue Cancel

Click "Continue" to confirm and all blocks will be merged to the set size and reset to available. Click "Cancel" to exit.

## Set Aggregate Alerts

Enable or clear aggregate alert emails for the aggregate by setting an email address and utilization percentage level.

When the aggregate is utilized to the set percent, an email alert will be sent to the provided address.

Note: the "IPAM Alerts" task is enabled by default when an alert is set. You can set the task to the desired notification frequency and review history in the [Admin Scheduler Tab](#).

Manage aggregate

24.50.100.0/24 - 1918   Switch to Parent view   Netblock Tree   export to CSV   actions -   Search within this aggregate:  filter >

Auto Split

Automatically split block into sub-blocks of a specified size. Specifying a limit will split only the specified number blocks of selected size from the aggregate.

Size:  Limit:

\* The provided limit must always be a power of 2 (2,4,8,...)

Split

Clean Up

Clean up split blocks into larger block of size:

Clean up

Manage Alerts

Send an alert email when available space for falls below a specified level.

Email to:

Level (%):

clear Save Alert

When done, click "Save Alert". To clear an existing alert, hit "Clear Alert", and the alert information will be removed and status saved.

For more on IPAM Alerts Management at the Admin level see [Alerts Management](#) in the Admin Guide.

IPAM alerts may also be set on individual IP blocks. For more information see [Working with IP Blocks - Common Tasks](#).

## Working with IP Blocks

For additional information on performing IPAM tasks and working with blocks, continue on to [Working with IP Blocks](#).

## Additional Information

For additional information on working with the IPAM system, see the following areas:

- [IPAM Tab](#)
- [Gadgets](#)
- [Working with IP Rules](#)
- [IPAM Administration](#)
- [Alerts Management](#)