

## Flux application specification v5

Application on Flux of current version 5 specifications of an application object of following variables

- version
  - Integer
  - Specifies the version of specifications. Integer. Valid values are 1-5. For v5 use 5
- name
  - String
  - Name of application. Has to be alpha numeric only. Less than 32 characters.
  - Cannot start with reserved name strings 'zel' or 'flux'
  - Locked field. Application name CANNOT be changed with application updates.
- description
  - String
  - Brief description of application, less than 256 characters.
- owner
  - String
  - Specifies application owner, zelid (or any legacy bitcoin address starting 1)
- instances
  - Integer
  - Minimum number of application instances to be spawned across the network
  - From 3 - 100
  - Maximum Instances to be maintained by FluxOS is specified as minimum + 5
- contacts
  - Array
  - Array of strings of contacts. Only emails are supported
  - Public, for receiving notifications about applications such as expiry
- geolocation
  - Array
  - Array of strings of continent, country codes and region with \_ separation where application will be spawned or is prohibited to be spawned
  - String is prefixed with 'ac' to whitelist a location
  - String is prefixed with '!ac' to blacklist a location
  - By default all locations are possible
  - Eg. ["acEU", "!acEU\_CZ"]
  - Eg. ["acEU\_CZ\_Praha"]
- compose
  - Array of composition object
  - Maximum of 5 components per application
  - Specifications of component:
    - Name
      - String
      - Name of application component. Has to be alpha numeric only. Less than 32 characters.

- Cannot start with reserved name strings 'zel' or 'flux'
  - Locked field. Application name CANNOT be changed with application updates.
- description
  - String
  - Brief description of application component, less than 256 characters.
- repotag
  - String
  - Valid docker hub namespace in format of namespace:tag
  - max of 500MB image
- ports
  - Array of Integers
  - Ports of applications on which the app is available to outside
  - maximum 5
  - range of 31000-39999
  - unique per every application
- containerPorts
  - Array of Integers
  - component ports to forward to ports
  - Size has to match ports
  - Same order
- domains
  - Array of Strings
  - Custom domains of application for which Flux Domain Manager (FDM) will also adjust
  - Size has to match ports
  - String can be separate by comma (,) to put multiple domains assigned to the same port
- environmentParameters
  - Array of Strings
  - Environment parameters to be attached to component
- commands
  - Array of Strings
  - Commands to be run component with
- containerData
  - String
  - Data to attach as a volume
- cpu
  - Float
  - Step of 0.1
  - CPU in vCores to attach to instances
- hdd
  - Integer

- Amount of SSD space in GB to assign to volume
- ram
  - Integer
  - Step of 100
  - Amount of RAM in MB to assign to component
- tiered
  - Boolean
  - Specifies if component HW specifications should use different HW specifications of different node tiers
- cpubasic
  - If tiered
  - Value overrides general cpu
  - Specification for Cumulus
- cpusuper
  - If tiered
  - Value overrides general cpu
  - Specification for Nimbus
- cpubamf
  - If tiered
  - Value overrides general cpu
  - Specification for Stratus
- hddbbasic
  - If tiered
  - Value overrides general hdd
  - Specification for Cumulus
- hddsuper
  - If tiered
  - Value overrides general hdd
  - Specification for Nimbus
- hddbamf
  - If tiered
  - Value overrides general hdd
  - Specification for Stratus
- rambasic
  - If tiered
  - Value overrides general ram
  - Specification for Cumulus
- ramsuper
  - If tiered
  - Value overrides general ram
  - Specification for Nimbus
- rambamf
  - If tiered
  - Value overrides general ram

## - Specification for Stratus

### General

- Applications live for 22000 blocks. After that they expire. Before expiration, application can be updated
- Application is created in the order of compose specifications and removed in reverse order
- Ports can be omitted
- Proper health checks can be written to determine if an Instance will be added to FDM
- Ports use both TCP and UDP
- Every application component has to have a unique volume
- When ownership changes, application specifications for broadcast has to be signed by previous owner
- Owner and repotag has to be whitelisted by submitting a PR to runonflux/flux github repository
- <https://home.runonflux.io/apps/registerapp> is a decentralized entrance for deploying applications on Flux network and overall management
- Application prices are per month defined by HW specifications, paid in Flux.
  - 0.06 Flux per 0.1 vCore
  - 0.02 Flux per 100 MB of RAM
  - 0.01 Flux per 1 GB of SSD
- Application HW specifications are limited by Flux nodes HW requirements minus reserved, locked space. Locked space is 1 vCore, 2GB of RAM and 40 GB of SSD

### Flux Domain Manager (FDM)

- Manages automatic domains for an application
- Load balancing instances
- Manages ssl certificate
- Centralised piece. Anyone can stand up an FDM and be a domain gateway to Flux and applications
- HAPROXY
- Application automatic domains are issued in following way
  - Deprecated scheme required lots of domains that were highly unused, causing loads of dns adjustments and certificate requests. New scheme simplifies the mechanism, uses wildcard certificates while keeping the main domain scheme the same.
  - Scheme: [applicationName]\_[componentPort].app.runonflux.io
    - componentPort is a public port of application component
    - applicationName is name of application, lower cased
  - Scheme [applicationName].app.runonflux.io
    - FDM will try to forward in a smart way the entire application to the scheme and distribute user calls to appropriate components and ports based on

application criteria (if defined and manually adjusted by issuer in FDM application check). If not defined, FDM will by default forward the first application component and first port of scheme, if a port of the first component is not defined, second component is used, then third etc.  
[applicationName]\_[component\_1\_Port\_1].app.runonflux.io

- Custom domains
  - FDM checks for custom domains field in application component and configures for its usage for the specific application component and port
  - SSL is not issued for obvious reasons, it is up to app deployer to adjust DNS record correctly and use eg. cloudflare proxying to have a valid ssl certificate