This doc has been replaced with [this](https://docs.google.com/document/d/1MF2E9G_hZ3bD0EwKlbsTNvaHMcHqJkLAIfYJb-AGJfg/edit?usp=sharing)

Pursuant to section 3.3.5.2 of the Factom Protocol Governance Document, “Node technical specification” is a weighted variable in the Authority Node election process. It is expected that Authority Nodes have at least technical specifications as outlined in the below proposed scoring matrix.

**Scoring**

Several variables will be taken into account to determine the technical specification score. This technical specification score’s weight is set at 5-15% of the total application election score. The matrix below will account for max 90% of the that 15%, leaving up to 10% to the individual judgement of the guides, since not every technical specification variable can be accounted for in a matrix. Please note that providing the guides with enough technical specifications about your Auth node(s), it’s datacenter, the connectivity, redundancy etcetera could be a key component in that last 10% as decided by the guides. Future technical specification requirements and scoring will probably be more refined.

**1) CPU**

We expect at least a Intel Xeon or equivalent CPU that is no older than 3 years. We choose not to opt for specific CPU names or versions, since Factom needs a performant CPU, but it is not the most important part of a good performing Auth node. Instead we focus on the amount of cores dedicated to the Auth Node. Please note, that we are not talking about hyperthreading here. It means actual cores (dedicated or virtual backed by real cores).

For cloud based providers, some plans throttle the amount of CPU capacity available to a running instance. This allows for efficient bursting capability, but for steady state operations will cause cascading problems if CPU usage is high. A cloud platform shouldn’t use an instance with CPU credits that diminish with use.

CPU Score:

|  |  |  |  |
| --- | --- | --- | --- |
| CPU - Intel Xeon or equivalent | **1 core** | **2 core** | **>= 3 cores** |
|  | 5% | 10% | 15% |

**2) Memory**

The minimum required amount of memory for Factom is 8GB. This amount allows you to run Factom without problems, but it is strongly recommended to ensure more memory is available for Factom. We do not give a maximum amount, so if your machine has more memory than in the top column you will not score any extra points. Please note that Factom in itself will do with 8 GB of memory, but extra memory for caching is always beneficial for speedy operation of Factom and your node. Modern operating systems always benefit from more memory! Please note that extra points can be awarded when a machine can scale memory, but only when it is not in the top column already. The latter does not score you the full amount, since dedicated spare memory is always available, whilst scaling almost always requires a reboot

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **8-15 GB** | **16-23 GB** | **>= 24 GB** | **Auto-scale < 24** |
| Memory | 10% | 20% | 30% | +5% |

**3) Disk type**

Since Factom does a lot of reads and writes it benefits from disks with low latency and high throughput. We are not scoring based on raw numbers in this round of applications, but based on type of disks, since that roughly translates into speed categories.

For cloud based deployments, when selecting a drive type, most of the time there are bursting types and the type which fully provisions access. In AWS parlance gp2 vs io1, with gp2 getting throttled with heavy usage. Using the bursting type of storage causes slowdowns when booting if for example the network needed to be started multiple times in a short period of time.

Note: Factom Federated servers currently provision 600 IOPS

|  |  |  |  |
| --- | --- | --- | --- |
|  | SATA | SAS | SSD |
| Disk Type | 1% | 10% | 25% |

**4) Free disk size**

Although not directly a technical specification it is important to account for the (future) growth of the Factom database. We will take into account the amount of free space for the database to grow. Providing separate partitions or volumes for the Factom database adds bonus points, since other files like log-files or operating system files cannot get in the way of the Factom database

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 20-49GB | 50-99GB | >= 100 GB | Sep. part/vol |
| Disk Size free for DB | 3% | 7% | 10% | +2% |

**5) Network uplink/interconnectivity**

On the Testnet Factom sometimes exceeds 10 Mbps and on average utilizes 1 to 2 Mbps. This means a 100Mbit connection will do for now. It is however the minimum uplink requirement for now. Please note that we are not only talking about the speed of the network interface card here. This has to be the minimum uplink speed to the internet! Since Gbit lines typically have lower latency and are better equipped to handle peak and future loads they score a little better.

Static IPs will also be needed, so reboots don’t throw off seeding, routing, and administration.

|  |  |  |
| --- | --- | --- |
|  | 100 Mbit | >= 1 Gbit |
| Network speed (uplink not NIC only) | 5% | 10% |