

## Advantage Database Server (ADS) and Clustering

**Remark:** This document was created from the Advantage Support Team Germany. It contains all necessary steps to run ADS under Novell NetWare or Windows NT/2000 cluster. We can't give any guarantees about the accuracy of the content of this document.

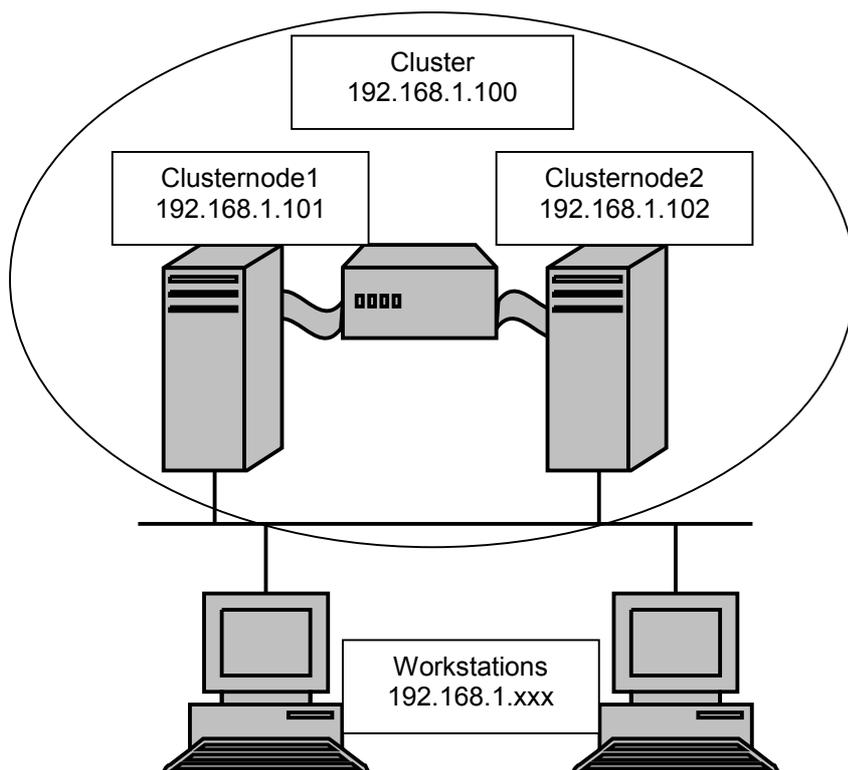
### Requirements:

- Advantage Database Server Version 6.2 or newer.
- The Clients must be based on the Advantage Client Engine Version 6.11 or newer.
- If you use DOS Applications (Clipper) in this scenario, they must be linked with the ADS IP Libraries and ADSDOSIP 6.11 or newer must be used.
- Windows 16-bit Applications (Clip-4-Win, FiveWin, at least ADS 6.11) require a special of the communication libraries (available through the support team).
- The cluster must run without ADS before trying to install ADS on it (please look into the documentation of the OS manufacturer) and it must be accessible through the IP protocol.

### What is a Cluster?

A Cluster is a set of at least two computers which is accessed as one unit. Each computer (cluster node) has its own IP address. Additionally, the whole cluster has one IP address. All cluster nodes share at least one common hard drive (cluster resource).

Example setup:



The workstations don't connect directly to a cluster node, e.g. in order to map a drive, but they connect to the cluster itself (in our example to the IP address 192.168.1.100). Which Clusternode is physically used to read the data is not relevant to the workstation.

### Problems with ADS

Advantage Clients use the mapping information to detect the IP address of the server. Workstations map to the whole cluster (and not to a cluster node). In the above example the clients detect the IP address 192.168.1.100. That doesn't matter since the ADS is accessible over that IP address. But ADS has it's own IP address (the cluster node IP address) which it returns to the Advantage client to use for further communication to the Advantage Database Server. Since it doesn't know anything about cluster services, it sends with the IP address of the cluster node which currently runs ADS itself.

Additionally there are a lot of issues where the usual discovery methods will fail.

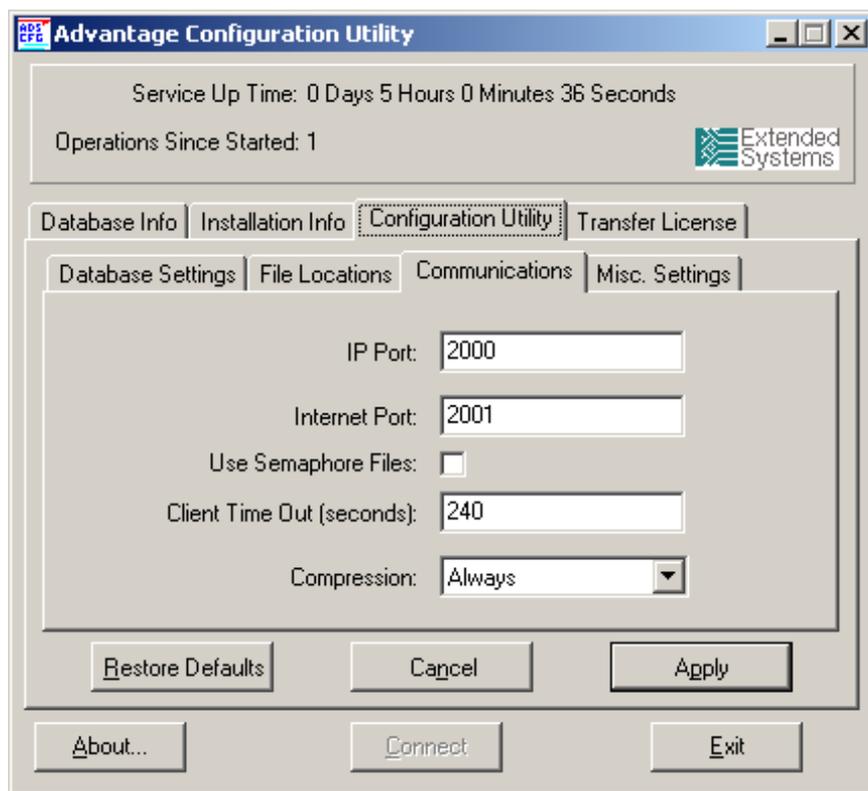
### The solution

Advantage Windows 32-bit Clients with Version 6.11 or newer allow to specify the server IP address directly. To use that functionality you first have to setup an IP port (or for AIS connections the internet port) on server side.

Under NetWare this is done via the ads.cfg file:

```
IP_PORT=2000
INTERNET_PORT=2001
```

Under Windows NT/2000 use the Configuration Utility:



### Remark:

ADS 6.11 has these settings on the 'Misc. Settings' tab.

Afterwards you can specify the server IP address in client side in the ADS.INI file. This file should be in the application folder or in the Windows folder.



```
[ADScluster]
LAN IP=192.168.1.100
LAN PORT=2000
INTERNET_IP=192.168.1.100
INTERNET_PORT=2001
```

With that setting the server will surely be found through the client engine.

But there is still one challenge:

1. The Server responds with the wrong IP address

ADS 6.2 and newer has for that two new configuration parameters, which must be added to the registry (Windows NT/2000) or the ADS.CFG file (Novell NetWare).

```
;ADS.CFG
;Cluster IP Address
LAN IP ADDRESS=192.168.1.100
INTERNET_IP_ADDRESS=192.168.1.100
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Advantage\Configuration]
"LAN_IP_ADDRESS"="192.168.1.100"
"INTERNET_IP_ADDRESS"="192.168.1.100"
```

### Restrictions

With this solution ADS can be run under cluster services. But since the client engine isn't currently prepared for clustering, the applications must be restarted if the active cluster node changes. This problem may be solved in a future release if full cluster support will be implemented.

### Remarks for ADS installation

ADS must be installed and registered separately on each used machine. Therefore there are multiple licenses with the same user option necessary.