

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/XP cluster. We can't give any guarantees for the content of that document. The full cluster support is planned for ADS 8. The steps in this document is only a workaround.

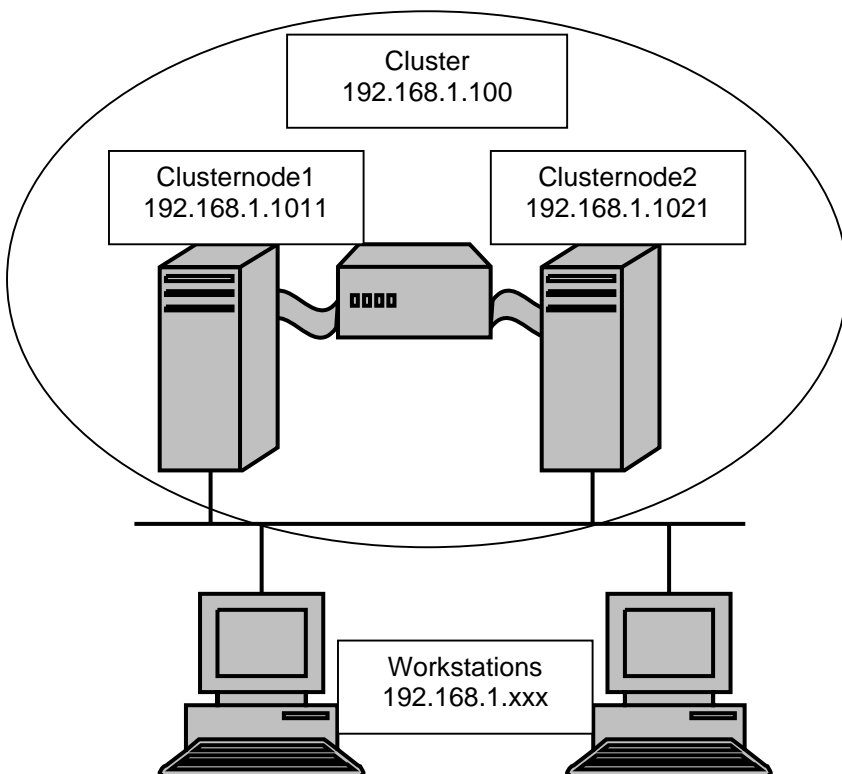
Requirements:

- 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 16Bit Applications (Clip4Win, 5Win) can't be used with cluster.
- 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 accesable through the IP protocol.

What's a Cluster

A Cluster is a set of at least two computers which is accessed as one unit. Each computer (cluster node) has it's own IP address. Additionally the whole cluster has one IP address ,too. 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 for the workstation.

Problems with ADS

Advantage Clients use the mapping information to detect the IP address of the server. Since the workstations map to the whole cluster (and not to a cluster node), the clients detect for in example 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 within any responds to the client. 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.

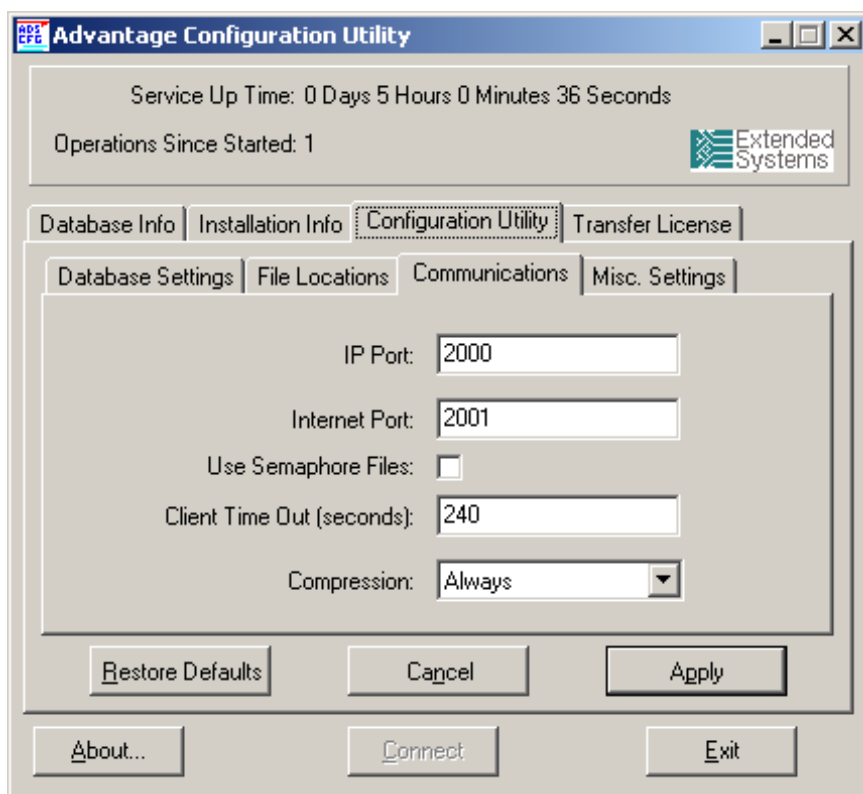
The solution

ADS Win32Bit Clients with Version 6.11 or newer allow to specify the server directly. To use that functionality you first have to setup an IP port (resp. 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/XP use the Configuration Utility:



Remark:

ADS 6.11 has these settings on the page ,Misc. Settings'

Afterwards you can specify the server on client side in the ADS.INI. 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 are still two challenges:

1. The Server responds with the wrong IP address
2. On toggling the active cluster node ADS detects a copy with the same serial number in the network cache

ADS 6.2 and newer has for that three new configuration parameters, which must be added to the registry (Windows NT/2000/XP) 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
;start ADS in Cluster-Mode
USE_CLUSTERING=1
```

```
[HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\Advantage\Configuration]
"USE_CLUSTERING"=dword:00000001
"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 when the active cluster node changes. This problem will be solved when full cluster support will be implemented.

Remarks for ADS installation

To have less errors on updating ADS, it can be installed directly on the cluster resource. For the NetWare version you need multiple dongles.

For the windows version there's no dongle, but a software protection. You have to register ADS on each node. The first registration should be run without any errors. For the additional registrations you have to contact your support provider since a special support utility must be used.