

# Server Software Configuration

## DBMS Configuration

## OS Configuration

### Server Information:

Database server information text file sysinfo-per900.txt is in the SupportingFiles\Indroduction directory.

### Services:

Name	Status	Startup Type	Log On As
Application Experience	Started	Automatic	Local System
Application Information		Manual	Local System
Application Layer Gateway Service		Manual	Local Service
Application Management	Started	Manual	Local System
Background Intelligent Transfer Service	Started	Automatic (Delayed Start)	Local System
Base Filtering Engine	Started	Automatic	Local Service
Certificate Propagation	Started	Manual	Local System
CNG Key Isolation		Manual	Local System
COM+ Event System	Started	Automatic	Local Service
COM+ System Application		Manual	Local System
Computer Browser		Disabled	Local System
Cryptographic Services	Started	Automatic	Network Service
DCOM Server Process Launcher	Started	Automatic	Local System
Desktop Window Manager Session Manager	Started	Automatic	Local System
DHCP Client	Started	Automatic	Local Service
Diagnostic Policy Service	Started	Automatic	Local Service

Diagnostic Service Host		Manual	Local Service
Diagnostic System Host	Started	Manual	Local System
Distributed Link Tracking Client	Started	Automatic	Local System
Distributed Transaction Coordinator	Started	Automatic (Delayed Start)	Network Service
DNS Client	Started	Automatic	Network Service
Extensible Authentication Protocol		Manual	Local System
Function Discovery Provider Host	Started	Manual	Local Service
Function Discovery Resource Publication		Manual	Local Service
Group Policy Client	Started	Automatic	Local System
Health Key and Certificate Management		Manual	Local System
Human Interface Device Access		Manual	Local System
IKE and AuthIP IPsec Keying Modules	Started	Automatic	Local System
InstallDriver Table Manager		Manual	Local System
Interactive Services Detection		Manual	Local System
Internet Connection Sharing (ICS)		Disabled	Local System
IP Helper	Started	Automatic	Local System
IPsec Policy Agent	Started	Automatic	Network Service
KtmRm for Distributed Transaction Coordinator	Started	Automatic (Delayed Start)	Network Service
Link-Layer Topology Discovery Mapper		Manual	Local Service
Microsoft .NET Framework NGEN v2.0.50727_X64		Manual	Local System
Microsoft .NET Framework NGEN v2.0.50727_X86		Manual	Local System
Microsoft Fibre Channel Platform Registration Service		Manual	Local Service
Microsoft iSCSI Initiator Service		Manual	Local System
Microsoft Software Shadow Copy Provider		Manual	Local System
MRMonitor	Started	Automatic	Local System
MSMFramework	Started	Automatic	Local System
Multimedia Class Scheduler		Manual	Local System
Net.Tcp Port Sharing Service		Disabled	Local Service
Netlogon		Manual	Local System
Network Access Protection Agent		Manual	Network Service
Network Connections	Started	Manual	Local System

Network List Service	Started	Automatic	Local Service
Network Location Awareness	Started	Automatic	Network Service
Network Store Interface Service	Started	Automatic	Local Service
Office Source Engine		Manual	Local System
Offline Files		Disabled	Local System
Performance Counter DLL Host		Manual	Local Service
Performance Logs & Alerts		Manual	Local Service
Plug and Play	Started	Automatic	Local System
PnP-X IP Bus Enumerator		Disabled	Local System
Portable Device Enumerator Service		Manual	Local System
Print Spooler	Started	Automatic	Local System
Problem Reports and Solutions Control Panel Support		Manual	Local System
Protected Storage		Manual	Local System
Remote Access Auto Connection Manager		Manual	Local System
Remote Access Connection Manager		Manual	Local System
Remote Procedure Call (RPC)	Started	Automatic	Network Service
Remote Procedure Call (RPC) Locator		Manual	Network Service
Remote Registry	Started	Automatic	Local Service
Resultant Set of Policy Provider		Manual	Local System
Routing and Remote Access		Disabled	Local System
Secondary Logon	Started	Automatic	Local System
Secure Socket Tunneling Protocol Service		Manual	Local Service
Security Accounts Manager	Started	Automatic	Local System
Server	Started	Automatic	Local System
Shell Hardware Detection	Started	Automatic	Local System
SL UI Notification Service	Started	Manual	Local Service
Smart Card		Manual	Local Service
Smart Card Removal Policy		Manual	Local System
SNMP Trap		Manual	Local Service
Software Licensing	Started	Automatic	Network Service
Special Administration Console Helper		Manual	Local System
SQL Active Directory Helper Service		Disabled	Network Service

SQL Server (MSSQLSERVER)		Manual	.\sa
SQL Server Agent (MSSQLSERVER)		Manual	.\sa
SQL Server Browser		Disabled	Local Service
SQL Server VSS Writer	Started	Automatic	Local System
SSDP Discovery		Disabled	Local Service
Superfetch		Disabled	Local System
System Event Notification Service	Started	Automatic	Local System
Task Scheduler	Started	Automatic	Local System
TCP/IP NetBIOS Helper	Started	Automatic	Local Service
Telephony		Manual	Network Service
Terminal Services	Started	Automatic	Network Service
Terminal Services Configuration	Started	Manual	Local System
Terminal Services UserMode Port Redirector	Started	Manual	Local System
Themes		Disabled	Local System
Thread Ordering Server		Manual	Local Service
TPM Base Services		Automatic (Delayed Start)	Local Service
UPnP Device Host		Disabled	Local Service
User Profile Service	Started	Automatic	Local System
Virtual Disk		Manual	Local System
Volume Shadow Copy		Manual	Local System
Windows Audio		Manual	Local Service
Windows Audio Endpoint Builder		Manual	Local System
Windows CardSpace		Manual	Local System
Windows Color System		Manual	Local Service
Windows Driver Foundation - User-mode Driver Framework		Manual	Local System
Windows Error Reporting Service	Started	Automatic	Local System

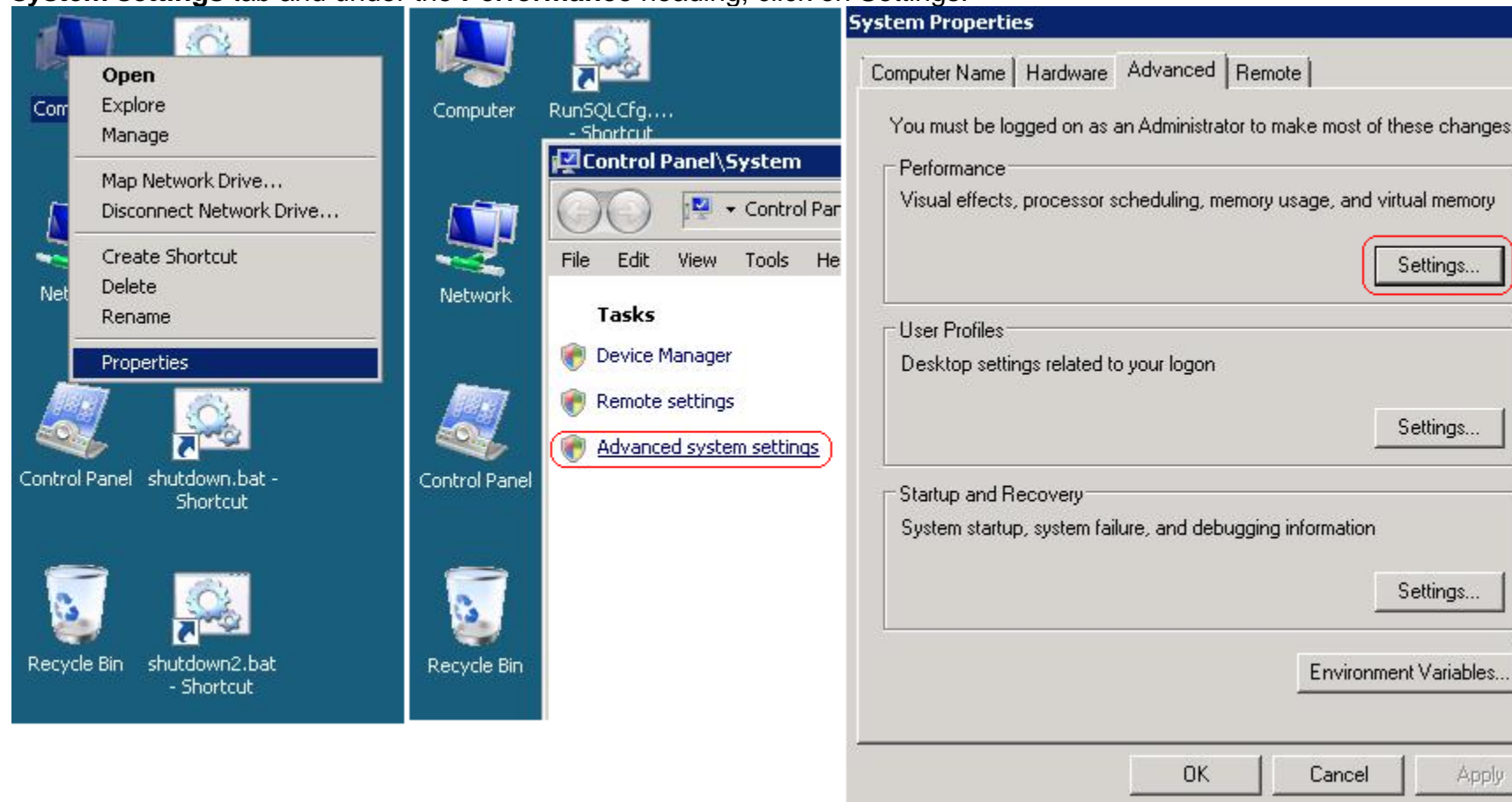
### Assign IP Address to Database Server System:

**Start -> Settings -> Network Connections.** Right click on the desired **network icon** and select **Properties**. Click on **Internet Protocol Version 4 (TCP/IPv4)** and **Properties**, select **Use the following IP address** and input 192.1.1.12.

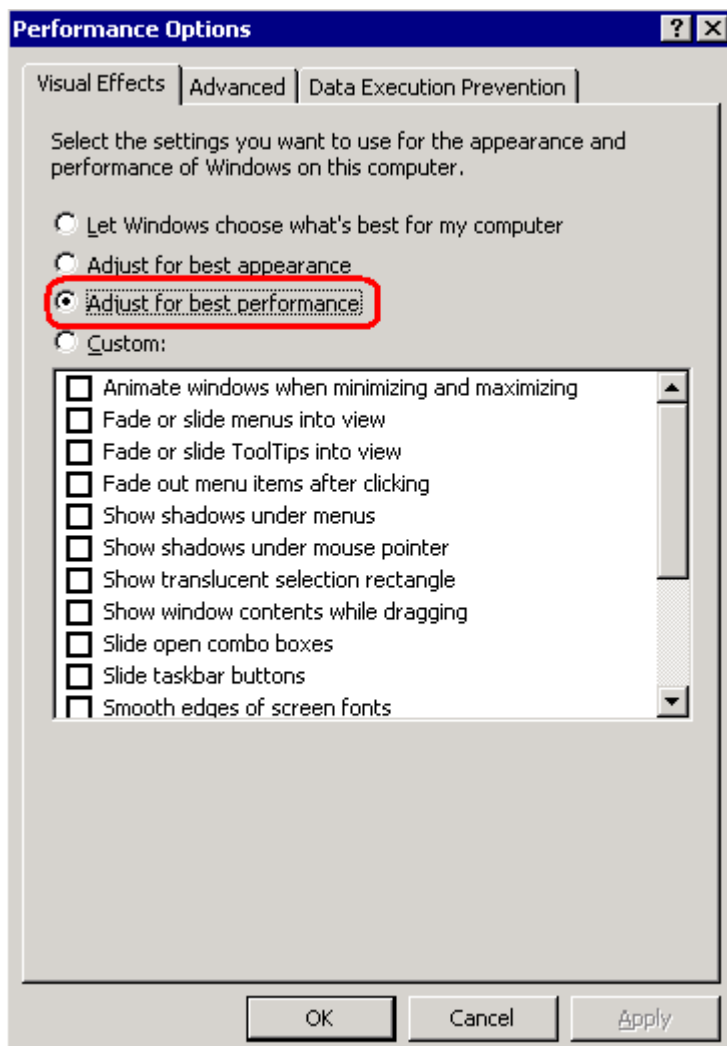
## OS Settings:

### DBServer System Properties Modifications:

To modify the system properties, right click on the **Computer** desktop icon and select Properties. Select **Advanced system settings** tab and under the **Performance** heading, click on Settings.



Under the **Visual Effects** tab, click on:  
**Adjust for best performance.**

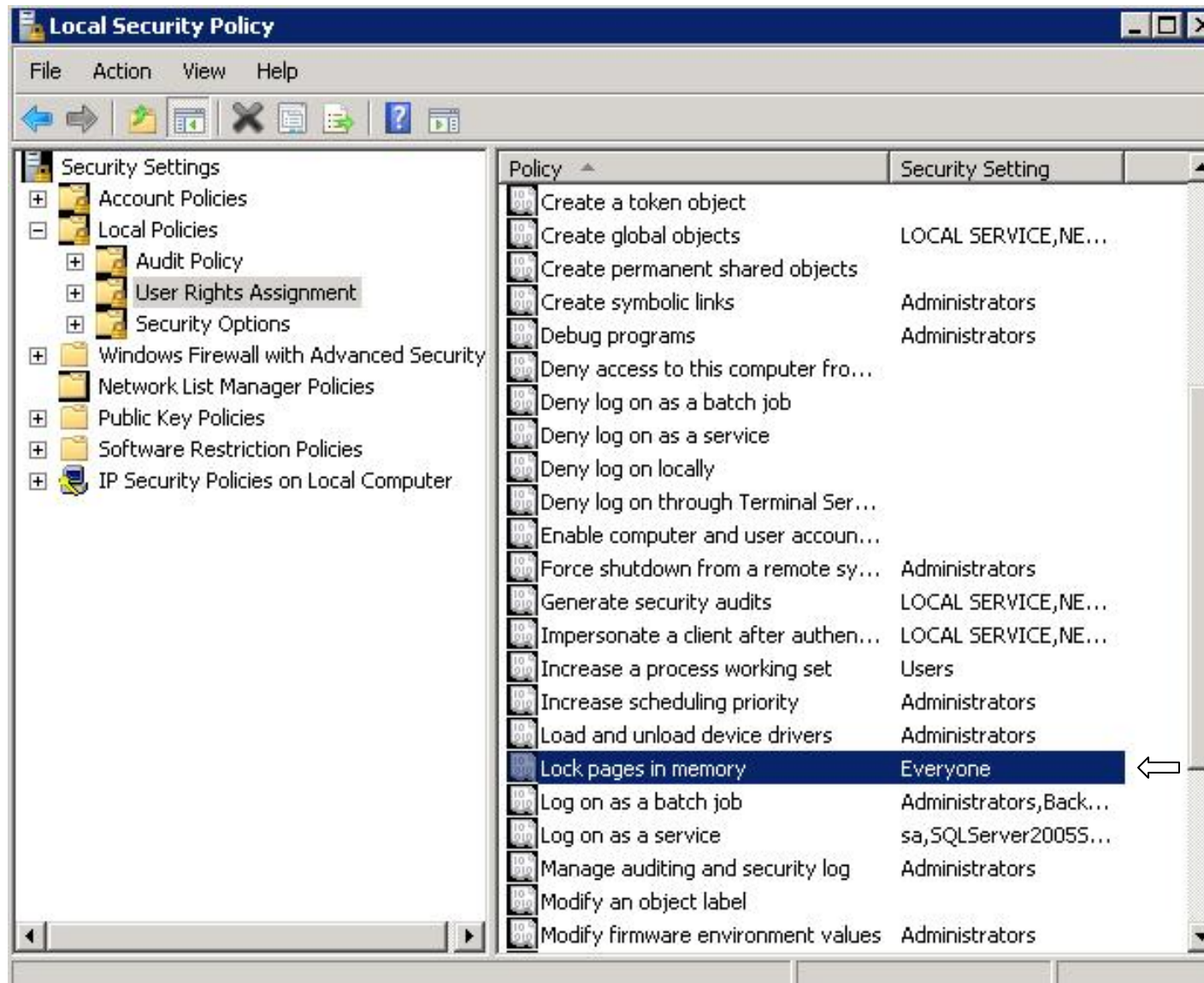


Under the **Advanced** tab, click on:  
**Background services.**

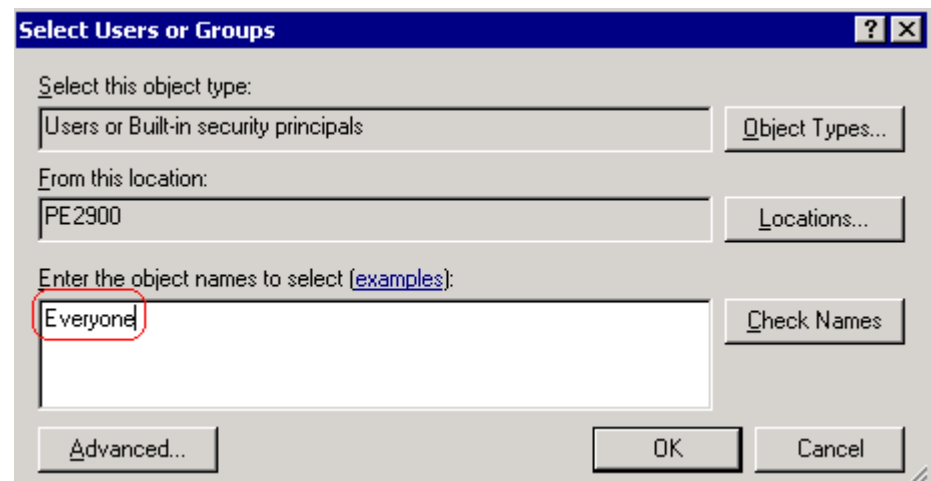
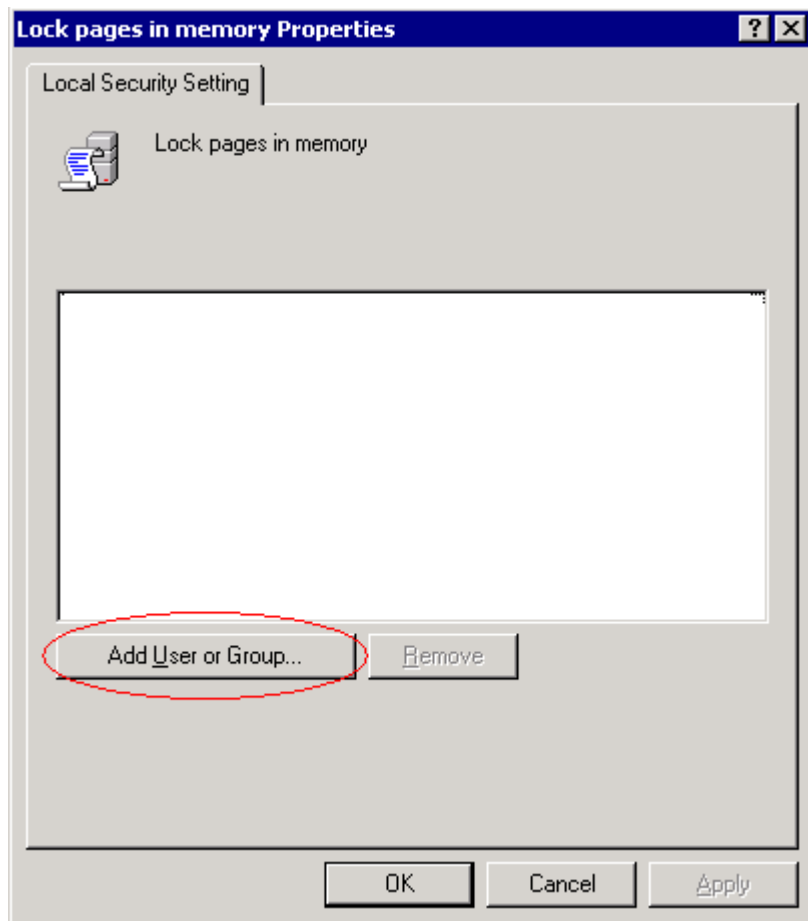


## Lock Pages in Memory:

To access **Lock Pages in Memory**, click on the **Start** button, select Settings -> Control Panel -> Administrative Tools -> Local Security Policy.



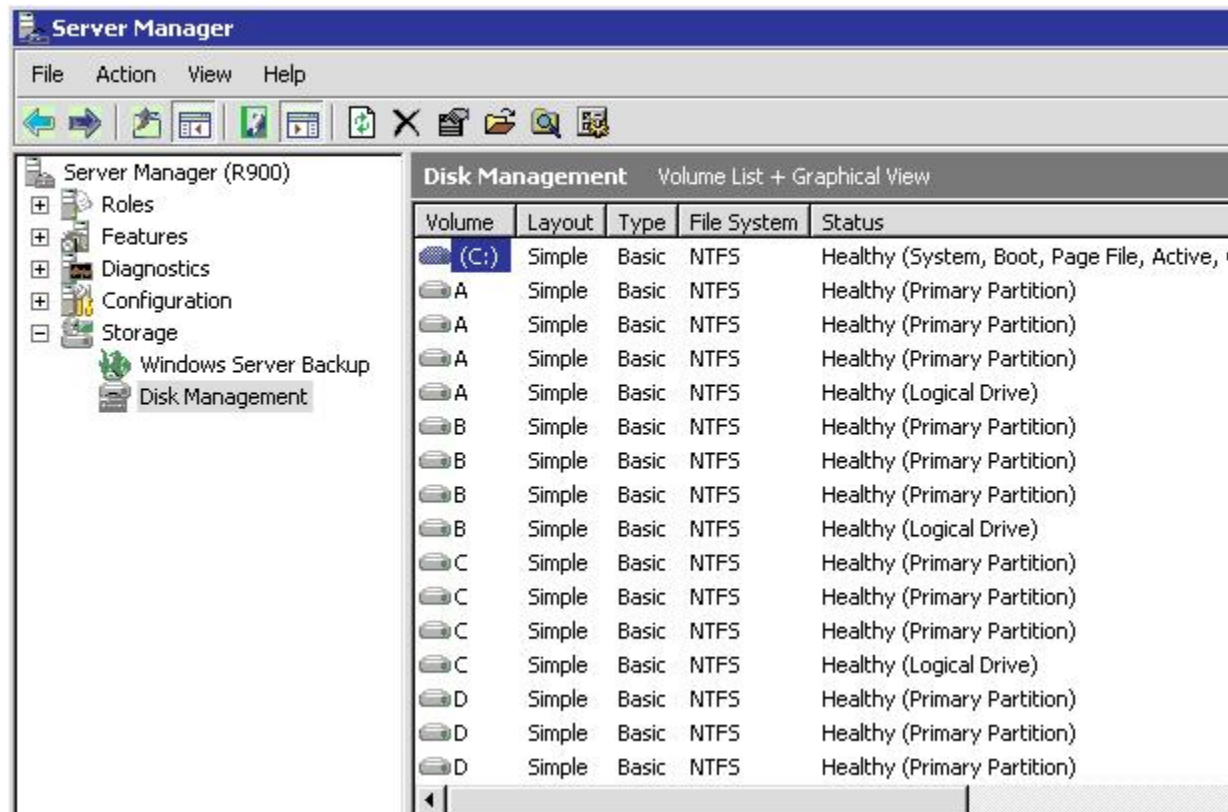
This displays the **Local Security Settings** window and from here, access **Local Policies -> User Rights Assignment** and double click on **Lock pages in memory**. The **Lock Pages in memory Properties** box appears, then click **Add User or Group**. The **Select Users or Groups Box** appears, type **Everyone** and click OK, then OK out of the remaining boxes.





## Disk Configuration:

The disks were setup using the Disk Management tool.



Right click **Computer** and select **Manage**. Expand storage and click on **Disk Management**.

## SQL Server Configuration

### Installation:

The **Latin1\_general\_Binary collation** option was selected during the SQL Server install.

### SQL Server Startup Parameters:

```
sqlservr -c -x -T661 -T834 -T3502 -T8744
```

- c - Start SQL Server independent of the Service Control Manager
- x - Disables the keeping of CPU time and cache-hit ratio statistics
- T661 - Disable the ghost record removal process
- T834 - Enable Large Pages
- T8744 - Disallow prefetch ranges
- T3502 - Display checkpoints in the errorlog

### SQL Server Parameters:

name	minimum	maximum	config_value	run_value
Ad Hoc Distributed Queries	0	1	0	0
affinity I/O mask	-2147483648	2147483647	0	0
affinity mask	-2147483648	2147483647	65535	65535
affinity64 I/O mask	-2147483648	2147483647	0	0
affinity64 mask	-2147483648	2147483647	0	0
Agent XPs	0	1	0	0
allow updates	0	1	1	1
awe enabled	0	1	1	1
backup compression default	0	1	0	0
blocked process threshold (s)	0	86400	0	0
c2 audit mode	0	1	0	0

clr enabled	0	1	0	0
common criteria compliance enabled	0	1	0	0
cost threshold for parallelism	0	32767	0	0
cross db ownership chaining	0	1	0	0
cursor threshold	-1	2147483647	-1	-1
Database Mail XPs	0	1	0	0
default full-text language	0	2147483647	1033	1033
default language	0	9999	0	0
default trace enabled	0	1	0	0
disallow results from triggers	0	1	0	0
EKM provider enabled	0	1	0	0
filestream access level	0	2	0	0
fill factor (%)	0	100	0	0
ft crawl bandwidth (max)	0	32767	100	100
ft crawl bandwidth (min)	0	32767	0	0
ft notify bandwidth (max)	0	32767	100	100
ft notify bandwidth (min)	0	32767	0	0
index create memory (KB)	704	2147483647	0	0
in-doubt xact resolution	0	2	0	0
lightweight pooling	0	1	1	1
locks	5000	2147483647	0	0
max degree of parallelism	0	64	0	0
max full-text crawl range	0	256	4	4
max server memory (MB)	16	2147483647	2147483647	2147483647
max text repl size (B)	-1	2147483647	65536	65536
max worker threads	128	32767	1024	1024
media retention	0	365	0	0
min memory per query (KB)	512	2147483647	512	512
min server memory (MB)	0	2147483647	0	16
nested triggers	0	1	1	1
network packet size (B)	512	32767	32767	32767
Ole Automation Procedures	0	1	0	0
open objects	0	2147483647	0	0

PH timeout (s)	1	3600	60	60
precompute rank	0	1	0	0
priority boost	0	1	1	1
query governor cost limit	0	2147483647	0	0
query wait (s)	-1	2147483647	-1	-1
recovery interval (min)	0	32767	32767	32767
remote access	0	1	1	1
remote admin connections	0	1	0	0
remote login timeout (s)	0	2147483647	0	0
remote proc trans	0	1	0	0
remote query timeout (s)	0	2147483647	0	0
Replication XPs	0	1	0	0
scan for startup procs	0	1	0	0
server trigger recursion	0	1	1	1
set working set size	0	1	0	0
show advanced options	0	1	1	1
SMO and DMO XPs	0	1	1	1
SQL Mail XPs	0	1	0	0
transform noise words	0	1	0	0
two digit year cutoff	1753	9999	2049	2049
user connections	0	32767	0	0
user options	0	32767	0	0
Web Assistant Procedures	0	1	0	0
xp_cmdshell	0	1	0	0

## Client Configuration

### OS Configuration

#### System Information:

The Client System information text file Client\_SysInfo.txt is in the SupportingFiles\Indroduction directory.

#### Assign IP Address to Client System:

**Start -> Settings -> Network Connections.** Right click on the desired **network icon** and select **Properties**. Click on **Internet Protocol** and **Properties**, select **Use the following IP address** and input 192.1.1.14.

### SQL Configuration

A standard SQL configuration was used on this client.

### Benchcraft Configuration

#### Benchcraft Profile:

```
<?xml version="1.0" ?>
<benchcraft_profile workload="TPC-E" version="5"
  xmlns:bc="http://mssqlperf.partners.extranet.microsoft.com/Benchcraft" iStatsRefreshInt="5" iStatsSampleInt="60">
  <user_engine name="DRIVER1" description="" directory="C:\tpcelogs\UEdriver1.log" machine="client81"
    parameters="~Default" pipe="DRIVER1134540328" db_size="240000" ScaleDown="0" ActiveCustomers="1000"
    index="100000000" seed="87632" connect_rate="120" start_rate="120" CPU="0" Checked="1" RunDataMaintenance="1"
    RunCheckpoint="0" add_options="" />
```

```

<mee_engine name="MEE1" description="" directory="C:\tpcelogs\mee1log.log" machine="client81"
  pipe="MEE1134645390" SUT_server="client14" db_size="240000" ScaleDown="0" ActiveCustomers="1000"
  Port="38111" index="0" seed="21858" CPU="2" Checked="1" TR_Queue_Depth="5000" TradingTimeSoFar="0"
  add_options="" />
<user engine="DRIVER1" SUT_server="client14" user_count="375" EnablePartitioning="0" StartFromCustomer="1"
  CustomerCount="5000" PercentPartition="100" />
= <params name="~Default" description="Default Parameter Set" txn_rate="20" DataMaintenanceInterval="60"
  CheckpointInterval="450" CheckpointDuration="420">
<param_broker_volume txnWeight="4.9" />
<param_customer_position txnWeight="13" by_cust_id="50" get_history="50" />
<param_market_watch txnWeight="18" by_acct_id="35" by_industry="5" />
<param_security_detail txnWeight="14" LOBAccessPercentage="1" />
<param_trade_lookup txnWeight="8" do_frame1="30" do_frame2="30" do_frame3="30" MaxRowsFrame1="20"
  OffsetFromEndTimeFrame2="115200" MaxRowsFrame2="20" OffsetFromEndTimeFrame3="12000" MaxRowsFrame3="20"
  OffsetFromEndTimeFrame4="30000" MaxRowsFrame4="20" />
<param_trade_order txnWeight="10.1" market="60" stop_loss="50" security_by_name="40" buy_orders="50" lifo="35"
  exec_is_owner="90" rollback="1" type_is_margin="8" />
<param_trade_status txnWeight="19" />
<param_trade_update txnWeight="2" do_frame1="33" do_frame2="33" MaxRowsFrame1="20" MaxRowsToUpdateFrame1="20"
  MaxRowsFrame2="20" MaxRowsToUpdateFrame2="20" MaxRowsFrame3="20" MaxRowsToUpdateFrame3="20" />
</params>
</benchcraft_profile>

```

### Start SUT\_CE\_Server:

```
> SUT_CE_Server.exe -s r900
```

### Start SUT\_MEE\_Server:

```
> SUT_MEE_Server.exe -s r900
```