


TM1 Technical Bulletin

GroupsCreationLimit Recommendations

Date: July 6, 2007

Relevant TM1 Versions: 8.4 and later

Issue

The TM1 server can run out of memory when the GroupsCreationLimit server configuration parameter is set to an exceptionally high value.

Explanation

When TM1 allocates memory to store security information, the server calculates the amount of memory required based on the maximum number of groups that can be created during a server session. The maximum number of groups that can be created is governed by the GroupsCreationLimit parameter in the server's Tm1s.cfg file.



The Memory Allocation Calculation

TM1 uses the following calculation to allocate memory used to store security information:

$$\text{AllocatedSecurityMemory} = 1\text{Byte} \times \text{NumberOfObjectsWithDefinedSecurity} \times (\text{ExistingUserGroups} + \text{GroupsCreationLimit})$$

In this calculation, *NumberOfObjectsWithDefinedSecurity* is the total number of TM1 objects (cells, chores, cubes, dimension, elements, and processes) for which security has been assigned in any of the following control cubes:

- }CellSecurity_*CubeName*
- }ChoreSecurity
- }CubeSecurity
- }DimensionSecurity
- }ElementSecurity_*ElementName*
- }ProcessSecurity

Note that this calculation *does not* include any objects for which security is defined solely through TM1 rules.

For example, assume the following conditions:

- Your TM1 server includes 500,000 objects for which security is assigned
- There are 10 user groups on the server
- The GroupsCreationLimit=30 in Tm1s.cfg



In this scenario, the TM1 server allocates 20,000,000 bytes (19MB) of memory to store security information.

$$20,000,000 = 1 \times 500,000 \times (10 + 30)$$

When `GroupsCreationLimit` is set to an exceptionally large value (the limit is 65535) the TM1 server may run out of memory during the allocation process, preventing the server from loading. In this case, the server will shut down after issuing a **Server Out of Memory** message.

Assuming the same conditions described above, but with `GroupsCreationLimit=50000`, TM1 would attempt to allocate 25,005,000,000 bytes of memory (23GB).

$$25,005,000,000 = 1 \times 500,000 \times (10 + 50000)$$

If 23GB exceeds the memory available to the TM1 server, as it does on all 16-bit Windows platforms, the server will issue a **Server Out of Memory** message and will not load successfully.

Solution

To prevent the TM1 server from attempting to allocate memory beyond the available capacity, set `GroupsCreationLimit` to a value that accurately reflects the maximum number of user groups you may need to create during a server session.

