



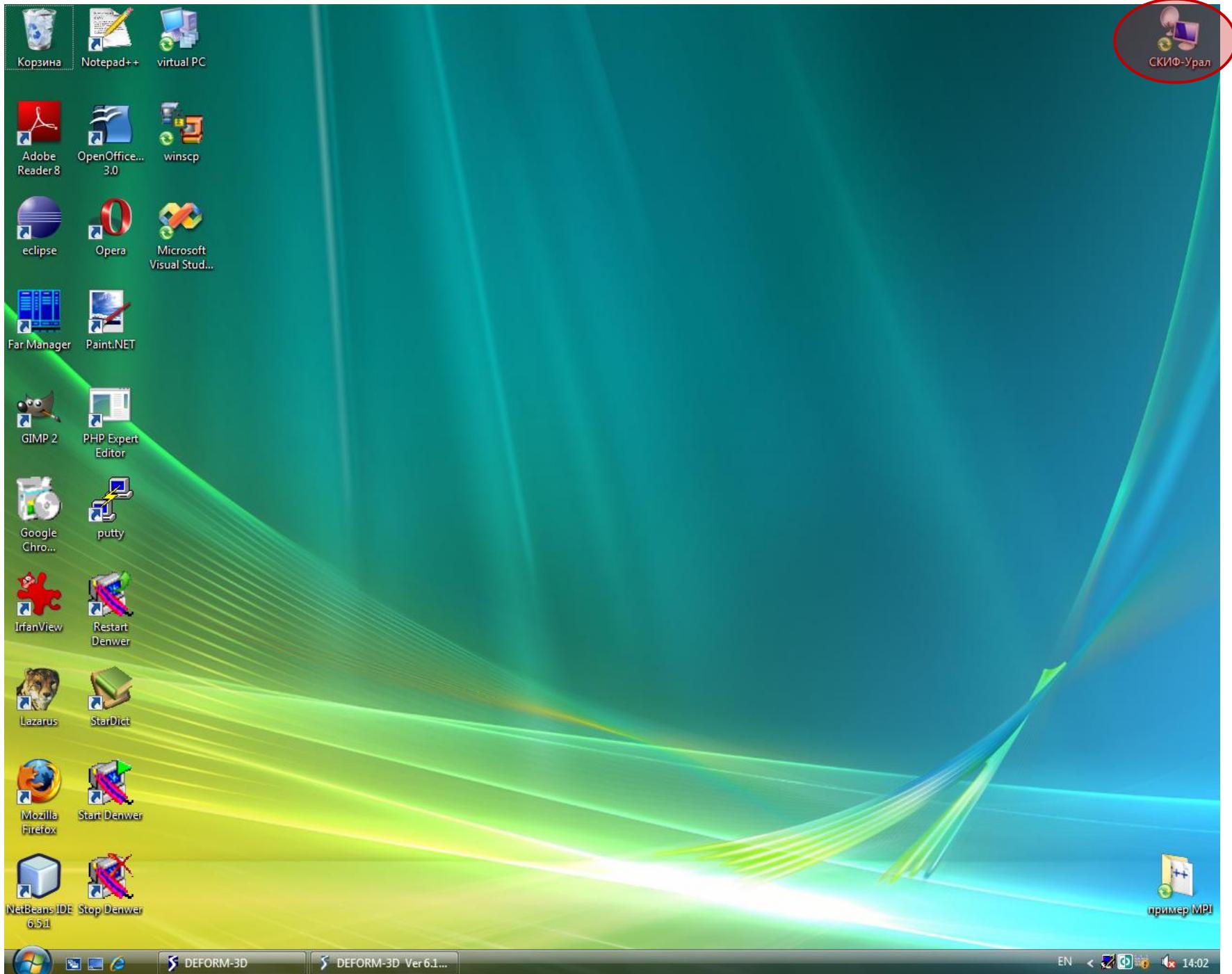
СУПЕРКОМПЬЮТЕРНЫЙ ЦЕНТР  
*Южно-Уральского государственного университета*

# Пакет инженерного анализа DEFORM

**Лабораторные работы:**  
передача файлов на кластер и получение результатов расчёта

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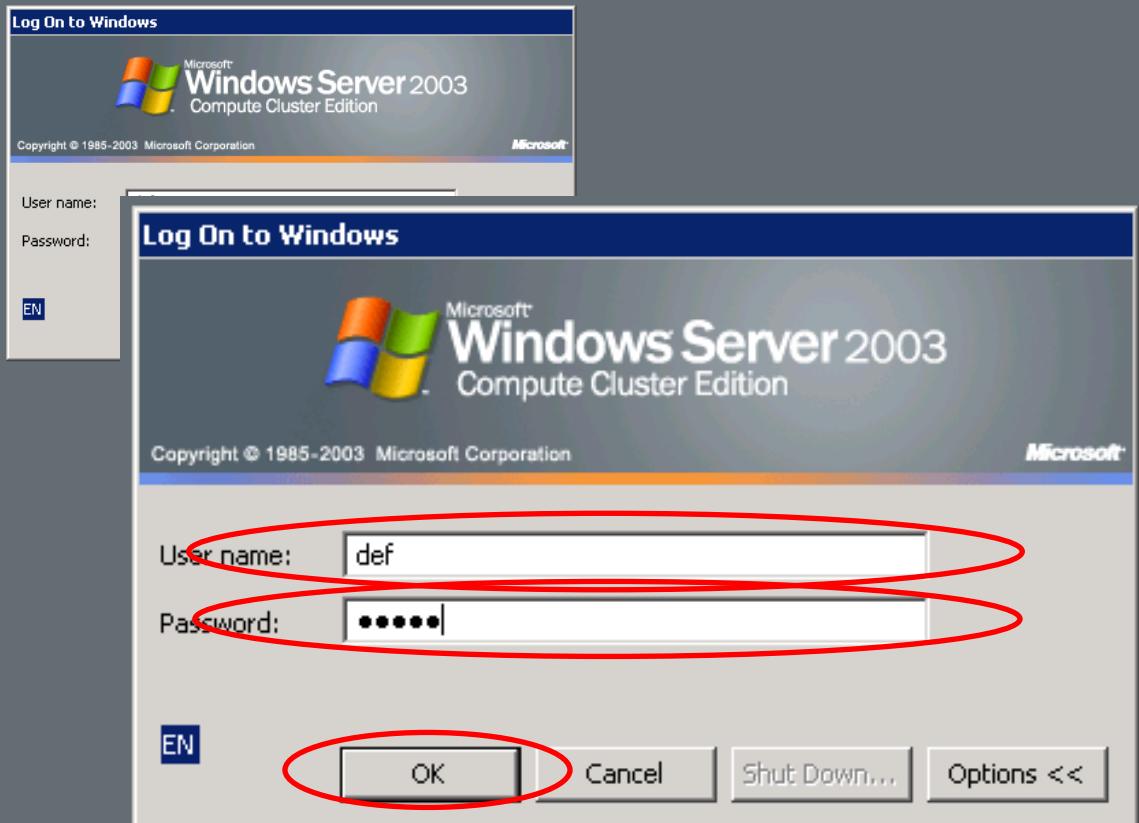
# 1. Копирование базы данных задачи на кластер



DEFORM-3D

DEFORM-3D Ver 6.1...

EN 14:02





My Documents



My Computer



My Network  
Places



Recycle Bin



Adobe Reader  
9



Mozilla Firefox



My Documents



My Computer



My Network Places



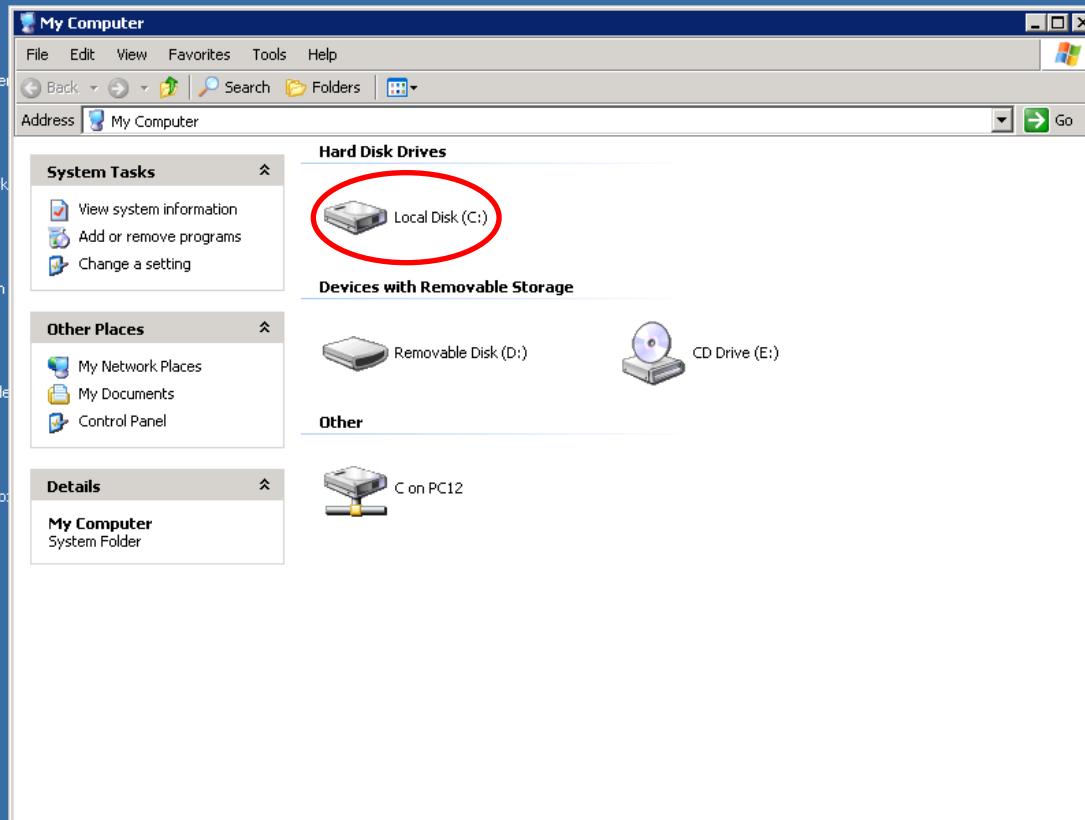
Recycle Bin



Adobe Reader 9



Mozilla Firefox





My Documents



My Computer



My Network Places



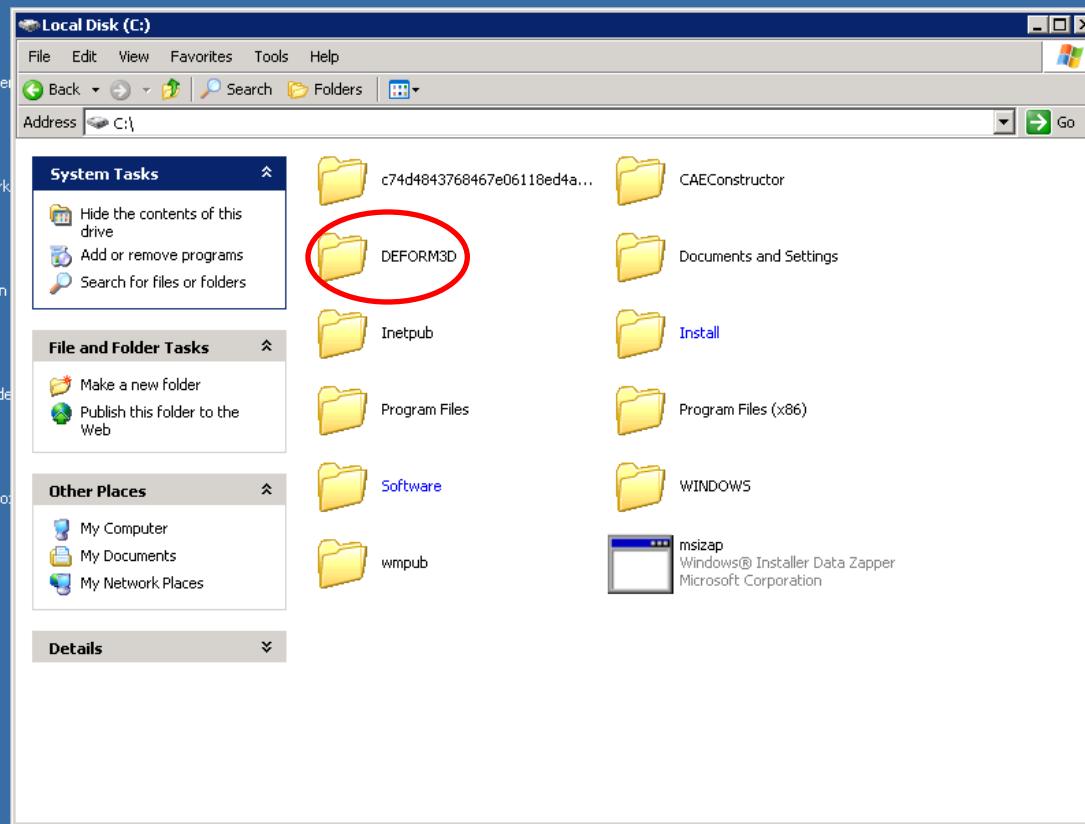
Recycle Bin



Adobe Reader 9



Mozilla Firefox



Start



IE

Local Disk (C:)



My Documents



My Computer



My Network Places



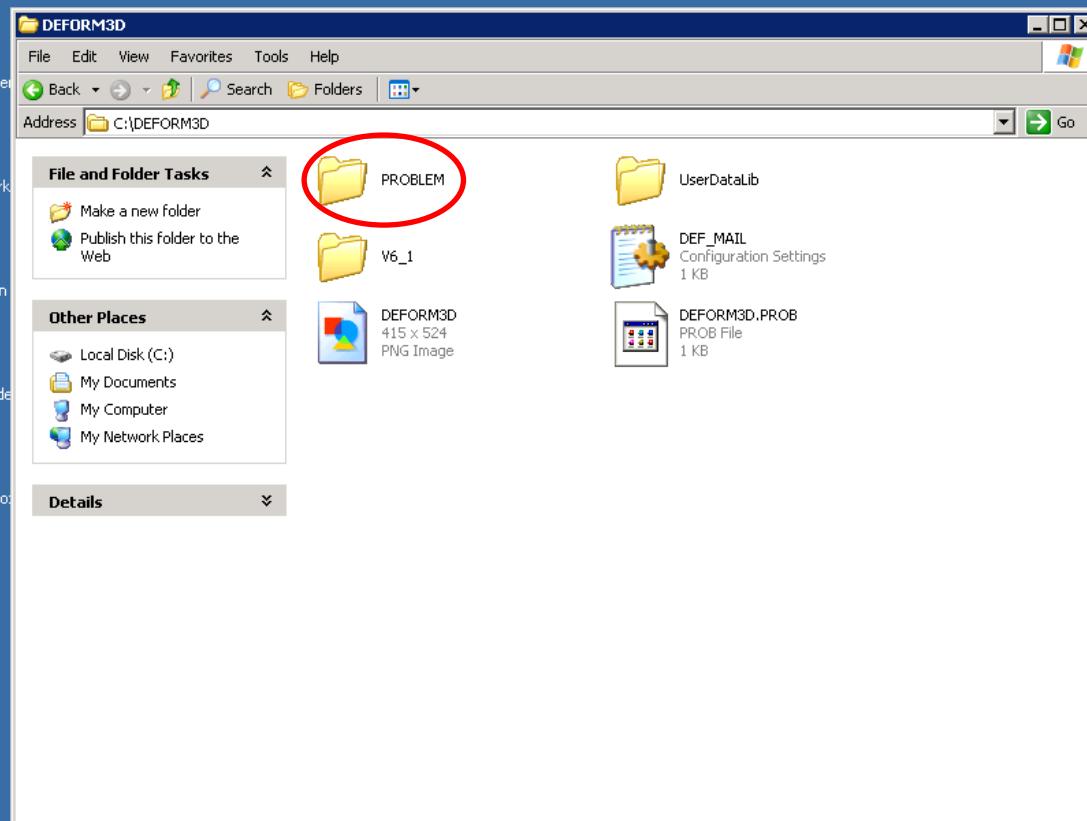
Recycle Bin



Adobe Reader 9



Mozilla Firefox





My Documents



My Computer



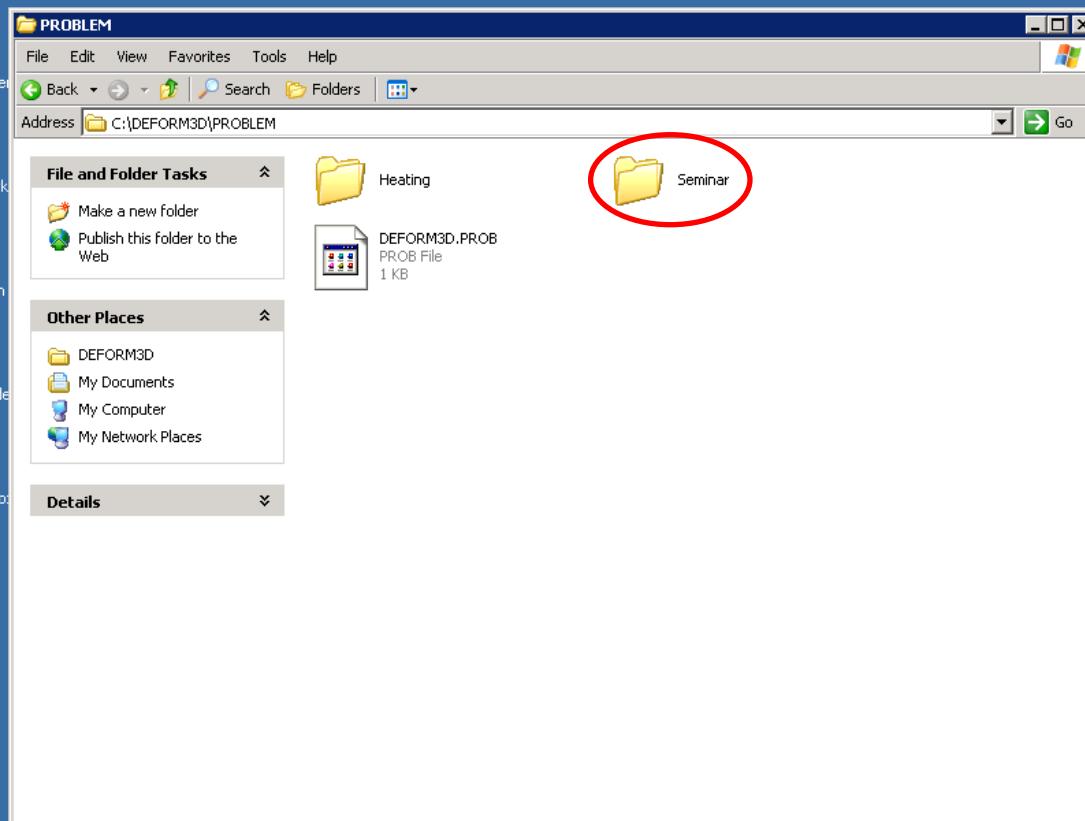
My Network Places



Recycle Bin

Adobe Reader  
9

Mozilla Firefox





My Documents



My Computer



My Network Places



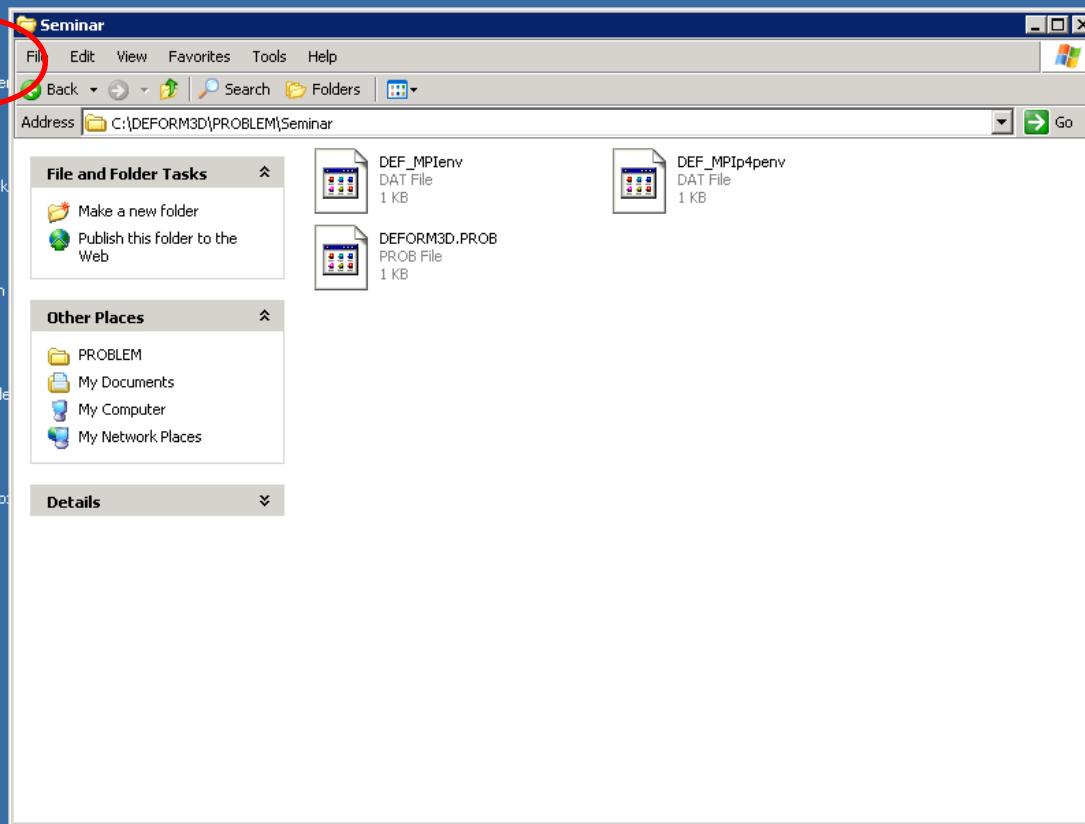
Recycle Bin



Adobe Reader 9



Mozilla Firefox





My Documents



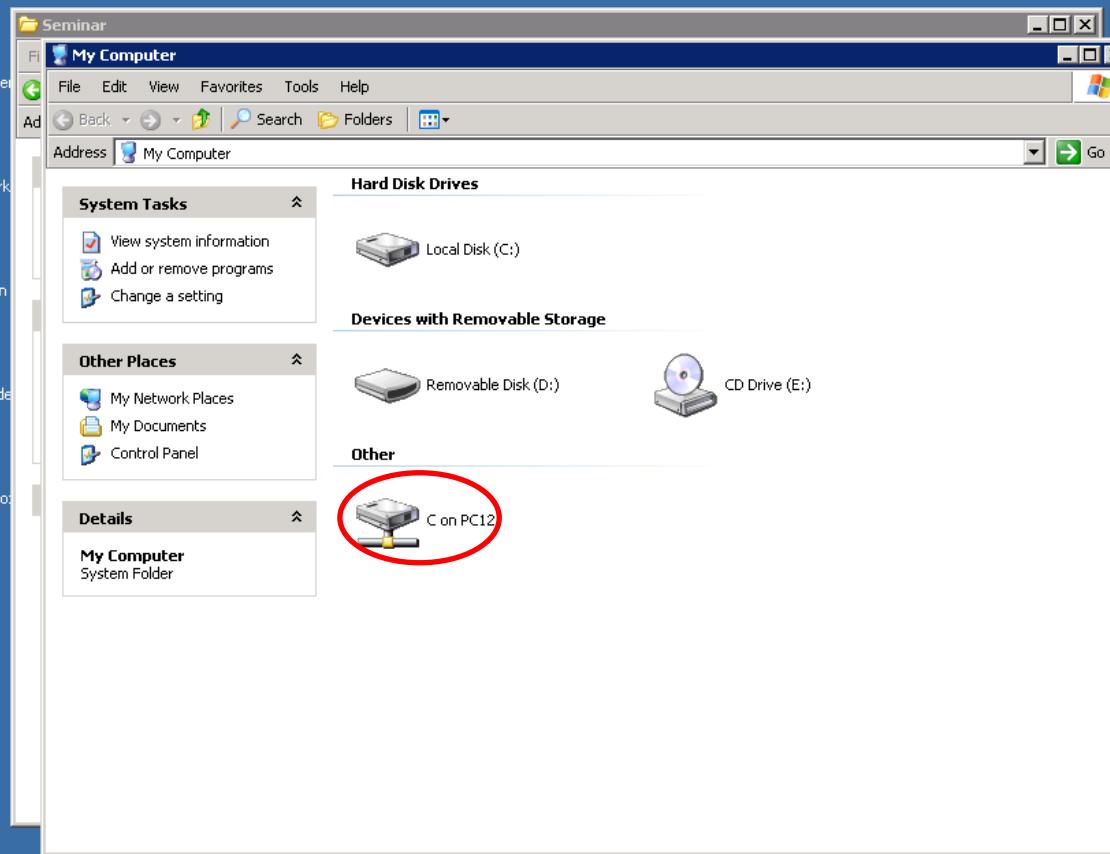
My Computer

My Network  
Places

Recycle Bin

Adobe Reader  
9

Mozilla Firefox



Start

Internet  
Explorer

Seminar

My Computer



My Documents



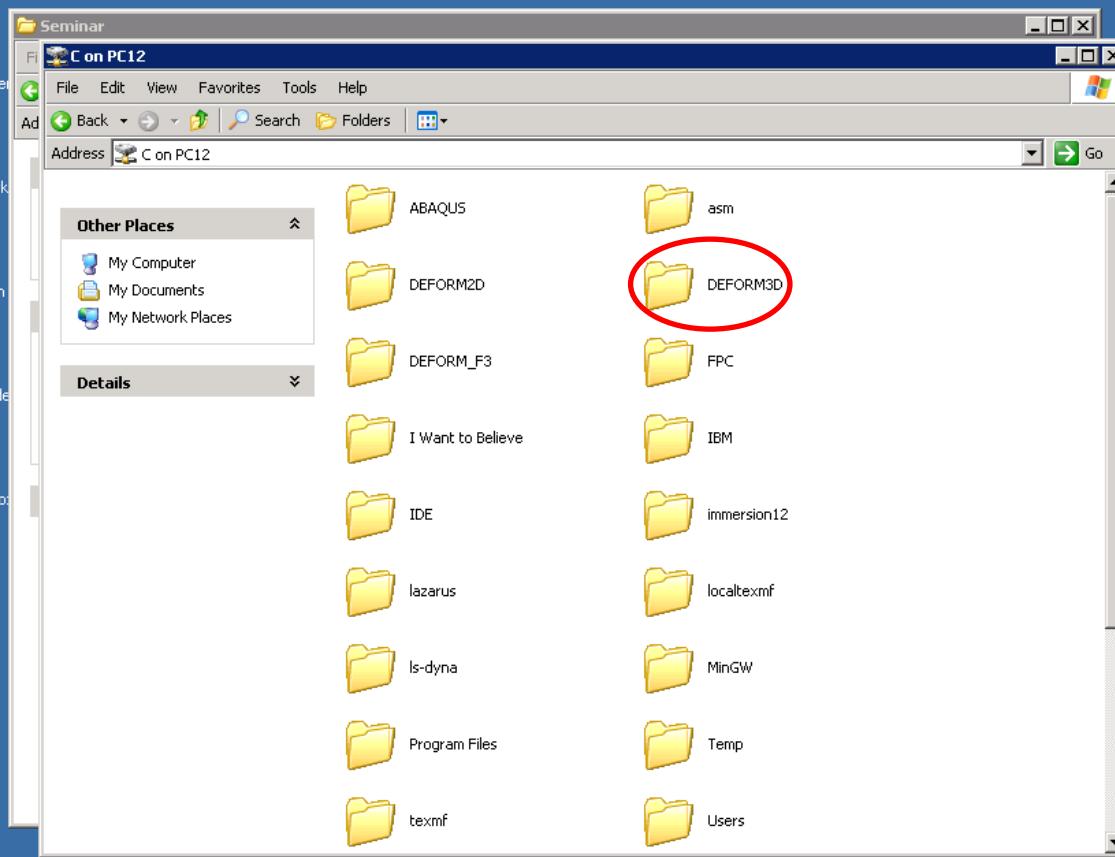
My Computer

My Network  
Places

Recycle Bin

Adobe Reader  
9

Mozilla Firefox



Seminar

C on PC12



My Documents



My Computer



My Network Places



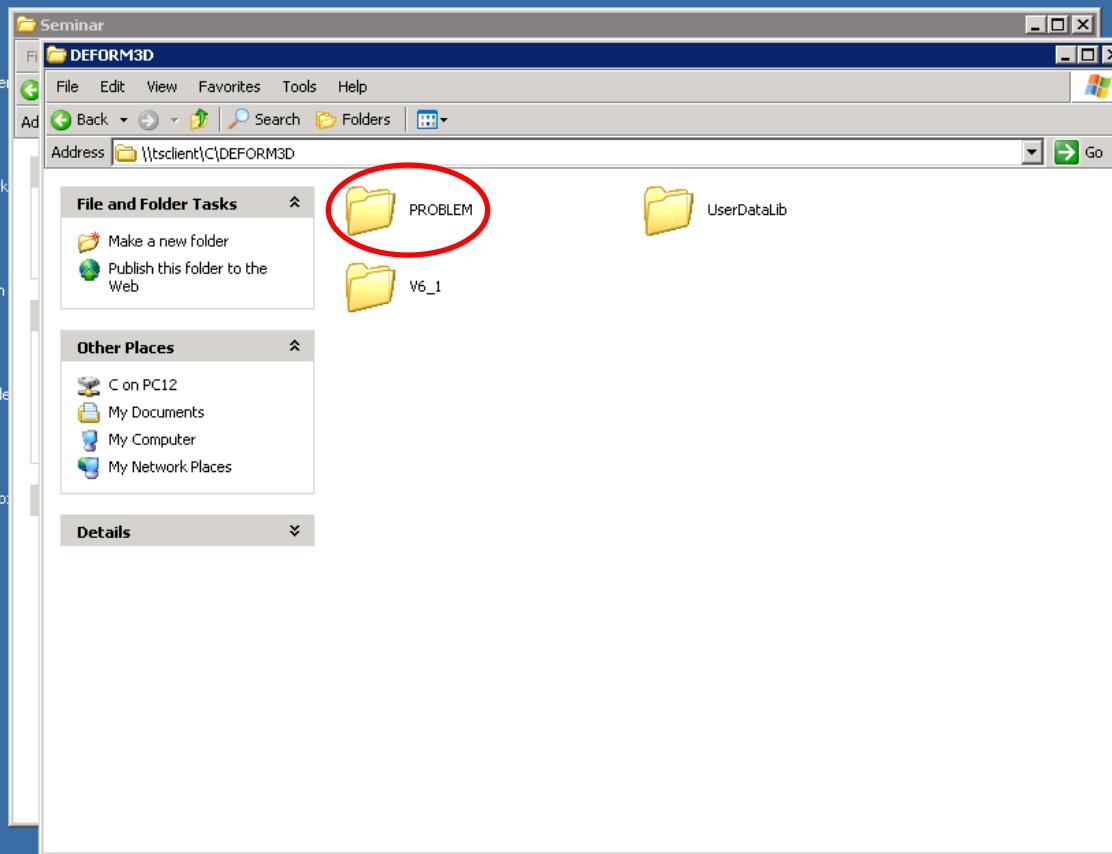
Recycle Bin



Adobe Reader 9



Mozilla Firefox



Seminar

DEFORM3D



My Documents



My Computer



My Network Places



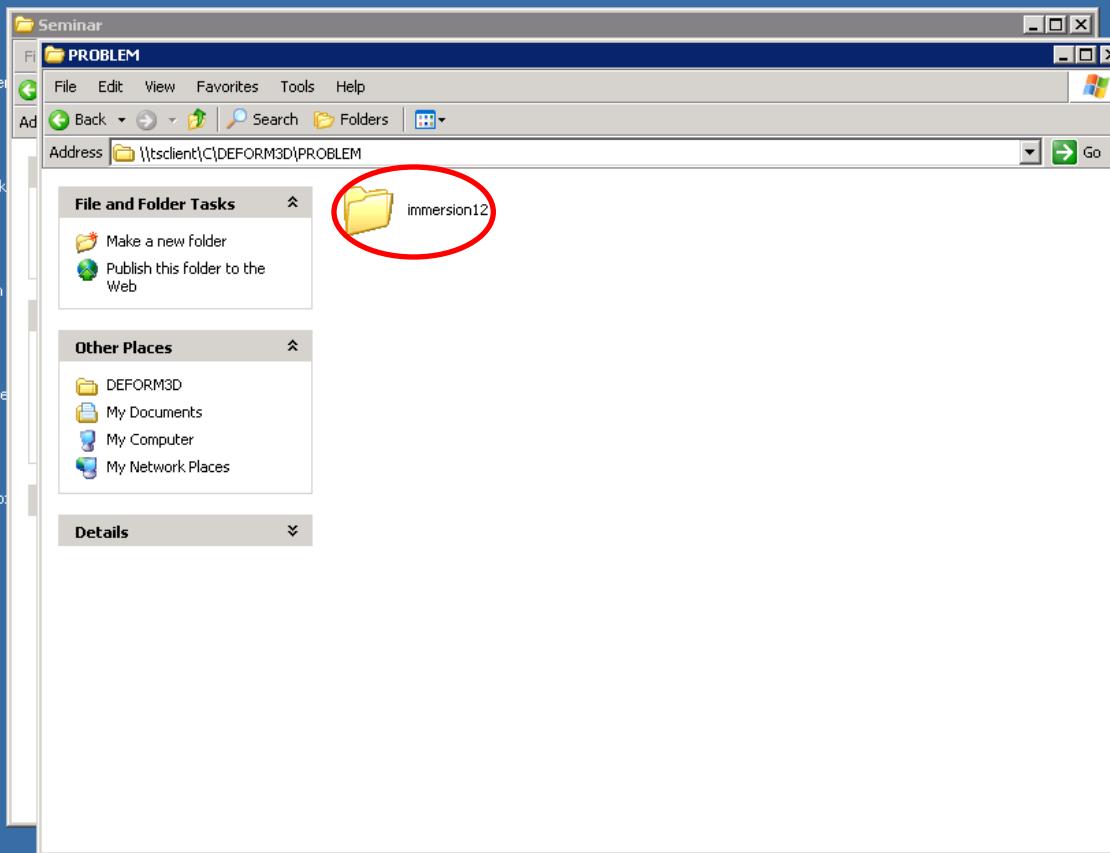
Recycle Bin



Adobe Reader 9



Mozilla Firefox





My Documents



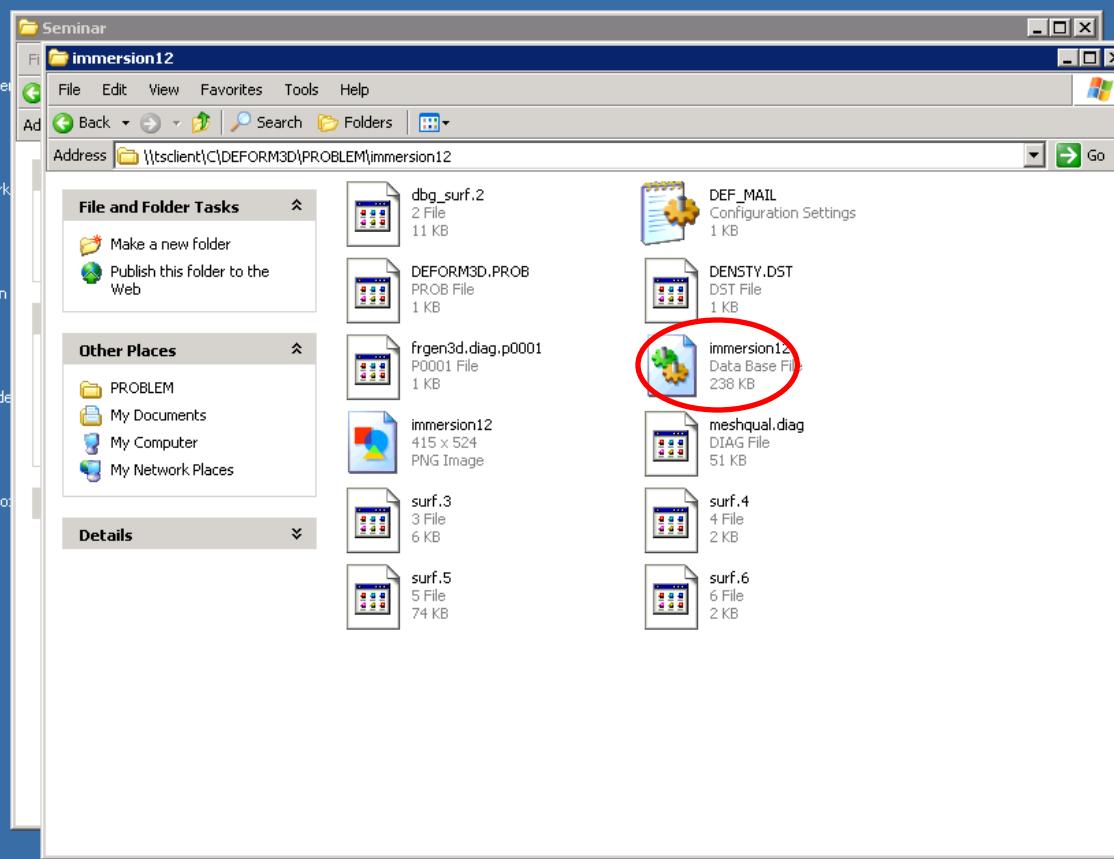
My Computer

My Network  
Places

Recycle Bin

Adobe Reader  
9

Mozilla Firefox



Seminar

immersion12



My Documents



My Computer



My Network Places



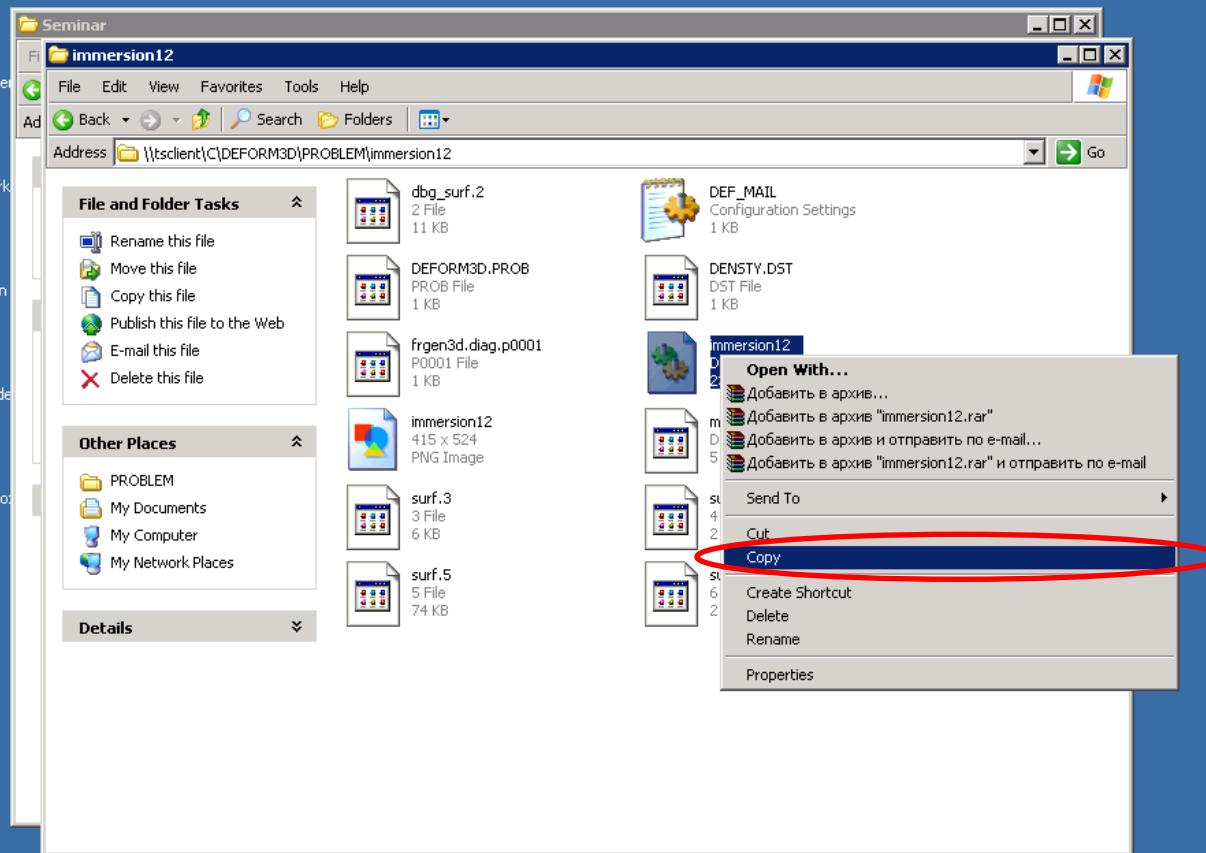
Recycle Bin



Adobe Reader 9



Mozilla Firefox



Seminar

immersion12



My Documents



My Computer



My Network Places



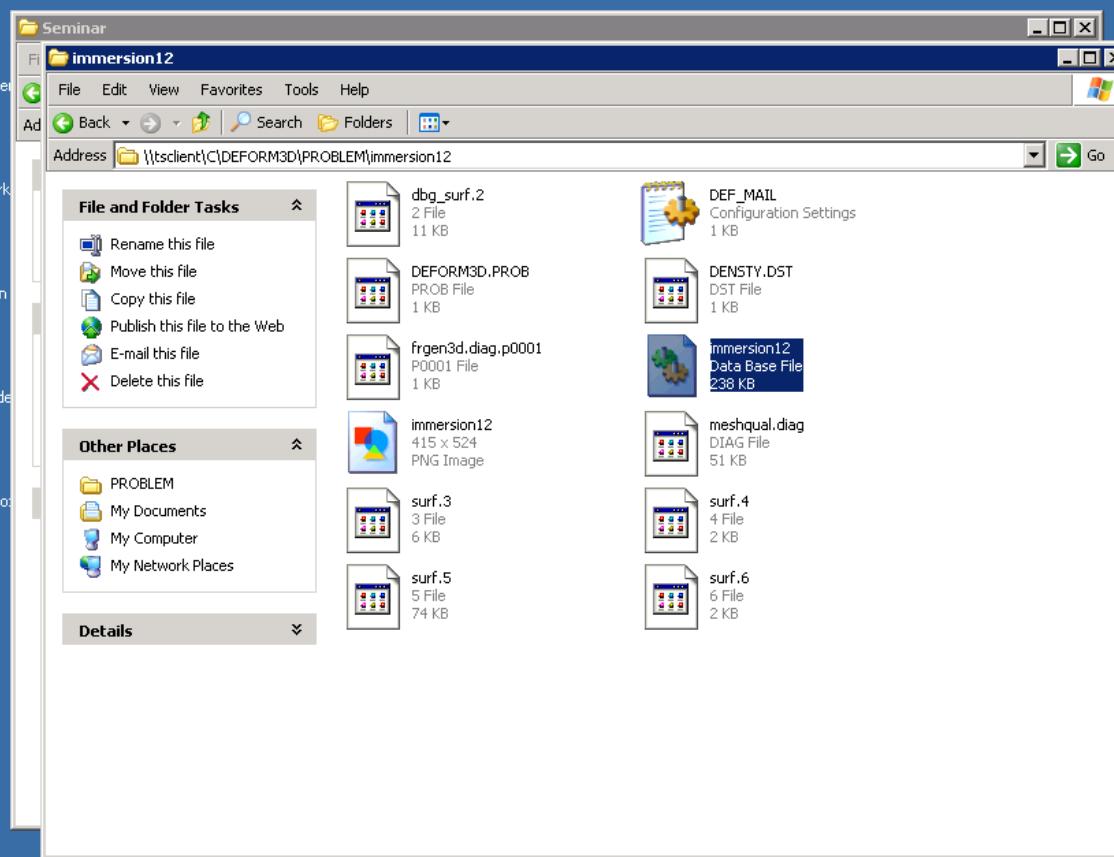
Recycle Bin



Adobe Reader 9



Mozilla Firefox



Seminar

immersion12



My Documents



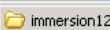
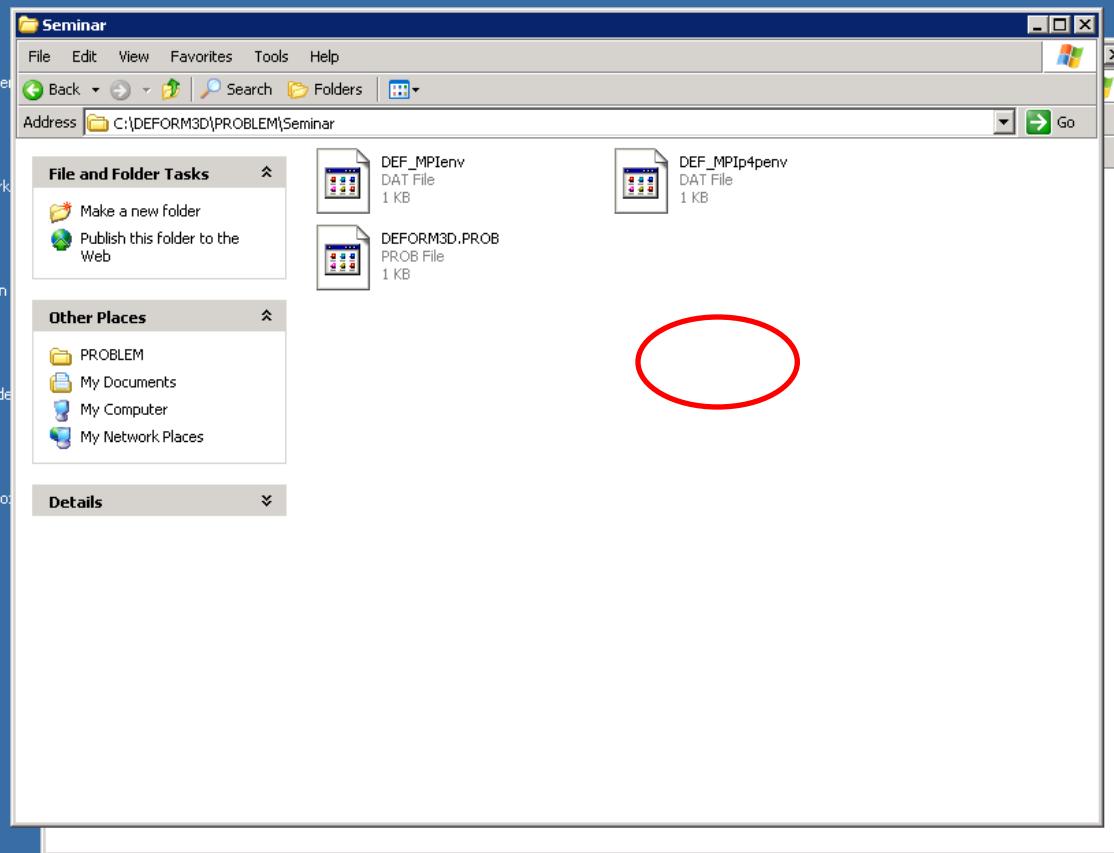
My Computer

My Network  
Places

Recycle Bin

Adobe Reader  
9

Mozilla Firefox



My Documents

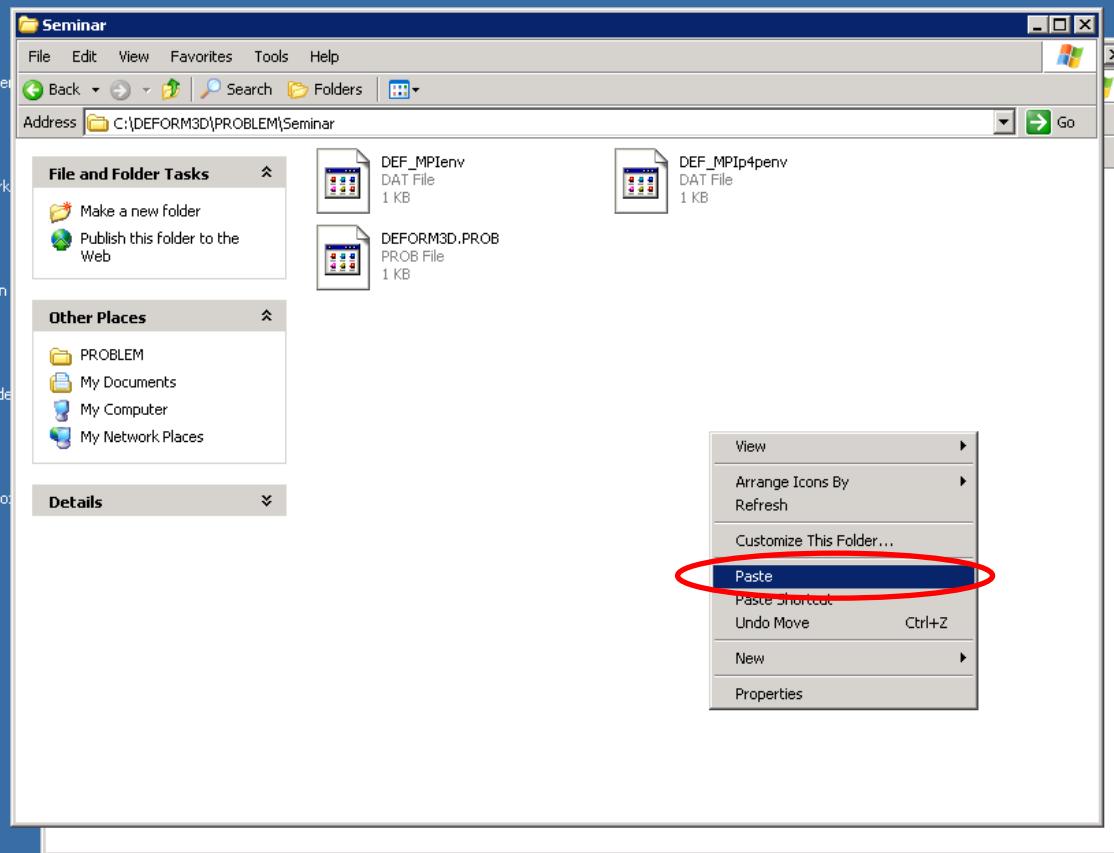
My Computer

My Network Places

Recycle Bin

Adobe Reader 9

Mozilla Firefox





My Documents



My Computer

My Network  
Places

Recycle Bin

Adobe Reader  
9

Mozilla Firefox

Seminar

File Edit View Favorites Tools Help

Back Search Folders

Address C:\DEFORM3D\PROBLEM\Seminar Go

**File and Folder Tasks**

- Rename this file
- Move this file
- Copy this file
- Publish this file to the Web
- E-mail this file
- Delete this file

**Other Places**

- PROBLEM
- My Documents
- My Computer
- My Network Places

**Details**

DEF_MPEnv	DAT File 1 KB
DEF_MPEnv4penv	DAT File 1 KB
DEFORM3D.PROB	PROB File
Immersion12	Data Base File 238 KB



Seminar

immersion12

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## 2. Копирование базы данных задачи с кластера на рабочую станцию

Explore Database Recent

Directory

- PROBLEM
- Heating
- Seminar

immersion12.DB

- DEF\_MPEnv.DAT
- DEF\_MP4pEnv.DAT
- DEFORM3D.PROB

Problem ID

immersion12

 Summary  Preview  Message  Log  Memo

TIME INCREMENT = 0.500000

TOTAL CPU TIME UP TO THIS STEP = 26.6220 (sec)

SUBTOTAL CPU TIME OF THIS STEP = 0.2500 (sec)

RESULT I/O 0.0470

## CPU FOR DEFORMATION CALCULATIONS (sec)

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0150	2
EQUATION SOLVING	0.0790	2
CONTACT TIME CALCULATION	0.0620	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

STEP NUMBER = 100

## DIRECT METHOD

ITERATION NUMBER	VELOCITY NORM	RELATIVE VELOCITY NORM	RELATIVE FORCE NORM	SOLVING TIME (SEC)
------------------	---------------	------------------------	---------------------	--------------------

1	0.5087142792E+04	0.2731617547E-02	0.5611706001E-02	0.062
2	0.5100802486E+04	0.2792678126E-03	0.2358347288E-02	0.047

Info: Program skipped over iterations due to rigid mode.

UPDATED TIME = 50.000000

TIME INCREMENT = 0.500000

TOTAL CPU TIME UP TO THIS STEP = 26.8870 (sec)

SUBTOTAL CPU TIME OF THIS STEP = 0.2650 (sec)

RESULT I/O 0.0470

## CPU FOR DEFORMATION CALCULATIONS (sec)

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0000	2
EQUATION SOLVING	0.1090	2
CONTACT TIME CALCULATION	0.0630	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

NORMAL STOP: The assigned steps have been completed.

 Auto update

Update

## Pre Processor

[DEFORM-3D Pre](#)  
[Machining \(Cutting\)](#)  
[Forming](#)  
[Die Stress Analysis](#)  
[Cogging](#)  
[Shape Rolling](#)  
[Ring Rolling](#)  
[Heat Treatment](#)

## Tool

[Inverse Heat](#)  
[Preform Wizard](#)

## Simulator

[Run](#)  
[Run \(options\)](#)  
[Stop](#)  
[Continue](#)  
[Process Monitor](#)  
[Simulation Graphics](#)[Batch Queue](#)  
[Add to Queue](#)[Run Remotely](#)  
[Remote Process Monitor](#)[Monitor Floating License](#)

## Post Processor

[DEFORM-3D Post](#)  
[Microstructure](#)

Ready



Seminar

immersion12

DEFORM-3D

DEFORM-3D Ver 6.1 {...}

DEFORM-3D - Main

## File and Folder Tasks

- Make a new folder
- Publish this folder to the Web

## Other Places

- PROBLEM
- My Documents
- My Computer
- My Network Places

## Details

	DEF_MPEnv DAT File 1 KB
	DEF3D.PROB PROB File 1 KB
	.p4p_tmp_01 P4P_TMP_01 File 41 KB
	.p4p_tmp_02 P4P_TMP_02 File 41 KB
	CGINFO DAT File 21 KB
	immersion12 Data Base File 15 603 KB
	immersion12.DEF_ARM_CTL_LOG File 1 KB
	immersion12 Text Document 2 KB
	NEWEQ MSG File 123 KB
	REMESH Screen Saver 1 KB
	SIMUL MSG File 67 KB

h12

Memo

## Pre Processor

- DEFORM-3D Pre
- Machining (Cutting)
- Forming
- Die Stress Analysis
- Cogging
- Shape Rolling
- Ring Rolling
- Heat Treatment

## Tool

- Inverse Heat
- Preform Wizard

## Simulator

- Run
- Run (options)
- Stop
- Continue
- Process Monitor
- Simulation Graphics

- Batch Queue
- Add to Queue

- Run Remotely
- Remote Process Monitor

- Monitor Floating License

## Post Processor

- DEFORM-3D Post
- Microstructure

FORCE	SOLVING TIME (SEC)
2	0.062
2	0.047

SUBTOTAL CPU TIME OF THIS STEP = 0.2650 (sec)

RESULT I/O 0.0470

CPU FOR DEFORMATION CALCULATIONS (sec)

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0000	2
EQUATION SOLVING	0.1090	2
CONTACT TIME CALCULATION	0.0630	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

NORMAL STOP: The assigned steps have been completed.

 Auto update

Update

## File and Folder Tasks

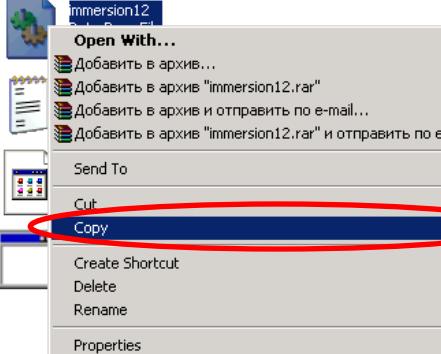
- Rename this file
- Move this file
- Copy this file
- Publish this file to the Web
- E-mail this file
- Delete this file

## Other Places

- PROBLEM
- My Documents
- My Computer
- My Network Places

## Details

DEF_MPEnv	DEF_MPEnv DAT File 1 KB
DEFDEFORM3D.PROB	DEFDEFORM3D.PROB PROB File 1 KB
DEF_MAIL	DEF_MAIL Configuration Settings 1 KB
.p4p_tmp_03	.p4p_tmp_03 P4P_TMP_03 File 41 KB
DEFARM.PPID	DEFARM.PPID PPID File 1 KB
immersion12.DEF_ARM_CTL_L...	immersion12.DEF_ARM_CTL_L... DEF_ARM_CTL_LOG File 1 KB
immersion12	immersion12 MSG File 123 KB
SIMUL	SIMUL MSG File 67 KB



RCE SOLVING TIME (SEC)  
0.062  
0.047

SUBTOTAL CPU TIME OF THIS STEP = 0.2650 (sec)

RESULT I/O 0.0470

CPU FOR DEFORMATION CALCULATIONS (sec)

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0000	2
EQUATION SOLVING	0.1090	2
CONTACT TIME CALCULATION	0.0630	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

NORMAL STOP: The assigned steps have been completed.

Auto update

Update

## Post Processor

- [DEFORM-3D Post](#)
- [Microstructure](#)

## File and Folder Tasks

- Rename this file
- Move this file
- Copy this file
- Publish this file to the Web
- E-mail this file
- Delete this file

## Other Places

- PROBLEM
- My Documents
- My Computer
- My Network Places

## Details

DEF_MPEnv DAT File 1 KB	DEF_MPip4penv DAT File 1 KB
DEFORM3D.PROB PROB File 1 KB	.p4p_tmp_01 P4P_TMP_01 File 41 KB
DEF_MAIL Configuration Settings 1 KB	.p4p_tmp_02 P4P_TMP_02 File 41 KB
.p4p_tmp_03 P4P_TMP_03 File 41 KB	CGINFO DAT File 21 KB
DEFARM.PPID PPID File 1 KB	immersion12 Data Base File 15 603 KB
immersion12.DEF_ARM_CTL_L... DEF_ARM_CTL_LOG File 1 KB	immersion12 Text Document 2 KB
immersion12 MSG File 123 KB	NEWEQ MSG File 18 KB
SIMUL MSG File 67 KB	REMESH Screen Saver 1 KB

FORCE	SOLVING TIME (SEC)
2	0.062
2	0.047

SUBTOTAL CPU TIME OF THIS STEP = 0.2650 (sec)

RESULT I/O 0.0470

CPU FOR DEFORMATION CALCULATIONS (sec)

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0000	2
EQUATION SOLVING	0.1090	2
CONTACT TIME CALCULATION	0.0630	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

NORMAL STOP: The assigned steps have been completed.

 Auto update

Update

## Post Processor

- DEFORM-3D Post
- Microstructure

## File and Folder Tasks

- Rename this file
- Move this file
- Copy this file
- Publish this file to the Web
- E-mail this file
- Delete this file

## Other Places

- PROBLEM
- My Documents
- My Computer
- My Network Places

## Details

 dbg_surf.2 2 File 11 KB	 DEF_MAIL Configuration Settings 1 KB
 DEFORM3D.PROB PROB File 1 KB	 DENSTY.DST DST File 1 KB
 frgen3d.diag.p0001 P0001 File 1 KB	 immersion12 Data Base File 238 KB
 immersion12 415 x 524 PNG Image	 meshqual.diag DIAG File 51 KB
 surf.3 3 File 6 KB	 surf.4 4 File 2 KB
 surf.5 5 File 74 KB	 surf.6 6 File 2 KB

E SOLVING TIME  
(SEC)0.062  
0.047

SUBTOTAL CPU TIME OF THIS STEP = 0.2650(sec)

RESULT I/O 0.0470

CPU FOR DEFORMATION CALCULATIONS (sec)

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0000	2
EQUATION SOLVING	0.1090	2
CONTACT TIME CALCULATION	0.0630	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

NORMAL STOP: The assigned steps have been completed.

 Auto update

Update

## Pre Processor

- DEFORM-3D Pre
- Machining (Cutting)
- Forming
- Die Stress Analysis
- Cogging
- Shape Rolling
- Ring Rolling
- Heat Treatment

## Tool

- Inverse Heat
- Preform Wizard

## Simulator

- Run
- Run (options)
- Stop
- Continue
- Process Monitor
- Simulation Graphics

- Batch Queue
- Add to Queue

- Run Remotely
- Remote Process Monitor

[Monitor Floating License](#)

## Post Processor

- DEFORM-3D Post
- Microstructure

## File and Folder Tasks

- Make a new folder
- Publish this folder to the Web

## Other Places

- PROBLEM
- My Documents
- My Computer
- My Network Places

## Details

dbg_surf.2	2 File 11 KB	DEF_MAIL	Configuration Settings 1 KB
DEFORM3D.PROB	PROB File 1 KB	DENSTY.DST	DST File 1 KB
frgen3d.diag.p0001	P0001 File 1 KB	immersion12	Data Base File 238 KB
immersion12	415 x 524 PNG Image	meshqual.diag	DIAG File 51 KB
surf.3	3 File 6 KB	surf.4	4 File 2 KB
surf.5	5 File 74 KB	surf.6	6 File 2 KB

- View
- Arrange Icons By
- Refresh
- Customize This Folder...
- Paste
- Paste Shortcut
- Undo Copy Ctrl+Z
- New
- Properties

SUBTOTAL CPU TIME OF THIS STEP = 0.2650(sec)

RESULT I/O 0.0470

CPU FOR DEFORMATION CALCULATIONS (sec)

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0000	2
EQUATION SOLVING	0.1090	2
CONTACT TIME CALCULATION	0.0630	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

NORMAL STOP: The assigned steps have been completed.

 Auto update

Update

## Pre Processor

- DEFORM-3D Pre
- Machining (Cutting)
- Forming
- Die Stress Analysis
- Cogging
- Shape Rolling
- Ring Rolling
- Heat Treatment

## Tool

- Inverse Heat
- Preform Wizard

## Simulator

- Run
- Run (options)
- Stop
- Continue
- Process Monitor
- Simulation Graphics

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- Add to Queue

- Run Remotely
- Remote Process Monitor

[Monitor Floating License](#)

## Post Processor

- DEFORM-3D Post
- Microstructure

## Confirm File Replace

This folder already contains a file named 'immersion12'.

Would you like to replace the existing file



237 KB  
modified: 24 июня 2009 г., 13:59:28

with this one?



15,2 MB  
modified: 24 июня 2009 г., 14:31:04

Yes

No

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0000	2
EQUATION SOLVING	0.1090	2
CONTACT TIME CALCULATION	0.0630	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

NORMAL STOP: The assigned steps have been completed.

Auto update

Update

## Post Processor

DEFORM-3D Post

Microstructure



Закрыть

C:\DEFORM3D\PROBLEM

Explore

Seminar

File Edit View Favorites Tools Help

Back Search Folders

Address C:\DEFORM3D\PROBLEM\Seminar

n12

Memo

## File and Folder Tasks

- Rename this file
- Move this file
- Copy this file
- Publish this file to the Web
- E-mail this file
- Delete this file

## Other Places

- PROBLEM
- My Documents
- My Computer
- My Network Places

## Details

DEF_MPEnv	DEF_MPEnv	DAT File	1 KB
DEF3D.PROB	DEF3D.PROB	PROB File	1 KB
DEF_MAIL	DEF_MAIL	Configuration Settings	1 KB
.p4p_tmp_03	.p4p_tmp_03	P4P_TMP_03 File	41 KB
DEFARM.PPID	DEFARM.PPID	PPID File	1 KB
immersion12.DEF_ARM_CTL_L...	immersion12.DEF_ARM_CTL_L...	DEF_ARM_CTL_LOG File	1 KB
immersion12	immersion12	MSG File	123 KB
SIMUL	SIMUL	MSG File	67 KB
.p4p_tmp_01	.p4p_tmp_01	P4P_TMP_01 File	41 KB
.p4p_tmp_02	.p4p_tmp_02	P4P_TMP_02 File	41 KB
CGINFO	CGINFO	DAT File	21 KB
immersion12	immersion12	Data Base File	15 603 KB
NEWEQ	NEWEQ	MSG File	18 KB
REMESH	REMESH	Screen Saver	1 KB

FORCE	SOLVING TIME (SEC)
2	0.062
2	0.047

SUBTOTAL CPU TIME OF THIS STEP = 0.2650 (sec)

RESULT I/O 0.0470

CPU FOR DEFORMATION CALCULATIONS (sec)

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0000	2
EQUATION SOLVING	0.1090	2
CONTACT TIME CALCULATION	0.0630	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

NORMAL STOP: The assigned steps have been completed.

 Auto update

Update

## Pre Processor

- DEFORM-3D Pre
- Machining (Cutting)
- Forming
- Die Stress Analysis
- Cogging
- Shape Rolling
- Ring Rolling
- Heat Treatment

## Tool

- Inverse Heat
- Preform Wizard

## Simulator

- Run
- Run (options)
- Stop
- Continue
- Process Monitor
- Simulation Graphics

- Batch Queue
- Add to Queue

- Run Remotely
- Remote Process Monitor

[Monitor Floating License](#)

## Post Processor

- DEFORM-3D Post
- Microstructure

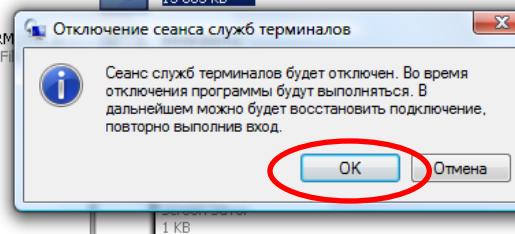
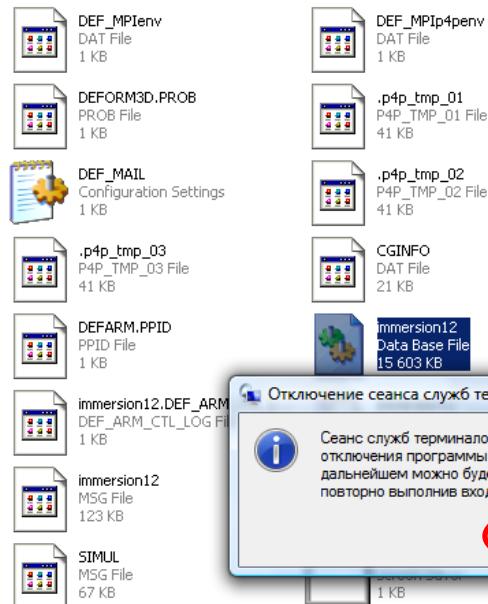
## File and Folder Tasks

- Rename this file
- Move this file
- Copy this file
- Publish this file to the Web
- E-mail this file
- Delete this file

## Other Places

- PROBLEM
- My Documents
- My Computer
- My Network Places

## Details



DOURCE SOLVING TIME  
(SEC)  
2 0.062  
2 0.047

SUBTOTAL CPU TIME OF THIS STEP = 0.2650 (sec)

RESULT I/O 0.0470

CPU FOR DEFORMATION CALCULATIONS (sec)

INTERFACE GENERATION	0.0000	1
EQ. INDEXING PREPARATION	0.0000	0
STIFFNESS MATRIX GENERATION	0.0630	2
BOUNDARY CONDITION CAL.	0.0000	2
EQUATION SOLVING	0.1090	2
CONTACT TIME CALCULATION	0.0630	1
MESH CHECKS	0.0000	1
INSIDE/OUTSIDE CHECK	0.0000	0

NORMAL STOP: The assigned steps have been completed.

Auto update

Update

## Post Processor

- DEFORM-3D Post
- Microstructure



Корзина



Notepad++



virtual PC



Adobe Reader 8

OpenOffice...  
3.0

winscp



eclipse



Opera

Microsoft  
Visual Stud...

Far Manager



Paint.NET



GIMP 2

PHP Expert  
Editor

Google Chro...



putty



IrfanView

Restart  
Denver

Lazarus



StarDict

Mozilla  
Firefox

Start Denver

NetBeans IDE  
6.5.1

Stop Denver



СКИФ-Урал



пример MPI



DEFORM-3D

DEFORM-3D Ver 6.1...

EN &lt; 14:41