

## A.4 TEST CASES SPECIFICATIONS

### 4.1 Test case specification identifier Test Case 1

2.10 Search engine – (Environment Condition)

### 4.2 Input specifications

The following table contains the configuration parameters of the simulation we are using to test this feature.

Simulation # 339

Environment Variables

Simulation time: 500.0 Hours	Microbe density: 1000000.0	Fungal density: 1.0E7	pH value: 6.0	Temperature: 20.0 F <sup>o</sup>	pKw: 0.0
Oxygen density: 2.5E-4	Light density: 20000.0	Molecule density: 0.0010	Adsorption Rate: 0.0	Desorption Rate: 0.0	Created by: mpullin

Molecule information

Molecule Name	Percentage	Created by
Cellulose	20.0	yhuang3
Lignin	30.0	yhuang3
Protein	40.0	yhuang3

The following table contains the configuration parameters used to do the search.

Environment condition	
Simulation time:	
Microbe density:	
Fungal density:	
pH value:	
Temperature:	20.0
pKw:	
Oxygen density:	

### 4.3 Output expectation

This table presents the output of the search engine:

Environment id	Simulation id
61	244, 249, 201, 202, 203, 204, 205, 206, 245, 246, 251, 267, 248, 247, 250,
63	222
64	243,230
43	338, <b>339</b> , 348, 349, 350, 270, 161, 162, 163, 135, 134, 137, 138, 301, 362, 363
44	
92	281, 283, 279, 282, 305, 306, 376, 303,

### 4.4 Environmental needs (software and hardware)

Standard web browser IE, Netscape, network connection

### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

### 4.6 Anomalies

None

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### 4.1 Test case specification identifier Test Case 2

2.10 Search engine – (Environment Condition)

### 4.2 Input specifications

The following tables contains the configuration parameters used to do the search

Environment condition	
Simulation time:	500.0
Microbe density:	1000000.0
Fungal density:	1.0E7
pH value:	6.0
Temperature:	20.0
pKw:	0.0
Oxygen density:	2.5E-4

### 4.3 Output expectation

This table presents the output of the search engine.

Environment id	Simulation id
64	243, 230,
43	338, 339, 348, 349, 350, 270, 161, 162, 163, 135, 134, 137, 138, 301, 362, 363
44	

### 4.4 Environmental needs (software and hardware)

Standard web browser IE, Netscape, network connection

### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

### 4.6 Anomalies

None

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### 4.1 Test case specification identifier Test Case 3

2.10 Search engine – (Molecules Condition Section – focus on Molecule ID field)

### 4.2 Input specifications

We selected the *molecule id* field and molecule id 1 to do a search:

Molecules Conditions	
Molecule Name	
<b>Molecule ID</b>	<b>1</b>

### 4.3 Output expectation

This table presents the output of the search engine:

Simulation ID
94, 95, 96, 97, 98, 99, 101, 102, 121, 125, 126, 127, 128, 129, 130, 131, 133, 134, 135, 136, 137, 138, 139, 161, 162, 163, 181, 183, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 246, 249, 251, 267, 270, 275, 279, 280, 281, 282, 283, 301, 302, 303, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 334, 339, 349, 350, 362, 363, 365, 366, 367, 368, 369, 370, 371, 376, 377, 1043, 1045, 1048, 1065,

#### 4.4 Environmental needs (software and hardware)

Standard web browser IE, Netscape, network connection

#### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

#### 4.6 Anomalies

1 see test log for explanation

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#### 4.1 Test case specification identifier Test Case 4

2.10 Search engine – (Molecules Condition Section – focus on Molecule ID field)

#### 4.2 Input specifications

We selected the molecule id field and we combined molecule id's 1 AND 6 to do a search:

Molecules Conditions	
Molecule Name	
<b>Molecule ID</b>	<b>1 AND 6</b>

#### 4.3 Output expectation

This table presents the output of the search engine:

Simulation ID

#### 4.4 Environmental needs (software and hardware)

Standard web browser IE, Netscape, network connection

#### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

#### 4.6 Anomalies

2 see test log for explanation

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#### 4.1 Test case specification identifier Test Case 5

2.10 Search engine – (Molecules Condition Section – focus on Molecule Name field)

#### 4.2 Input specifications

We selected the molecule name field and we inputted a molecule name previously created to do a search:

Molecules Conditions	
<b>Molecule Name</b>	<b>test1</b>
Molecule ID	

### 4.3 Output expectation

This table presents the output of the search engine:

Simulation ID
346, 372, 1047,

### 4.4 Environmental needs (software and hardware)

Standard web browser IE, Netscape, network connection

### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

### 4.6 Anomalies

[I see test log for explanation](#)

## 4.1 Test case specification identifier Test Case 6

2.10 Search engine – (Simulation Session ID)

### 4.2 Input specifications

We selected the session id field and we inputted a session id of a previously created simulation configuration

Simulation Session ID	
Sessionid	339

### 4.3 Output expectation

Simulation # 339      [Reports](#)      [Search Similar](#)      **Completed**

### 4.4 Environmental needs (software and hardware)

Standard web browser IE, Netscape, network connection

### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

### 4.6 Anomalies

None

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## 4.1 Test case specification identifier Test Case 7

### 2.1.1 NOML file uploader

## 4.2 Input specifications

The code below was uploaded as an xml file:

```
<?xml version='1.0'?>
<!DOCTYPE setup SYSTEM "http://tobit.cse.nd.edu:7777/nom/setup.dtd">
<setup>
  <environment>
    <environmentid>1 </environmentid>
  </environment>
  <moleculetypes>
    <moleculetype>
      <moleculeid>31 </moleculeid>
      <distribution>11 </distribution>
    </moleculetype>
    <moleculetype>
      <moleculeid>1 </moleculeid>
      <distribution>20 </distribution>
    </moleculetype>
  </moleculetypes>
  <owner>xx</owner>
</setup>
```

## 4.3 Output expectation

File be uploaded successfully. The new Session Id is: [1073](#)

## 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established

## 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

## 4.6 Anomalies

[I see test log for explanation](#)

#### 4.1 Test case specification identifier Test Case 8

2.1.2 Molecule editor (availability of molecule created)

#### 4.2 Input specifications

The table below shows the parameters of the molecule that was created:

<b>Molecule Name</b>				
JTest1				
<b>(Atom) C</b>	<b>(Atom) H</b>	<b>(Atom) N</b>		
4	4	0		
<b>(Atom) O</b>	<b>(Atom) S</b>	<b>(Atom) P</b>		
4	5	5		
<b>Double Bond</b>	<b>Rings</b>	<b>Phenyl</b>	<b>Alcohols</b>	<b>Phenols</b>
5	0	8	7	4
<b>Ethers</b>	<b>Esters</b>	<b>Ketones</b>	<b>Aldehydes</b>	<b>Acids</b>
5	2	3	6	9
<b>Arylacids</b>	<b>Amines</b>	<b>RingN</b>	<b>Amides</b>	<b>Thioethers</b>
8	7	4	2	0
<b>Thiols</b>	<b>Phosphoesters</b>	<b>HPhosphoesters</b>	<b>Phosphates</b>	
25	58	2	6	

#### 4.3 Output expectation

The molecule was made available for selection in step 3 when configuring a new simulation.

#### 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established.

#### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

#### 4.6 Anomalies

None

#### 4.1 Test case specification identifier Test Case 9

##### 2.1.2 Molecule editor (validation and constraints)

#### 4.2 Input specifications

The table below shows the parameters that were used to test for negative number validation:

<b>Molecule Name</b>				
Validation Test				
<b>(Atom) C</b>	<b>(Atom) H</b>	<b>(Atom) N</b>		
-8	-2	-8		
<b>(Atom) O</b>	<b>(Atom) S</b>	<b>(Atom) P</b>		
-2	-3	-8		
<b>Double Bond</b>	<b>Rings</b>	<b>Phenyl</b>	<b>Alcohols</b>	<b>Phenols</b>
1	9	7	-9	-1
<b>Ethers</b>	<b>Esters</b>	<b>Ketones</b>	<b>Aldehydes</b>	<b>Acids</b>
-25	-85	-25	-32	25
<b>Arylacids</b>	<b>Amines</b>	<b>RingN</b>	<b>Amides</b>	<b>Thioethers</b>
8	7	4	2	0
<b>Thiols</b>	<b>Phosphoesters</b>	<b>HPhosphoesters</b>	<b>Phosphates</b>	
25	58	2	6	

#### 4.3 Output expectation

All non-empty fields must be non-negative integers!

#### 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established.

#### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

#### 4.6 Anomalies

None



#### 4.1 Test case specification identifier Test Case 10

##### 2.1.3 Molecule validator

#### 4.2 Input specifications

The table below shows the properties of the molecule that was validated:

<b>Molecule Name</b>				
Jtest2				
<b>(Atom) C</b>	<b>(Atom) H</b>	<b>(Atom) N</b>		
0	6	1		
<b>(Atom) O</b>	<b>(Atom) S</b>	<b>(Atom) P</b>		
4	5	6		
<b>Double Bond</b>	<b>Rings</b>	<b>Phenyl</b>	<b>Alcohols</b>	<b>Phenols</b>
0	0	7	4	5
<b>Ethers</b>	<b>Esters</b>	<b>Ketones</b>	<b>Aldehydes</b>	<b>Acids</b>
1	2	6	4	5
<b>Arylacids</b>	<b>Amines</b>	<b>RingN</b>	<b>Amides</b>	<b>Thioethers</b>
2	84	5	2	1
<b>Thiols</b>	<b>Phosphoesters</b>	<b>HPhosphoesters</b>	<b>Phosphates</b>	
5	2	5	6	

#### 4.3 Output expectation

The molecule was made available for selection in step 3 when configuring a new simulation on the two accounts that were created to verify its availability to the public.

#### 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established.

#### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

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#### 4.1 Test case specification identifier Test Case 11

##### 2.1.4 Chat room

#### 4.2 Input specifications

A conversation was conducted on both the Java Applet and the Java Server Page chat rooms.

### 4.3 Output expectation

The conversation with the other user was visible in the threaded discussion board.

### 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established

### 4.5 Developer tester information

Developer – Yingping Huang

Tester – Julio C. Dovalina

### 4.6 Anomalies

[I see test log for explanation](#)

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## 4.1 Test case specification identifier Test Case 12

2.1.5 File sharing and discussion board

### 4.2 Input specifications

Two messages one with an attached .exe file and one with a .bat were uploaded to test the systems restrictions for both these file types.

### 4.3 Output expectation

The files were not uploaded

### 4.4 Environmental needs (software and hardware)

Different web browser will be used to test this feature.

### 4.5 Developer tester information

Developer – Yingping Huang

Tester – Julio C. Dovalina

### 4.6 Anomalies

[I see test log for explanation](#)

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## 4.1 Test case specification identifier Test Case 13

2.1.6 Sending Email Agent (focusing on email received when simulation is first invoked)

### 4.2 Input specifications

The table shows the parameters used to configure the simulation:

Environment Variables

Simulation time: 100.0 Hours	Microbe density: 0.0010	Fungal density: 0.0010	pH value: 7.0	Temperature: 300.0 F <sup>o</sup>	pKw: 14.0
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Oxygen density: 3.0E-4	Light density: 4.0E-6	Molecule density: 0.01	Adsorption Rate: 0.0	Desorption Rate: 0.0	Created by: yhuang3
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#### Molecule information

Molecule Name	Percentage	Created by
Cellulose	20.0	yhuang3
Protein	80.0	yhuang3

### 4.3 Output expectation

Dear Cesar Dovalina,

Your simulation with session ID 331 has been executing on our application servers. Please click <http://tobit.cse.nd.edu/nom> to sign in and follow the links to view your simulation reports.

Thank you.  
The NOM Group

### 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established

### 4.5 Developer tester information

Developer – Yingping Huang  
Tester – Julio C. Dovalina

### 4.6 Anomalies

None

### 4.1 Test case specification identifier Test Case 14

2.1.6 Sending Email Agent (focusing on email received when a new account is created)

### 4.2 Input specifications

The table below shows the sing up requirements:

<b>User ID</b>	<b>Are you a professor?</b>
jdovali	no
<b>Password</b>	<b>Re-type Password</b>
*****	*****
<b>First Name</b>	<b>Last Name</b>
Cesar	Dovalina
<b>Email</b>	<b>Phone (optional)</b>
jdovalin@nd.edu	null

### 4.3 Output expectation

Dear Cesar, Dovalina,

Please click the following link to activate your account:

<http://tobit.cse.nd.edu/nom/activate.jsp?userid=jdovali&encrypt=11423877>

### 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established

### 4.5 Developer tester information

Developer – Yingping Huang

Tester – Julio C. Dovalina

### 4.6 Anomalies

None

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### 4.1 Test case specification identifier Test Case 15

2.1.7 Running time prediction agent

### 4.2 Input specifications

The following table contains the configuration parameters used to invoke the simulation we are using to test this feature:

Simulation # 1104

Environment Variables

Simulation time: 5.0 Hours	Microbe density: 0.0	Fungal density: 1.0	pH value: 1.0	Temperature: 85.0 F°	pKw: 0.0
Oxygen density: 1.0	Light density: 1.0	Molecule density: 0.0	Adsorption Rate: 2.0	Desorption Rate: 8.0	Created by: julio

Molecule information

Molecule Name	Percentage	Created by
Cellulose	50.0	yhuang3
Lignin	50.0	yhuang3

### 4.3 Output expectation

11:47 invoked

11:48 0.02 hours to complete

11:48 0.03 hours to complete

11:49 0.0 hours to complete

11:50 simulation completed

#### 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established

#### 4.5 Developer tester information

Developer –Xiarong Xiang

Tester – Julio C. Dovalina

#### 4.6 Anomalies

None

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#### 4.1 Test case specification identifier Test Case 16

2.1.8 Similar simulation finder

#### 4.2 Input specifications

The following table contains the configuration parameters of the simulation we attempted to invoke to test if the system found simulation # 399 that have similar parameters to these.

##### Environment Variables

Simulation time: 500.0 Hours	Microbe density: 1000000.0	Fungal density: 1.0E7	pH value: 6.0	Temperature: 20.0 F°	pKw: 0.0
Oxygen density: 2.5E-4	Light density: 20000.0	Molecule density: 0.0010	Adsorption Rate: 0.0	Desorption Rate: 0.0	Created by: mpullin

##### Molecule information

Molecule Name	Percentage	Created by
Cellulose	40.0	yhuang3
Lignin	40.0	yhuang3
Protein	20.0	x123456

The following table contains all the configuration parameters of simulation # 399

##### *Simulation # 339*

##### Environment Variables

Simulation time: 500.0 Hours	Microbe density: 1000000.0	Fungal density: 1.0E7	pH value: 6.0	Temperature: 20.0 F°	pKw: 0.0
Oxygen density: 2.5E-4	Light density: 20000.0	Molecule density: 0.0010	Adsorption Rate: 0.0	Desorption Rate: 0.0	Created by: mpullin

##### Molecule information

Molecule Name	Percentage	Created by
Cellulose	20.0	yhuang3

Lignin	30.0	yhuang3
Protein	40.0	yhuang3

### 4.3 Output expectation

We found the following completed or running similar simulations for you. You can view the configurations and reports for these simulations. These simulations are ordered by their similarity with your configuration description

- *Simulation 339*
- Simulation 348
- Simulation 349
- Simulation 350
- Simulation 135

### 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established

### 4.5 Developer tester information

Developer – Yingping Huang

Tester – Julio C. Dovalina

### 4.6 Anomalies

None

## 4.1 Test case specification identifier Test Case 17

2.1.9 Automatic restarting agent

### 4.2 Input specifications

The following table contains the configuration parameters of the simulation we invoked to test this feature.

#### Environment Variables

Simulation time: 130.0 Hours	Microbe density: 0.03	Fungal density: 0.01	pH value: 6.0	Temperature: 237.0 F°	pKw: 1.4E-5
Oxygen density: 4.0E-4	Light density: 1.0E-4	Molecule density: 0.01	Adsorption Rate: 0.0	Desorption Rate: 0.0	Created by: xx

Molecule information

Molecule Name	Percentage	Created by
Cellulose	33.0	yhuang3
Lignin	33.0	yhuang3
Protein	34.0	yhuang3

### 4.3 Output expectation

SESSIONID	RESUMED	APPSERVER	STARTTIME	ENDTIME	STATUS
1022	0	4	25-JUL-03	25-JUL-03	resumed
1022	1	3	25-JUL-03	25-JUL-03	resumed
1022	2	4	25-JUL-03	25-JUL-03	resumed
1022	3	4	25-JUL-03	25-JUL-03	resumed
1022	4	2	25-JUL-03	25-JUL-03	resumed
1022	5	3	25-JUL-03	25-JUL-03	resumed
1022	6	3	25-JUL-03	25-JUL-03	resumed
1022	7	5	25-JUL-03	25-JUL-03	completed

### 4.4 Environmental needs (software and hardware)

The minimum hardware and software need to be established

### 4.5 Developer tester information

Developer – Yingping Huang

Tester – Julio C. Dovalina

### 4.1 Test case specification identifier Test Case 18

2.14 Load Balancing

### 4.2 Input specifications

Loaded sixteen simulations to run, ten of which should complete quickly, and six that should take much longer.

### 4.3 Output expectation

Comparable load averages across all application servers, preferably below one.

### 4.4 Environmental needs (software and hardware)

Standard web browser IE, Netscape, network connection

### 4.5 Developer tester information

Developer –Yingping Huang

Tester – Ryan Kennedy

### 4.6 Anomalies

See test log for explanation