

Appendix 1

Setting up Data Label- Label Component-policy1

The screenshot shows the Oracle Policy Manager interface. On the left, a tree view displays the hierarchy: - LBACSYS > Oracle Label Security Policies > POL1 > Labels > Components. The 'Components' folder is selected. On the right, the 'Levels' tab is active, showing a table with columns 'Short', 'Long', and 'Numeric'. Below the table is a text instruction: 'After specifying a new level, press ENTER to re-order the level list based on the numeric value:'.

Short	Long	Numeric
U	UN_CLASSIFIED	10
C	CONFIDENTIAL	20
S	SECRET	30
TP	TOP_SECRET	40

Appendix 2

Setting up Data Label of policy1

The screenshot shows the Oracle Policy Manager interface. On the left, the tree view is the same as in Appendix 1, but now 'Data Labels' is selected under the 'Labels' folder. On the right, the 'Labels' tab is active, showing a text instruction: 'Specify the valid data labels for the policy. Assign label tag numbers (1 to 8 digits), which optionally can implement a data manipulation strategy that permits labels to be meaningfully sorted and compared:'. Below the text is a table with columns 'Labels' and 'Tag Number'.

Labels	Tag Number
U	1
C	2
S	3
TP	4

Appendix 3

Setting up Use's Label of policy1

The screenshot shows the Oracle Policy Manager interface. On the left, a tree view displays the hierarchy: - LBACSYS > Oracle Label Security Policies > POL1 > Users > LBAC. The 'LBAC' user is highlighted. On the right, the 'Labels' tab is active. The 'Name' field is set to 'LBAC'. Below it, a table lists levels for assignment:

Type	Short	Long	Description
Maximum	S	SECRET	User's highest level
Minimum	C	CONFIDENTIAL	User's lowest level
Default	C	CONFIDENTIAL	User's default level
Row	C	CONFIDENTIAL	Row level on INSERT

Appendix 4

Detail of Use's Label of policy 1

The screenshot shows the Oracle Policy Manager interface with the 'Labels' tab selected. A summary message states: "You have set the following labels for this user, based on the levels, compartments and groups you have selected:". Below this, the following labels are configured:

- Maximum Read Label: S
- Maximum Write Label: S
- Minimum Write Label: C
- Default Read Label: C
- Default Write Label: C

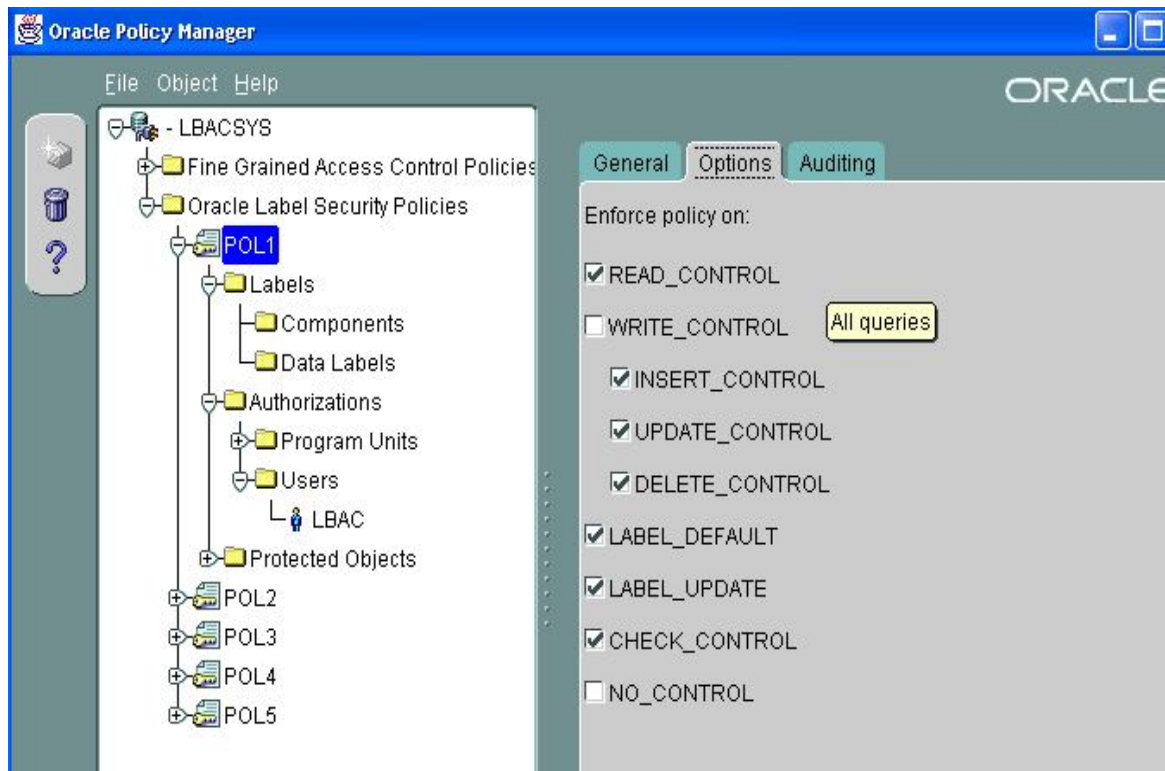
Appendix 5

Figure 5.5: Data retrieving of policy 1
(The shadow Column Represents Data Label of tuple)

LINE2_NUMBER_STREET	LINE3_AREA_LOCATING	CITY1	ZIP_POSTCODE	STATE_PROVICE_COUNTRY	COUNTRY	POL1	OTHER_ADDRE
11	11	11	11	11	11	2	11
1	1	1	1	1	1720	2	1
12	12	12	12	12	12	2	12
13	13	13	13	13	13	2	13
14	14	14	14	14	14	2	14
15	15	15	15	15	15	2	15
16	16	16	16	16	16	2	16
1	1	1	1	1	41	2	1
2	2	2	2	2	43	2	2
2	2	2	2	2	44	1	2
2	2	2	2	2	45	1	2
3	3	3	3	3	47	1	3

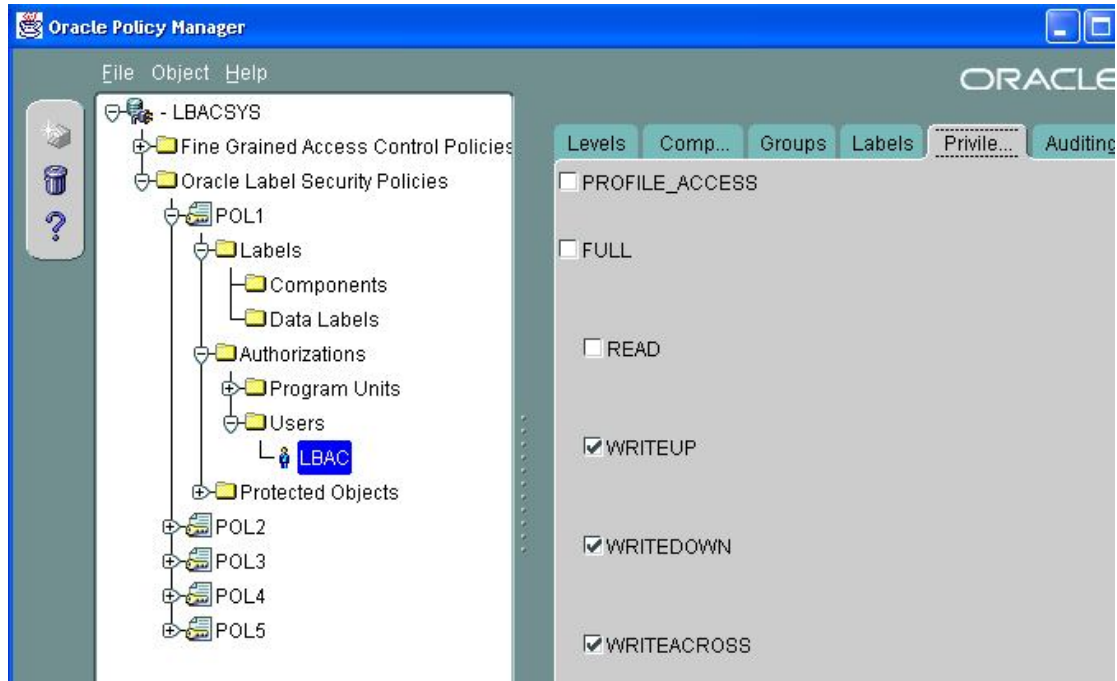
Appendix 6

Setting up Access Control Options of Policy1



Appendix 7

Setting Up Row Label Security Privileges-Policy1



Appendix 8

Message Error Shows Violation of Some Restrictions on Policy1

BER_STREET	LINE3_AREA_LOCATING	CITY1	ZIP_POSTCODE	STATE_PROVICE_COUNTRY	COUNTRY	OTHER_ADDRESS_DETAIL	POL1	
	9	9	9	9	99	9	2	
Output							10	2
General							111	2
22:17:14 ORA-04088: error during execution of trigger 'LBACSYS.LBAC\$AU0_32125'							555	2
22:17:14 ORA-12406: unauthorized SQL statement for policy POL1							666	2
22:17:14 ORA-06512: at "LBACSYS.LBAC_STANDARD", line 0							666	2
22:17:14 ORA-06512: at "LBACSYS.LBAC\$5A", line 1221							666	2
22:17:14 ORA-06512: at "LBACSYS.LBAC\$AU0_32125", line 1							1	2
22:17:14 ORA-04088: error during execution of trigger 'LBACSYS.LBAC\$AU0_32125'							1	2
22:17:14 ORA-04088: error during execution of trigger 'LBACSYS.LBAC\$AU0_32125'							1	2
1	1	1	1	1	125	1	1	
2	2	2	2	2	212	2	2	
2	2	2	2	2	222	2	2	

Appendix 9

Setting up Data Label- Label Component on Policy2

The screenshot shows the Oracle Policy Manager interface. On the left, a tree view displays the hierarchy: - LBACSYS > Oracle Label Security Policies > POL2 > Labels > Data Labels. The 'Data Labels' folder is selected. On the right, the 'Labels' tab is active, displaying a table with the following data:

Labels	Tag Number
U	111
C	222
S	333
TP	444

Appendix 10

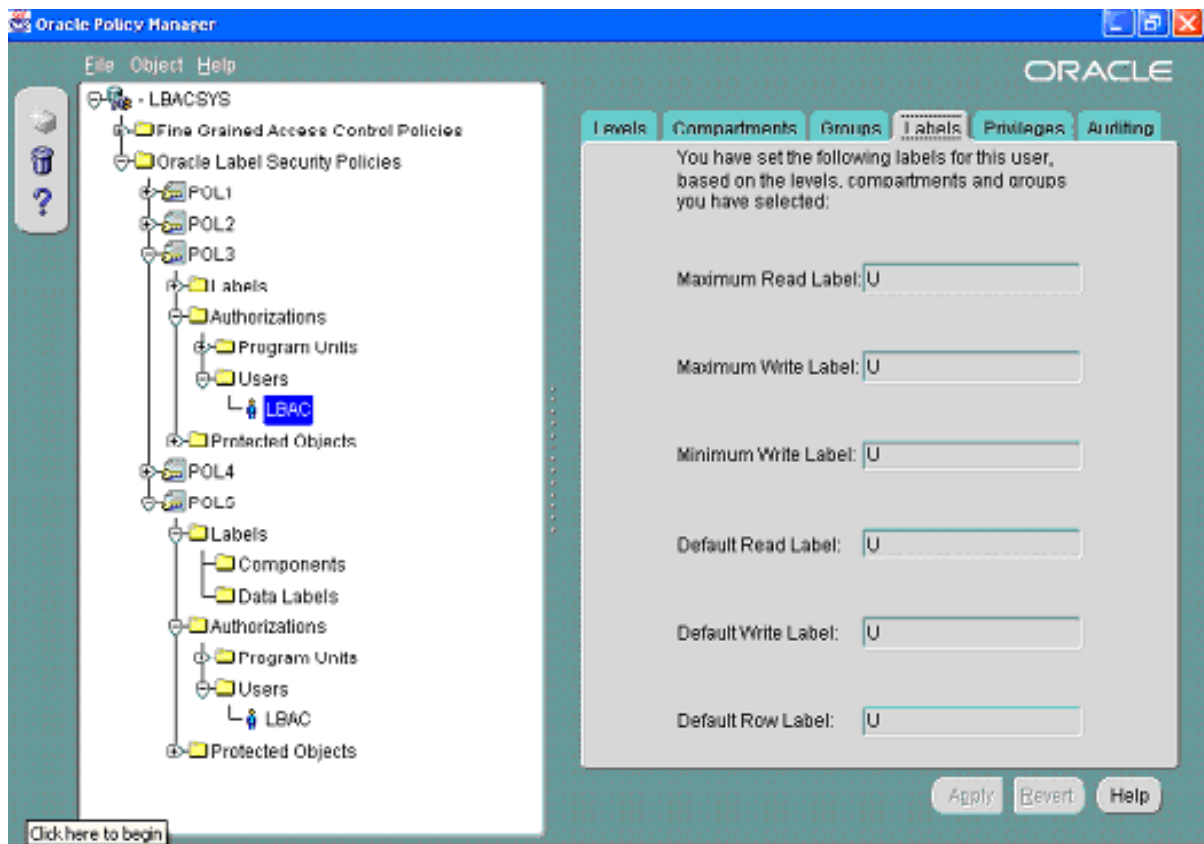
Setting up Data Label of Policy2

The screenshot shows the Oracle Policy Manager interface. On the left, a tree view displays the hierarchy: - LBACSYS > Oracle Label Security Policies > POL2 > Labels > Components. The 'Components' folder is selected. On the right, the 'Levels' tab is active, displaying a table with the following data:

Short	Long	Numeric
U	UNCLASSIFIED	1
C	CONFIDENTIAL	2
S	SECRET	3
TP	TOP_SECRET	4

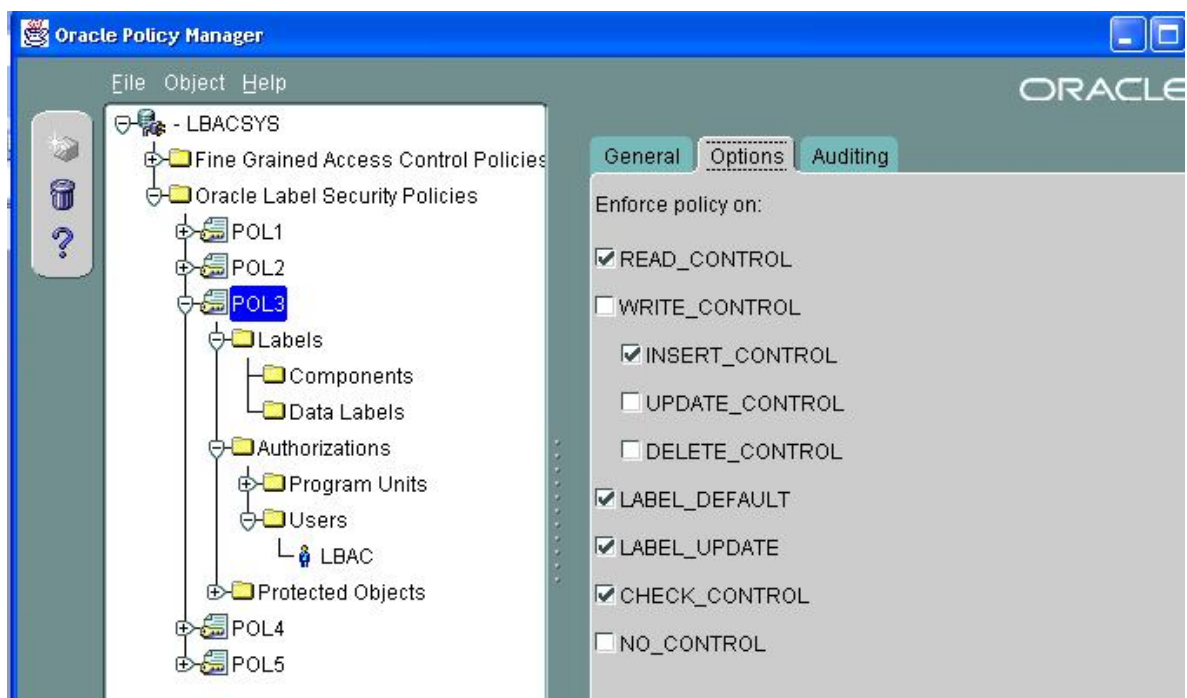
Appendix 11

Detail of Use's Label of Policy 2



Appendix 12

Setting up Access Control Options of Policy2



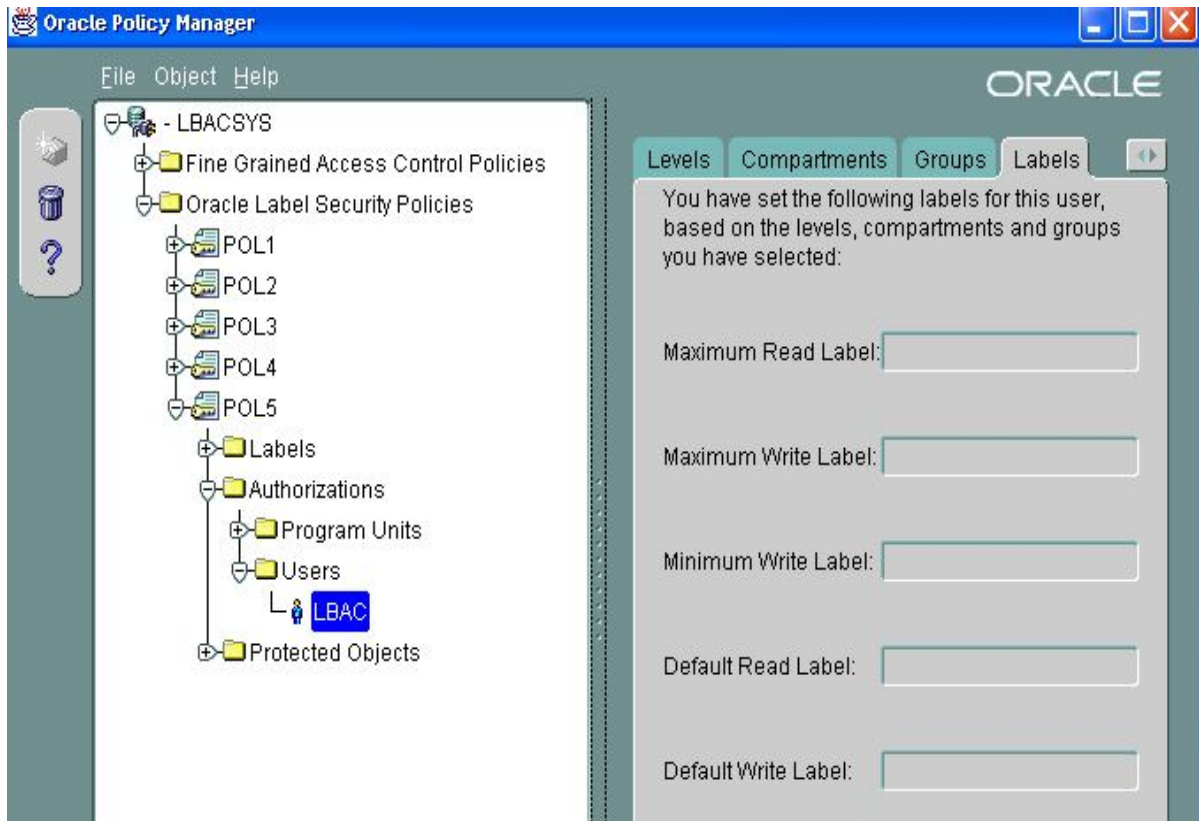
Appendix 13

Result of Read Request of Policy 2

	LIB_CLS	LIBRARY_ID	ADDRESS_ID	LIBRARY_NAME	LIBRARY_DETAILS	POL1	SA_LABEL
▶	1	1	1	1	1	2	111
	1	61	1	1	2	2	111
	1	262	1	4	9	2	111
	1	263	1	4	9	2	111
	1	264	1	4	9	2	111
	1	265	1	4	9	2	111
	1	266	1	4	9	2	111
	1	267	1	4	9	2	111
	1	268	1	4	9	2	111
	2	135	2	2	2	2	111

Appendix 14

Detail of Use's Label of Policy 3 (User LBAC has no label security)



Appendix 15

The Result of Read Request of Policy 3

LIB_CLS	LIBRARY_ID	ADDRESS_ID	LIBRARY_NAME	LIBRARY_DETAILS	POL1	SA_LABEL
4	82	4	4	4	2	444
4	101	5	7	88	2	333
4	102	5	7	88	2	222
4	103	5	7	88	2	111
4	104	5	7	88	2	222
4	151	4	4	4	2	222
4	152	4	4	4	2	222
4	153	4	4	4	2	222
4	154	4	4	4	2	222
4	155	4	4	4	2	222
4	156	4	4	4	2	333
4	157	4	4	4	2	333
4	158	4	4	4	2	333
4	159	4	4	4	2	333
4	160	4	4	4	2	333