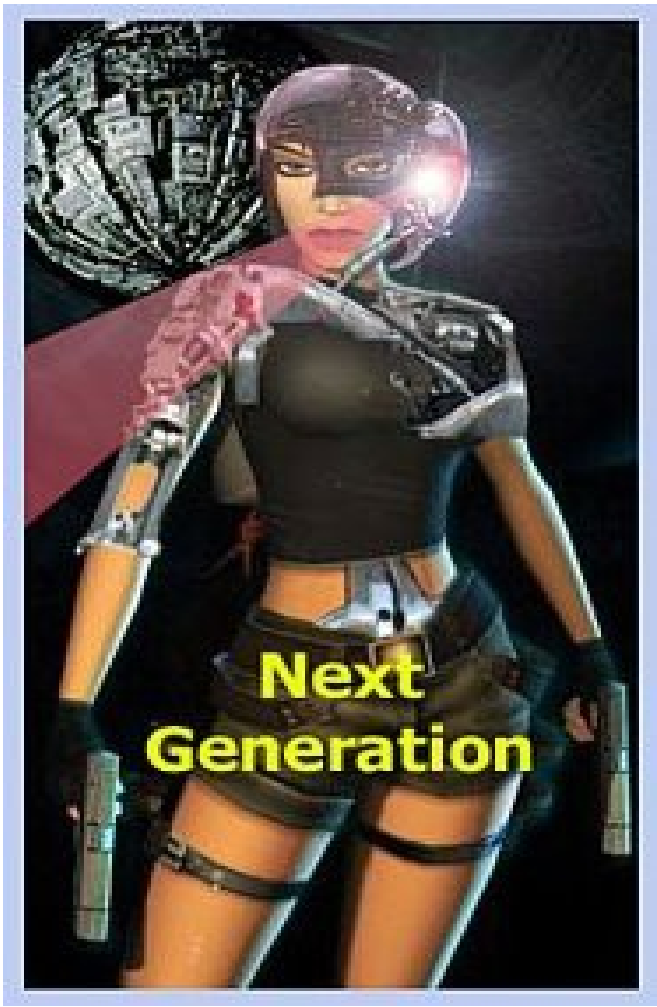
TOMB RAIDER
NEXT GENERATION



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OBJECT CODE BITS

NEW_ANIMATING The **OCB** in the animating will be used only when you use an ACTION trigger to move the animating.

In this circumstance the **OCB** value will be used as a speed for movement of the animating. Remember that 1 sector is 1024 units and the value typed in will be added 30 times in a second to the current coordinate. For example, for a speed value 40, the animating will be moved 1200 units (40 x 30 fps) per second and this distance is bigger than one sector.

Remark: Put 0 in the **OCB** of the animating and the default speed used by the "move animating" trigger will be 30 units.

NEW_BOATS Boats, rubber boat or motorboat, accept the same type of **OCB**:

Use the following values or a sum of them to enable different features at the same time:

+1	=	Show lights in front of the boat
+2	=	The boat will be not be able to enable a heavy trigger
+4	=	The boat will be not be able to enable a Lara trigger
+8	=	Enable the "look at" feature

Remark: A "Lara" trigger means a trigger that may be activated by Lara.

Use the values 2 and 4, to create interesting situations in the game: For example cover the bottom of a water room with a trigger flip effect:

Lara Kill Lara in <&>way -> Default death (vitality=0

Using a common "trigger" as a trigger type.

In the motor boat **OCB** set the value 4, the boat will not be able to enable a "Lara" trigger.

It is better to give the water a dangerous look like it was lava for example.
Now in the game Lara will be killed if she enters the dangerous water.

OBJECT CODE BITS

NEW_BRIDGES **From 1.2.2.4 version** of **TRNG** the following **OCB** for all BRIDGE objects is available.

Tilt Grade (0 / 63)
The tilt grade is the level of slope for the current bridge. It is the number of clicks difference between the two opposite sides in the direction of the slope.

For example: 0 = flat (no slope), 1 = one click between the opposite sides,
4 = one sector (4 clicks) between the two sides, etc.

The Tilt Grade works only for the **BRIDGE_CUSTOM** object, while for other BRIDGE objects the tile factor is in the name: **BRIDGE_FLAT** = Tilt0, **BRIDGE_TILT2** = Tilt2

Enable Hanging (64)
The ability of Lara to hang over edges of the borders of the fragmented trigger zones is not good. She will be frozen and in some dynamic action she will be thrown over the footbridge with a rough movement. To avoid all these problems the hanging features have been disabled for all bridge objects.

NEW_CLEANER_ROBOT
FROM: Plugin_Cleaner
Cleaner Robot does not require any OCB value.

NEW_CONTROL_PANEL_FOR_CRANE
FROM: Plugin_Cranes
In the object you use as Control Panel for crane, you have to type as OCB code the index of crane item that this control panel will engage.

OBJECT CODE BITS

NEW_FISH_EMITTER

Remark: The **OCB** value for this object can be computed using the **OCB Calculator** in the Tools2 panel of the **NG_Center** program.

Number of Fish
The main value to set in the **OCB** field is the number of fish. Type a number between 1 and 127.

Remember that the maximum number of fish for the whole level is 128 and in this quantity there will be the little beetles you mean to use, as the fish are a TRNG new build using some resources of little beetles particles.

A wide water zone can be filled with only 16 or 32 fish when individual fish are used instead of a shoal.

Put 0 in the **OCB** field and the TRNG engine will use 8 fish in a shoal that will attack Lara. The fish, locusts or beetles are able to recognize box sectors.

NEW_GUARDIAN The **OCB** of the Guardian (Laser Head) is used to reduce the count-down before the Guardian begins his attacks on Lara.

If a 0 is put in the **OCB** the Guardian will require about 3 seconds before attacking Lara for the first time.

If you set a number of 150 the guardian will attack Lara immediately.

NEW_HYDRA **OCB = 1 or OCB = 2**
If a 1 or 2 is put in the **OCB** of the Hydra you will work with a pair (a couple) of Hydra objects.

In this situation place both Hydra in the same sector setting the first object **OCB = 1** and the other object has the **OCB = 2**.

In the game the two Hydra will be moved to stay on two opposite corners of the same side. Another feature of the Hydra's couple is that both Hydras will be inclined to create a "V" letter.

Remark: When working with a couple of Hydras the TRNG engine will force the starting facing to South (in the NGLE view). If the values 1 and 2 are omitted in the OCB, the Hydra will work like a single object and will keep the facing and position set in the project.

OCB_FOR_MISSLE_TYPE The Missile should be the energy ball shot by a Hydra to hit Lara. Only one of the following values can be chosen and then add it to (further) "1" or "2" for a couple setting.

OBJECT CODE BITS

NEW_JEEP

Setting **OCB = 1** the **JEEP** enables a beam of light for the **JEEP**.
This light works like that for the **MOTORBIKE**.
The light cone mesh seen in the **MOTORBIKE** is missing on the **JEEP**.

If you want to add this mesh in the **JEEP** you can have the new mesh showing or hidden
It has to be the mesh with index = 18 performed by the TRNG engine when the light is on or off.

Remark: If you add this new mesh remember to set it "invisible" at the start.
See the **MOTORBIKE SIDECAR** object with the **Wad Merger Animation Editor** to understand how to perform this job.

NEW_KAYAK OCB = 1 Adds a Mist wake

Unfortunately the two wakes seen in the Tomb3 game are not available in this TRNG version of the kayak.

The reason is very technical: the method used in Tomb3 to create those two stripes used some features not available in the Tomb4 engine.

A little white Mist can be added under the **KAYAK** by adding the value 1 in the OCB field.

OCB = 2 Accept an Animation to go on board whereby a jump
Using the original code from the Tomb Raider 3 adventure Lara was able to go on board only from the floating on water position. The missing other methods to go on board is a problem because when the **KAYAK** is in low water Lara will be not be able to use the new **KAYAK**.

For this reason it is forbidden to go when it is in shallow water to avoid the risk of loosing the **KAYAK**. The Mudubu TR3 level had been build to always have deep water.

OBJECT CODE BITS

NEW_KEY_PAD

Remark: The **OCB** value for this object can be computed by using the **NG_Center OCB Calculator**.

If you use the object stored in the **SWITCH_TYPE1** slot of the ng.wad you will be able to have a working Key Pad for your levels.

With the keypad a door can be created requiring a password (key-code) or it can be controlled with a custom trigger for the elevators present in your level.

The keypad works with the **SWITCH_TYPE1** slot but it also works in **SWITCH_TYPE 2** and **SWITCH_TYPE 3.**

In the **OCB** window of the **SWITCH_TYPE** object set a combination of the following **OCB** to work it like a keypad:

0 to 9999 = Key-code. This is the number (secret code) that Lara will have to type to activate the switch.

10001 to 10010 = Key-code. If you set a key code number value in the range of 10001 to10010 this means it is required as a single key (like the elevator).

In this case, the number of the **OCB** describes the maximum number that the user will be able to type in.

NEW_MECH_WARRIOR

FROM: Plugin_MechWarrior
MechWarrior does nOt require any OCB value.

NEW_PARALLEL_BARS

The **PARALLEL_BAR** is a new object imported from Tomb Raider Chronicles.
The **OCB** value sets the power for the final jump.

If the **OCB = 0** is set, Lara performs a very short jump.
With **OCB = 200** Lara jumps about 2 sectors distance.

With **OCB = 100** Lara jumps about one sector, but only approximately because the formula changes the horizontal and vertical speed of the jump which affects the distance for the jump.

Remark: Looking at the code, the computation of the jump power changes according to orienting (facing) of the Parallel bar object in respect to Lara. If Lara comes from one direction the OCB value will be used one way, while if Lara comes from the opposite direction the OCB value will be computed in other way. This means the power of the jump is changed by inverting the facing of the parallel bar ie. rotating by 180 degrees.

OBJECT CODE BITS

NEW_PUSHABLE_OBJECT

Remark: The **OCB** value for this object can be computed by using the **NG_Center OCB Calculator**.

Pushable objects can be made tread-able and climbable by setting the correct value in the OCB field in the Object window of the object. (**Key 'O' in NGLE when the object is selected**)

0 to 31 = height of object collision. 1 click = 1 unit.
So for a pushable height of 1 sector (4 clicks)
type 4 in the **OCB**.
A pushable height up to 7 sectors can be created.

Then add one or more of the following values to set a corresponding feature:

32 = The pushable object with a value 32 can be thrown down.

Use of this features requires some attention:

For technical reason the engine requires to rotate the facing of the pushable to have the correct orientation in accordance with the moving direction. There is no problem if the pushable has the same texture on its sides and a symmetrical texture on the top. While in other cases when Lara is pushing the object the pushable will change its orientation to have the correct facing.

To solve this problem:
Texture the pushable to be the same on all sides and have an image on the top that remains the same when rotating in 90 degree steps.

Enable **OCB** values 512 or 1024 to stop movement in a direction (East-West or South-North) and then place the pushable in the level with the correct facing where it could be thrown down.

Remark: When a pushable object is falling down it will destroy shatter objects and kill mortal creatures but it will not kill **DEMIGOD1, DEMIGOD2, DEMIGOD3.**

OBJECT CODE BITS

NEW_PUSHABLE_OBJECT

64 = ENABLE new TRNG features for the current pushable.

When a new special feature for the pushable is required add 64 to the other **OCB** values.

128	=	Forbid Pulling
256	=	Forbid Pushing
512	=	Forbid movement in the East-West direction
1024	=	Forbid movement in the South-North direction
2048	=	Allow climbing on the West face
4096	=	Allow climbing on the North face
8192	=	Allow climbing on the East face
16384	=	Allow Climbing on the South face

The climbing feature should only be be used for a pushable with a height of at least 8 clicks.

8 clicks = **32 units** value set in the **OCB** for height.

Remarks:

*For a traditional pushable (tomb4 old style) omit to add the value 64 in the **OCB.**

*To have special features like forbid pushing or pulling in some direction and to stop the pushable object being walked on use the height value 0 (zero) and then add the other **OCB** values to set the wanted features.

OBJECT CODE BITS

NEW_ROLLING_BALL Now you can set the **OCB** field of the Rolling-Ball with one or more (adding them) of the following values:

1 = Silent mode. Disable sound and earthquake. A useful trick to hide Rolling-Ball to enable more special triggers in sequence, avoiding sound and moving view.

2 = Kill Enemies. Rolling-Ball will kill all creatures it touches while it is moving.

4 = Active with pushing. Adding the value 4, rolling will be activated when Lara pushes it. In this situation it is not necessary to place any trigger for the Rolling-Ball. With OCB 4 place the Rolling-Ball on a flat sector (non-sloped sector) and Lara will be able to choose the direction to move it.

Remark: This **OCB** requires Lara's animation number 316 in your wad.
Not all standard wads have this animation.
It can be found in the Catacomb.wad.

NEW_SIDE_CAR By default the **SIDECAR** has a beam of light when is working. The light beam can be disabled by typing "1" in the **OCB** field of the SIDECAR object.

NEW_STAR_WARS_ROBOT
FROM: Plugin_SW_Robot
SW Robot does not require any OCB values.

OBJECT CODE BITS

NEW_STATIC_OBJECTS FROM_TRNG_version_1.1.8.7

The following static object **OCB** codes can be set for the following features:

4 = Disable collision. Lara can pass through the static

8 = Set Glass Transparency. The static will have a glass transparency effect

16 = Set Ice Transparency. The static will look like ice.

32 = Damage Lara on physical contact. The static injures Lara if she touches it.
The damage removes 10 health points from Lara (full vitality= 1000).

Change this value using **CUST_SET_STATIC_DAMAGE**
in the Customize script command.

Remark: Remember that this damage will be continuously applied while Lara is touching the static. This means that a little damage could kill Lara after a while.

64 = Burns Lara on physical contact. Lara will be burned but she will have some time to search and get in the water to save herself.

128 = Explodes killing Lara on physical contact.
This **OCB** value transforms this static into a mine.

OBJECT CODE BITS

NEW_SUBMARINE

The **OCB** with a value less than 4096 (**0 to 4095**) will indicate the time duration pause between the shooting of a missile and the following.

The value is in tick frames, where one second = 30 tick frames. If a value of 0 is set in the **OCB** the TRNG engine will use a value of 120 (4 seconds) in the **OCB.**

Remark: It is not advisable to type a number less than 3 seconds (**OCB = 90**) because when this time has been completed the previous torpedo will be destroyed and another will be launched. If too short a time is used the missile will not be able to hit Lara.

Another **OCB** value that can be added to the shooting time:

4096 = It allows the submarine to shoot its missile out of the water room.
By default the missile explodes on the water surface.
Avoiding it allows it to go off from the water room.

8192 = Disables the Bubbles from the back of the submarine.

OBJECT CODE BITS

NEW_SWINGING_CRANE
FROM: Plugin_Cranes
Before describing the OCB codes of this new object, it is important to remember that it is necessary to use AssignSlot= script commands.

AssignSlot= UsedSlot, OBJ_SWINGING_CRANE

Where the UsedSlot is the number or name of the slot where the object has been stored in the wad file.

For the Swinging Crane this is the **ANIMATING2** slot.

Type in the [level] section the command:

AssignSlot=ANIMATING2, OBJ_SWINGING_CRANE

For the manual (drivable) crane, type two AssignSlot= command:

One for the Swinging Crane.
One for the Control Panel used for the drivable crane.

To signal the control panel of the crane use the **OBJ_CONTROL_PANEL_CRANE** constant.
That is:

AssignSlot= ANIMATING2, OBJ_SWINGING_CRANE
AssignSlot= ANIMATING3, OBJ_CONTROL_PANEL_CRANE

OBJECT CODE BITS

OCB CODES FOR THE CRANE

OCB :1 Automatic crane.
The crane will work like in tomb raider 3.
It will follow Lara from the ceiling and when it is over her it falls down trying to kill her. In automatic mode there is no control panel object.

OCB:2 Manual Crane.
The crane is controlled by Lara.
This mode requires the Control Panel item.
Lara uses the Control Panel item to engage the crane, like a switch object.

There are three animations used to simulate the activation of the crane by Lara, when she is in front of the control panel:

Animation 445:
Lara hits some keys on keyboard and then grabs the joystick to control the crane.
This is the "get in" driving crane.

Animation 446:
Lara is almost still with very little movement.
This animation is performed continuously until she is in the driving crane mode.

Animation 447:
Lara moves from the animation 446 to the standard stand-up position.
This is the get off driving crane animation.

Notes: Type the index of the Crane item that the control panel should engage in the Object Code value of the Control Panel item.

Add to the [level] section:
AssignSlot= ANIMATING3, OBJ_CONTROL_PANEL_CRANE

Change the animations according to the control panel.

OBJECT CODE BITS

OCB CODES FOR THE CRANE

OCB:4 Shadow.
This draws a shadow on the ground below the crane.

OCB:8 Proportional Shadow.
This only works with OCB:4.
Then get it proportional by adding OCB:8.
A proportional shadow changes its size according to the distance of the item.
This means that the shadow is smaller when the crane is on the ceiling.
It becomes larger when the crane is moving down getting closer to the floor.

OCB:16 Hard Grabbing.
The drivable (manual) crane is able to grab items and move them sideways.
Omit this OCB: and the grabbing is automatic.
Every time the crane moves down over a grab able item it will close its jaws and grab the item.

OCB:32 Enable falling down of grabbed item.
If the OCB:32 code is omitted, once the crane grabs an item, the player should move it until it reaches the floor to be able to leave it in other position.
If the OCB:32 code is used, the player is able to drop the item when the crane is high above the ground.

OCB:Value*256 Max Vertical Distance.
Set the maximum distance that the crane is able to reach from the ceiling.
This is a value in sectors typed in the formula:

MaxVerticalDistance * 256 + OCB flags

The default maximum vertical distance is 5 sectors.

OBJECT CODE BITS

OCB CODES FOR THE CRANE

GAME COMMANDS TO DRIVE THE CRANE

ACTION(Ctrl) :
Keeping down the Action key, the FORWARD(UP)/ BACKWARD(DOWN) commands are used to move the crane slowly up and down.

DRAW WEAPON (Space):
Open the jaws and drop the grabbed item.
If there is no grabbed item, nothing is performed.

JUMP(Alt):
Lower the crane but only when there is no grabbed item.

WALK(Shift):
Close the jaws to grab an item.

ROLL(End):
Quit the driving crane mode and return to common game playing.

Camera Mode
When the player drives the crane change the camera mode to only look at the crane. Use a fixed camera or some cutscene cameras.

Use a GlobalTrigger= command of **GT_DRIVING_CRANE_START** to perform a Trigger group to engage the camera mode **.**

To remove the crane camera use a **GT_DRIVING_CRANE_QUIT** Global trigger to restore Lara's follow camera mode.

OBJECT CODE BITS

NEW_SWITCH_1/2/3 New TRNG engine OCB values

From 1.2.2.3 version, an animation number can be typed into the **SWITCH_TYPE1, SWITCH_TYPE2, SWITCH_TYPE3** objects.

This animation will be performed when Lara is engaging the switch.
The correct range for the animation number is: **4 to 4095**

When using this custom TRNG animation feature one or more of the following flags can be added to the animation number:

8192 (Flip/Flop switch)
Adding 8192 to the animation number enables the flip/flop (or on/off) feature, where Lara is able to activate/deactivate the switch.

In this situation create two custom animations in two closed animation slots and then type the number of the first animation.

For example: For the custom animation 386 to engage the switch
type 8192 + 386 into the **OCB.**
Also create the inverse animation for the anti-triggering of the switch.
This is placed in the animation slot 387.
That is the slot after the animation engage slot.

NEW_TEETH_SPIKES

The **OCB** to set the **TEETH_SPIKES** are the same as the old TR4 engine.

To enable Teeth_Spikes like Tomb Raider 1 where Lara is able to cross if she moves slowly, insert **20 into the OCB**. This gives static spikes pointing to the North.

Add this line in the **script.txt** file in the [Level] section:

Enemy= TEETH_SPIKES, IGNORE, IGNORE, IGNORE,
EXTRA_TEETH_NO_DAMAGE_ON_WALKING

The EXTRA_TEETH_NO_DAMAGE_ON_WALKING means: the teeth work like TR1 spikes.

OBJECT CODE BITS

NEW_TIGHT_ROPE The **OCB** values set the difficulty for Lara to pass the tight-rope.

OCB = 0
Sets the Default mode.
A value of 0 works in same way as in TR Chronicles.
In this mode the player has to set the direction opposite to unbalance Lara.
For example, when Lara is falling to the right the player has to hit the Left command and vice-versa.

OCB = 1
Sets the Hard mode.
With a value of 1 Lara could fall if the player hits the right or the left command even when Lara is in a perfect balance.

With an **OCB of 0** default mode, the game engines ignores the direction commands
In the Hard mode the player has to set the correct command faster and the random unbalance happens more often.

OCB = 2
Sets Very Hard Mode.
It works like the Hard Mode but in this case the response time required to correct the unbalance of Lara has to be faster.

OCB = 3
Sets Impossible Mode.
With this OCB value Lara will always fall down.

OBJECT CODE BITS

NEW_WATERFALL_MIST

The **OCB** value for this object can be computed by using the **NG_Center OCB Calculator**.

By default the WATERFALLMIST emitter does not accept OCB values but in the **TRNG** engine the **OCB** can be set for the different features of Mist emitting.

Remark: A **"0" in the OCB** field will use the old default Mist emitter.

DO NOT CONFUSE the WaterfallMist with the **WATERFALL1** and **WATERFALL2** objects.
The WaterfallMist emitter is a red cone in the **Tomb Editor**,
The **WATERFALL1** and **WATERFALL2** are objects with a scrolling texture applied on them.

The formula to compute the value in the **OCB** field is complicated because different values are summed using the following formula:

(NumberOfBalls-1) + EmitMode * 4 + (SizeBall-1) * 16 + (EmitDurate-1) * 256 + ColorIndex * 4096 + CenterSquare

The default **NumberOfBalls** is 4

AI_FOLLOW

For two or more **AI_FOLLOW** set the same **OCB** value for the start **AI_FOLLOW** and the next **AI_FOLLOW**.

The following **AI_FOLLOW** objects increase the **OCB** value by 1.

For example:

First	**AI_FOLLOW**	=	**OCB 1** (below the moveable to move)
Second	**AI_FOLLOW**	=	**OCB 1** (where moveable will go)
Third	**AI_FOLLOW**	=	**OCB 2** (further target)
Fourth	**AI_FOLLOW**	=	**OCB 3** (etc.)

Remark: **AI_FOLLOW** is used to move the **ENEMY_JEEP** and should start from a value of -2 and follow the above rule.

OBJECT CODE BITS

AMBER_LIGHT

1 = Enables an earthquake effect and plays sound effects **BOULDER_FALL** and **EXPLOSION2_VOLWAS80**

2 = Plays sound effect **MAPPER_PYRAMID_OPEN** and if the object is in an outside room it enables a volumetric explosion effect.

This object could be affected by the Pulse= script command.

If in the current level there is a Pulse=ENABLED command the Amber light will never be enabled with the exception that the flip-map 4 is currently enabled.

ANIMATED_OBJECTS

Use **OCB = 666** to stop the animation when Lara goes out of the triggering square.

OBJECT CODE BITS

BADDY_1 and BADDY_2

1 = Roll Right. He rolls about a block so this is good for triggering as Lara comes up to a doorway

2 = Jump Left. He rolls about a block so this is good for triggering as Lara comes up to a doorway.

3 = Ducked

4 = Climb up 4 clicks. Make sure the origin of the BADDY is 4 clicks below the block he is about to enter

10 + = Gives the BADDY unlimited ammo

To set a sequence of **BADDY_1** (type 1) add 1000 to the first **BADDY_1**, 2000 for the second etc.

The second **BADDY_1** will be activated only when the first **BADDY_1** is killed.

1000 + = set as first **BADDY_1**
2000 + = set as second **BADDY_1**

The same method can be used for **BADDY_2** but in this case use multiples of 100:

100 + = set as first **BADDY_2**
200 + = set as second **BADDY_2**
300 + = set as third **BADDY_2**

Remark: To create two different enemy sequences in the same level create a "hole" value bigger than 1000 (or 100 for **BADDY_2**).

OBJECT CODE BITS

BLINKING_LIGHT The **OCB** value is a simple countdown before starting the light. A large number for the the light will require more time to become visible after triggering.

CHAIN Set an **OCB** value of **1** to hurt Lara

CLOCKWORK_BEETLE Insert an **OCB value of 4** in both of the clockwork beetle combos (mechanical scarab and key)

DOG

0 = Normal it will become visible only after triggering.
1 = Dog is visible on the ground and will move when triggered.

OBJECT CODE BITS

DOOR_TYPE1

If the door is a double door then set:

In the left door the **OCB value 269.**
In the right door the **OCB value 276.**
(From the example in the tut1 level).

DOOR_TYPE2

Set **all 5 Bits in the OCB** to make the door open at the start of the level.

Remark: Setting all five **OCB Bits** the following sequence for door with a trigger and anti-trigger could not work properly. To use anti-trigger or trigger sequence for a door do not set all the buttons but trigger the door normally using a hidden trigger Lara steps over before reaching the door.

DOOR_TYPE3

1 = Prevents the door opening.
Used in conjunction with the cog switch to have the door opening slowly while Lara pulls the cog.

2 = To open the door with a Crowbar

OBJECT CODE BITS

EARTH_QUAKE

Remark: Earth Quake is a null mesh object placed and triggered to create earthquake effects rumbling and shaking.

333 = for 16 seconds (sound but not shaking)
888 = for a 5 second quake and sound

EMITTERS

Set all five OCB Bits to make the object visible without the need of triggering

ENEMY_JEEP

To handle the **ENEMY JEEP** use **AI_FOLLOW** objects.
(See the **OCB** for **AI_FOLLOW** objects in this table)
To stop the **ENEMY JEEP** use a **Flip-Effect = 30**

Remark: In the TRLR level "Desert Rail Road" the **ENEMY_JEEP** had the following **OCB** values:

0 (zero), 101, 102, 103, 104

FALLING_BLOCKS

Any OCB value other than 0
This means do not collapse when Lara stands on them but only when they are triggered.

OBJECT CODE BITS

FLAME_EMITTER 1 Flame Emitter 1 may burn and kill Lara.

OCB -2 or -7: shoots continuous flames in a horizontal direction of the cone.
These two OCB values have the same result.

Negative numbers other than -2 or -7: shoot flame in a horizontal direction.
There is a time interval between shootings.
Different negative values have different ejection times when the flame emitters are enabled at the same time.

For example: Using the same negative **OCB** in two flame emitters,
Say -5 and enable them at the same time and they will emit the horizontal flame at the same time.

If two flame emitters have different negative **OCB**, like -5 and -8 they will have different timing for shooting flame and pause time.

Positive **OCB** values have no effect on the shape of the flames.

FLAME_EMITTER 2 **Note**: The Flame Emitter 2 will not cause Lara to die.

2 = the flame moves along in the direction the cone is pointing.

Remark: This "moving" is not simply the direction of the flames.
The fire moves its position in the room to disappear behind some wall of the room.

To avoid having a resource like a fire continuously enabled it is advisable set the direction of the fire to move up to a water room.

When the fire reaches a water room it disappears with a volumetric effect.

123 = Fire with a standard size. That is the same size of flame emitter 1.

Positive numbers different from 2 and 123:
The **OCB** value gives the height of the flames.
Larger OCB values produce **smaller flames**.
An **OCB value of 1** has a **flame larger than an OCB = 50**.

Negative numbers = **Negative OCB** numbers enable the flip map corresponding to the negative number of the OCB.

For example: For a value of -1, the flip map 1 is enabled.

OBJECT CODE BITS

FLAME_EMITTER 3 **0** = is the flame used on the special "oil" water in the Palace levels of TRLR.
It will cause death

Numbers other than zero will change the flame into the Blue lightning used in the Karnak level.

2 or 4 = Inverts the facing by 180 degrees

Numbers >= 3
The lightning tries to hit the Animating3 items present in the level having the same **OCB** value as the Flame Emitter 3 OCB.

For example: If you place an **ANIMATING3** and you want to have it used as a target of lightning type in its **OCB** the same value typed in the Flame Emitter 3.

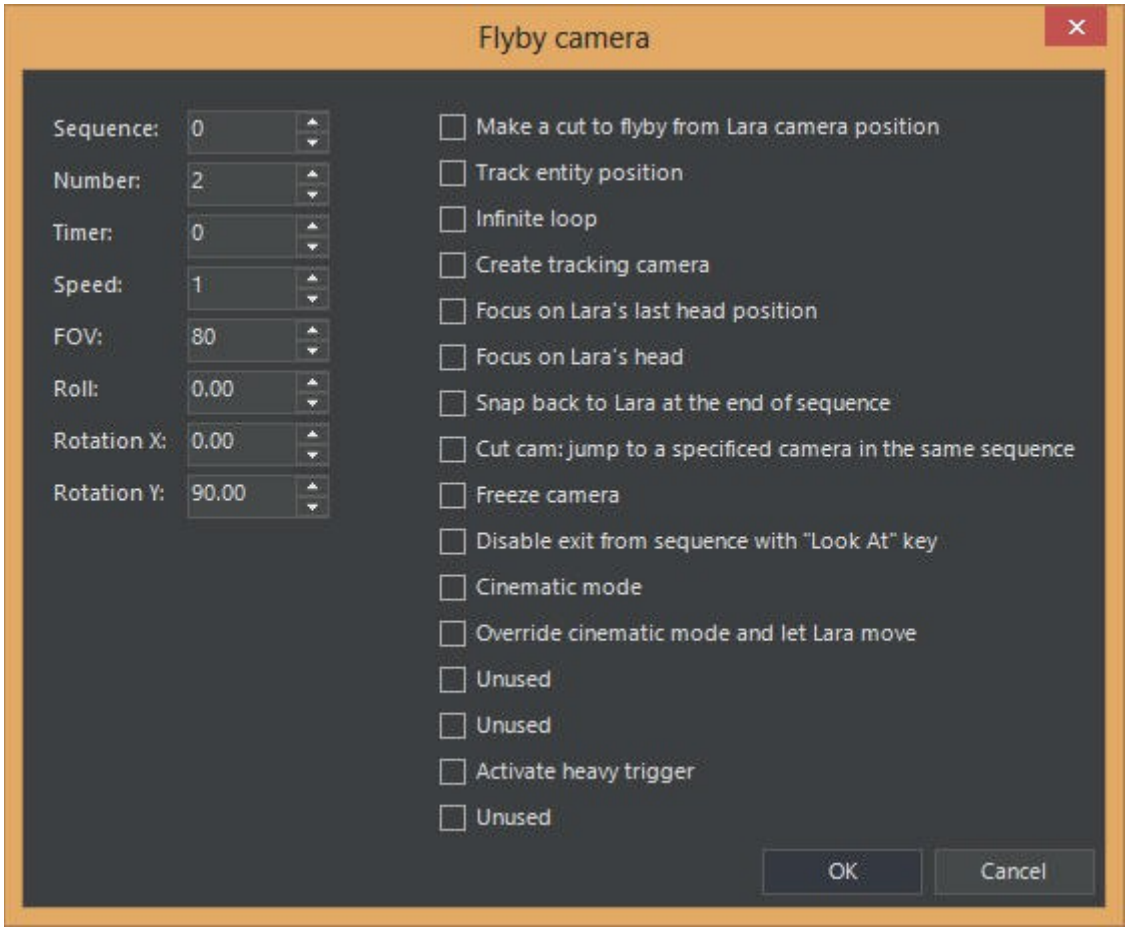
For example type 5 in Flame Emitter 3 **OCB** and type 5 in the **ANIMATING3 OCB**.

Always place another **ANIMATING3** with **OCB = 0** because this generates a double lightning.

OCB = 888, 889, 890
These **OCB** have been added from the **1.2.2.4 VERSION OF THE TRNG.**
Use these **OCB** to hit Lara with a blue lightning.
The difference between them is the injury to Lara: **OCB = 888** will Kill.

OBJECT CODE BITS

FLYBY_CAMERA



0 = Snap to start of sequence from Lara cam
1 = Not used
2 = Loop for infinity
3 = Track Lara cam
4 = Target Lara's last position before camera trigger
5 = Target Lara's current moving position
6 = Snap back to Lara at end of sequence
7 = Cut-Cam, Jumps to a specified camera in the same sequence (Timer = cam number to jump to)
8 = Hold camera (timer = 30 X Number of seconds)
9 = Disable look key break out.
10 = Disable Lara control
11 = Enable Lara control
12 = Not used
13 = Not used
14 = Activate heavy trigger
15 = Not used

OBJECT CODE BITS

GUIDE

Remark: The Guide must be used with the **FOLLOW_AI** or he will run around in circles.

Bit **1**	=	Light Torch
Bit **2**	=	Activate the Trap. Put a heavy trigger under the AI point if you want something to happen
Bit **3** + **5**	=	Read the Inscription . Put a heavy trigger under the AI point if you want something to happen when he reads it.
Bit **4**	=	Light the Petrol Put a heavy trigger under the AI point if you want something else to happen as he does it.
Bit **5**	=	Grab the Torch.
Set All Bits	=	Make the Guide disappear.

Remark: In the level "Valley Of The Kings" of The Last Revelation the Guide had the following **OCB** values:

9000, 13000

HAMMER

1 = Normal the Hammer smashes down the chain lifts it then smashes again.

2 = Hammer smashes down when Lara stands on the trigger. When she steps off, the Hammer will remain in its position. If it was lifted up it will stop and stay there. It makes an explosive sound when it smashes down.

3 = Hammer smashes down when Lara stands on the trigger. When Lara gets off the trigger the Hammer gets lifted to the ceiling and then stops.

OBJECT CODE BITS

HELICOPTER_(FLYING) The Flying helicopter has an internal name **ANIMATION1** and is found in the "Desert Rail road" of The Last Revelation.

To fly it set the **OCB = 666** and use **AI_FOLLOW** in the same way as the **ENEMY_JEEP**. See the **AI_FOLLOW** and **ENEMY_JEEP** descriptions.

HELICOPTER_(MINE) "Mine" Helicopter is the "static" half (only a side of the meshes are visible).

The Helicopter is found in the Death City TRLR. Lara can destroy it by shooting.

Enter a **1 in the OCB** of the Helicopter.
To make it explode use **SHATTER3** and set it up as per room 73.

The fuel can does not sit directly on the trigger as it will not activate the heavy trigger if it does. Enter **0 in the OCB** of the helicopter to only use the "mined field" feature.

The helicopter will be invisible and at its placement will create a mine field of 6 x 6 sectors.

If Lara walks over the mine field she will explode and die.

Remark: The mined field is not correctly aligned with the sector bounding.
Practically it has a size of 5 x 5 sectors zone + a border of 1/2 sector of width.

HORSEMAN and HORSE

To have two or more couples of **HORSEMAN** and **HORSE** set up each couple with the same **OCB** value.

For example:	**HORSEMAN1**	=	**OCB 1**
	HORSEMAN2	=	**OCB 2**
	HORSE1	=	**OCB 1**
	HORSE2	=	**OCB 2**

OBJECT CODE BITS

JUMP_SWITCH

Set the **OCB value 1** to reuse the lever after the 'timer' seconds.

For example in the switch trigger insert the value 12 in the timer field and put **OCB = 1** for the jump switch trigger for a door.

It will be activated for 12 seconds.
After this time the door will close and the lever will reset.

Remark: Not all 'jump switches' have a reset function.
Use the jump switch found in the **guard.wad file**.

LIGHTNING_CONDUCTOR

0	=	No damage
1	=	It can burn Lara
2	=	The TRNG engine looks for the **ANIMATING8** item. If it is present the Lightning conductor will use as a target the **ANIMATING8** item.

The **OCB = 2** value causes a computation when the lightning conductor is in Flip-map 1 and the Flip-map has been enabled. It will use the sound effect **ELEC_ARCING_LOOP**

OBJECT CODE BITS

LITTLE_BEETLES	**0 to 28**	=	Total number of Scarab you want
	1000 +	=	Scarab appears from the floor
	2000 +	=	Scarab appears from the ceiling
	4000 +	=	Scarab slow release followed by a gush

Remark: To clear all of the active Scarabs use a Flip effect trigger with a value of 31.

The beetle swarm is used in conjunction with either **PUZZLE_ITEM12** or **PICKUP_ITEM1**, both of which are scarabs that attach to the wall and require a crowbar to pick them off.

The swarm of beetles sometimes shoots out of the "hole" behind the wall scarab.
A special texture tile is used to create the illusion that they come out of the hole in the wall.
To do this designate the trigger for **PUZZLE_ITEM12** or **PICKUP_ITEM1** as a key trigger and type in an **OCB setting of 2** to position it on the wall in-game.

Then trigger the **LITTLE_BEETLE** to the same square.

Raise the **LITTLE_BEETLE** up to the height of the "hole".

Make sure of the correct settings in the **OCB** menu for the **LITTLE_BEETLE** and that there is a **CROWBAR_ITEM** available for Lara.

LOCUST_EMITTER

It can mean death for Lara for a large value in the **OCB** data field.
Somewhere around **OCB = 96** is the limit.

The **OCB value defines the number of locusts**.

The **OCB** values used in the Tomb Raider Last Revelation were: **12, 20 and 25**.

Remark: The Locust swarm can set heavy triggers in the motorbike path or release a swarm from a shatter object.

OBJECT CODE BITS

MUMMY

Visible on the ground. It is activated after it is triggered and when Lara goes near it.
Set **OCB = 2**

MUSIC_SCROLLS

Lara will place the scroll on the **PUZZLE_HOLE 2** and play the Lyre.

Put the Lyre to the left of the puzzle hole.
Set a value of **OCB = -422** in the **PUZZLE_HOLE 2** object.

OBJECT CODE BITS

PICKUP_ITEMS

0	=	The object is on the floor (pick up in an old style)
1	=	The object is `hidden'. Lara plays a stick hand in wall animation.
2	=	The object is attached to a wall. Lara has to use the Crowbar
3	=	The object is on a high pedestal.
4	=	The object is on a low pedestal.
64 +	=	Add 64 to any of the above if you want the item to activate a Pick up trigger.

Remark: Also the flag value: **128 +** is used in The Last Revelation.

PULLEY **OCB** value sets how many times Lara will pull the rope to trigger something.

Example:

1	=	Pull one time to trigger.
2	=	Pull twice to trigger
3	=	Pull three times to trigger
4	=	Pull four times to trigger..... etc.

PUZZLE_HOLES An **OCB value of 999** will turn off the `collision' from the "**PUZZLE_DONE**" object.
Without it an `invisible' door will prevent Lara from going through.

RAISING_BLOCK1

OCB 1 =	Activate the rumble effect Set all of the **OCB Bits** to elevate.
OCB 2 =	Blocks immediately raise at the start of the level with screen shake. Once the block is lowered again, triggers act as normal.

RAISING_BLOCK2 Enter **2 in the OCB** to lower the block
Set all five Bits in the **OCB** to lower.

OBJECT CODE BITS

SCORPION

Old OCB : The standard **OCB** for the Scorpion are not very useful because they should work linked with a internal cut scene.

Placing a **OCB value in the range 1 to 6** the Scorpion looks for a **TROOPS** with **OCB = 1**. If it finds the **TROOPS** its **AI** is disabled and it can be manipulated with custom animations to simulate the fighting with the Scorpion.

OCB = 33 (Attack only Lara) : This new **OCB** has been added to force the Scorpion to only attack Lara.

By default the Scorpion attacks any BADDY it finds and only after killing them will it attack Lara.

SENTRY_GUN

Enter **OCB = 1** to jam the gun.
On entry the gun fires at Lara as long as she is "in range".

Place a **SMOKE_EMMITER_BLACK** on the same square for added effect.
No trigger is necessary.

SETH_BLADE

Enter a **negative number in the OCB** to delay the triggering.
Adding increments of 10 will give a delay of one second for each 10 units.

OBJECT CODE BITS

SKELETON

Change the initial animations by setting the trigger flags as listed below. If the trigger flags are not set the **SKELETON** will come up out of the ground as normal.

When placed the **SKELETON** is 20 clicks below the floor elevation. Put an **AI_GUARD** object on the **SKELETON** to put him on guard.

OCB = 1 = Jump Right. He jumps about a block.

OCB = 2 = Jump Left. He jumps about a block.

OCB = 3 = Playing dead. The skeleton is visible lying down before being triggered and gets up when triggered.

SMASHABLE_BIKE_WALL **Set all of the OCB Bits** to activate it.

SPHINX Set an **OCB = 1** to get an immediate attack on Lara

STEAM_EMITTER An **OCB = 888** to make the steam escape sideways in the direction of the cone. Will cause death.

SWITCH_TYPE7 **SWITCH_TYPE7** is a shatter switch.
The action will be triggered when Lara shoots it.
Set all Bits in the OCB.

OBJECT CODE BITS

TEETH_SPIKES **Remark**: Vertical in Room Edit above view Horizontal

0	=	Pointing South
1	=	Pointing South West
2	=	Pointing West
3	=	Pointing North West
4	=	Pointing North
5	=	Pointing North East
6	=	Pointing East
7	=	Pointing South East
8	=	Pointing South
9	=	Pointing South West
10	=	Pointing West
11	=	Pointing North West
12	=	Pointing North
13	=	Pointing North East
14	=	Pointing East
15	=	Pointing South East
16 +	=	Add a value of 16 to the above to make the spikes stick out constantly (like the old TR spikes)
32 +	=	Add 32 to the above to force the spikes out once and then retract.

Remark: To use Teeth Spikes in conjunction with the **MAPPER** or **CLOCKWORK_BEETLE** set the **OCB = 4** (pointing North).

OBJECT CODE BITS

TRAPDOOR1 **Set the all OCB Bits** to make the door open then close.
Set the trigger timer to the number of seconds for the trapdoor to be open.

TROOPS **1** = Start TROOP animation 27, the other **OCB** begins with animation 12

TWO_BLOCK_PLATFORM The **OCB** formula for raising the two block platform is as follows:

(16 x the No of clicks to be raised) + Speed it travels (1-15)

For Example:
To raise 4 clicks very slowly would be: (4 x 16) + 1 = 65
To raise 12 clicks very fast would be: (12 x 16) + 15 = 207

Set 1-5 Bit buttons in the OCB to make it go slowly down when Lara stands on it.

Enter **207 in OCB** to make it rise.
You need a Dummy trigger below the platform to prevent conflicts with triggers.

Place a small room below the platform (1 click high).
Use it toggle opacity 2 on the portal.
Place the Dummy Trigger in the room below and the other triggers above.

OBJECT CODE BITS

WALL_SCARAB

Used with the Scarab Beetle swarm.
It can be part of the four large beetles needed for the Pyramid Puzzle in Cleopatra's Palaces.

Place it on the walls.
Do not forget to place the **CROWBAR_ITEM** for Lara.
Set an **OCB value of 2** .

WATERFALLS

Use an **OCB value of 668** to cancel the anti-trigger.
Set the Invisible button to get a trigger or anti-trigger for the waterfall.

An **OCB =2** is used to slow down the start effect.
It has been used in the level "The Tomb of Semerkhet" to simulate the Yellow Laser Ray.

An **OCB = 777** is used in Tomb Raider the Last Revelation.

WHITE_LIGHT

The **OCB value is a colour** in compact format. (Two Bytes 16 bits)
Each colour RED, GREEN, BLUE has only 5 bits.
The first 5 bits (lowest bits) is the RED, then the GREEN and the highest 5 bits is the BLUE.

Example:	31	=	Full RED
	992	=	Full GREEN
	31744	=	Full BLUE

Add the above values or use other values to obtain other colours.

Example: 31 + 992 = (RED + GREEN = 1023 = YELLOW

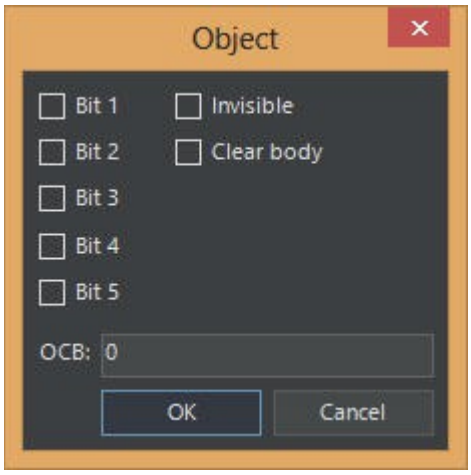
WRAITH2

Set the **OCB with a value of 2** .
The Wraith 2 dies on contact with water.

OBJECT CODE BITS

With the project loaded in the Tomb Editor.
Highlight the object in the 3D view and bring up its OCB dialogue box by hitting the letter O key

Object Code Buttons



Bit 1	**sets**	**Flag:**	**2**	**10000 – 00**
Bit 2	**sets**	**Flag:**	**4**	**01000 – 00**
Bit 3	**sets**	**Flag:**	**8**	**00100 – 00**
Bit 4	**sets**	**Flag:**	**16**	**00010 – 00**
Bit 5	**sets**	**Flag:**	**32**	**00001 – 00**
Clear Body		**Flag:**	**128**	**00000 – 10**
Invisible		**Flag:**	**1**	**00000 – 01**

Input Window OCB: **Enter OCB value to change or set the object characteristic.**

OK **Confirms OCB value input.**

Set all of the Object Code Bits to activate an object from the level start so it is not necessary to trigger it. For example torch flames.

Set a combination of Object Code Bits to enable multiple switches to open a door etc. See a suitable tutorial on the TR Forum website.

Clear Body **Sets the object as translucent.**
Invisible **Sets the object invisible until it is triggered.**