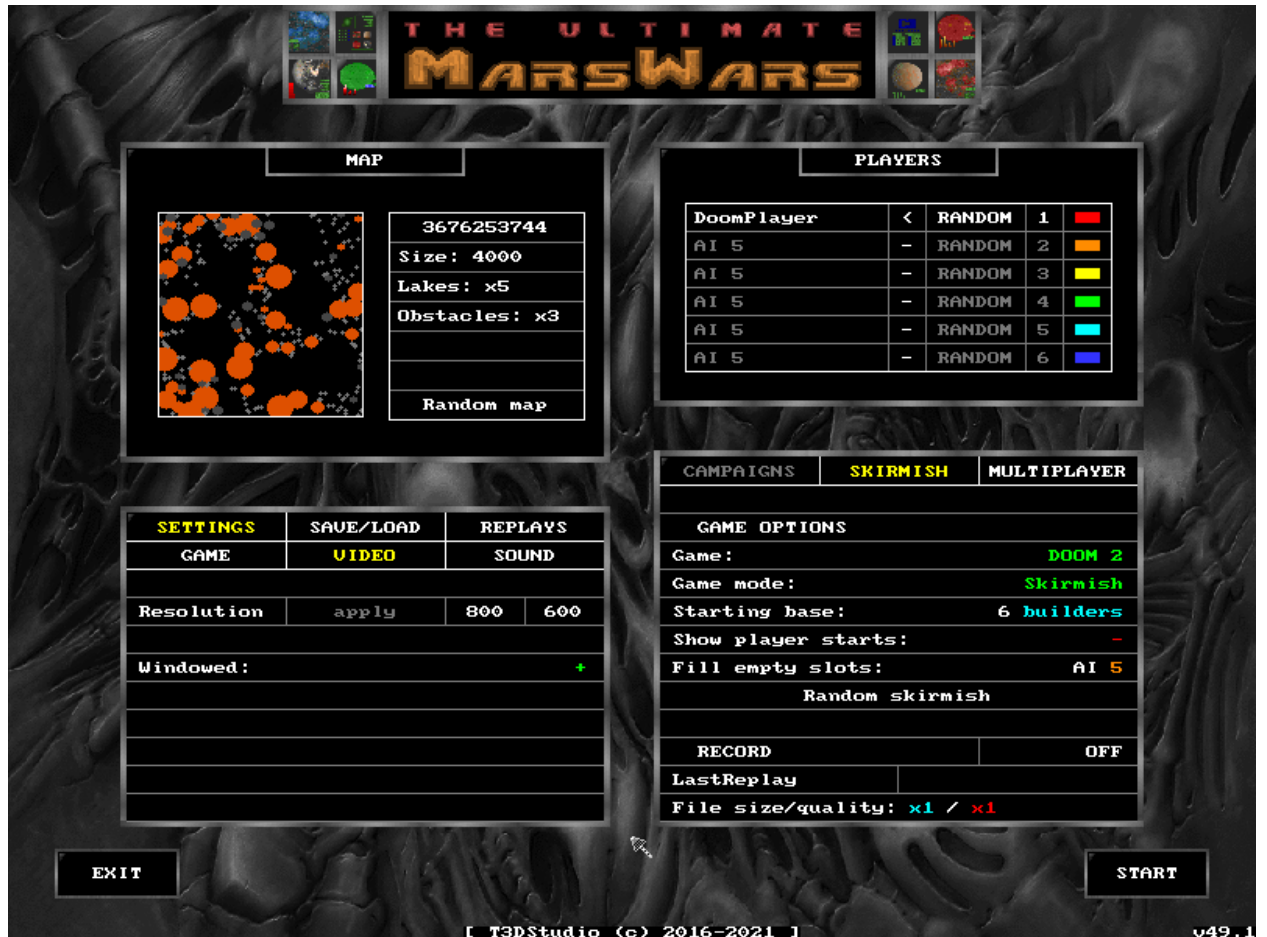# The Ultimate
MarsWars

The Ultimate MarsWars – is a real-time strategy game set in the Doom 2 universe.

Main menu

Section MAP

Map settings:
   Number (0-4294967295) – determines obstacles positions. Right click - generate random value.
   Size – map size in pixels (value between 3000-7000 with step of 500).
   Lakes – "lake's" obstacles part.
   *Obstacles* – count of obstacles.
   Random map – set random map settings.
Liquid type in lakes (water, slime, blood, mud or lava) and land texture depend on *Number*.
Liquids do not damage units.

Section PLAYERS

Players table.

Fields:

Player name:
   - If *Status* = «**C**» (computer player), left click here to switch AI level;
   - If *Status* = «**C**» (computer player) or «**-**» (empty slot), right click here to move you on this line.

Status:
  «**-**» – Empty slot;
  «**C**» – Computer player.
   For multiplayer game:
      «**+**» or «**-**» – Player «ready» status;
      «**?**» – Connection problem;
      «**@**» – Host player (server);
      «**<**» – You position.

Side – Hell or UAC.

Team – team number (1-6), players with same team number will be allies.

Color – player's color. Color cannot be changed.

In multiplayer game only host-player (server) can change *Status*, *Team* and *AI level* of computer players on this table.

Section SETTINGS

Subsection «GAME»:
   RIGHT CLICK – right click order type for units;
   SCROLL SPEED – camera move speed;
   MOUSE SCROLL – turn off/on mouse scroll;
   PLAYER NAME – you name in game. Name cannot be changed when game started or multiplayer game created;
   INTERFACE LANGUAGE – English or Russian.
Subsection «VIDEO»:
   WINDOW RESOLUTION;
   WINDOWED – full screen or windowed mode;
Subsection «SOUND» - music and game sounds volume.

Section SAVE/LOAD

Save and load game. You cannot save/load game while multiplayer mode is on.

Section REPLAYS

Game replays.

Section CAMPAINGS

Missions list of campaign. Not available yet.

Section SCIRMISH

Subsections *GAME OPTIONS* and *RECORD*. You can turn off/on game record anytime.

Section MULTIPLAYER

Server/client settings and game chat.

Dedicated server

Dedicated server – special game version w/o GUI, that does not loading any game resources and start working immediately as server.

To start *dedicated server*, run it with follow parameters:

MarsWars_ded.exe [X]

where X - UDP port (optional argument, default value - 10666).

After connection to dedicated server, you can manage it using special chat commands.
Use *-h* or *-help* to see all available commands.
Game automatically start when all players are ready (Field *Ready* = «+»).

Server reset game after last player disconnect. Player's timeout time – 60 seconds.

Game mechanics

Game control panel

Game minimap:
Minimap alarm indicators types:
- White pulse circle – units alarm;
- White pulse square – buildings alarm.

Sections under minimap:
Energy subsection – free energy level / maximum energy level;
Army subsection – total count of **all units** (units + buildings).

Control tabs:
- *Buildings*;
- *Units*;
- *Upgrades/researches*;
- *Controls*.

Numbers on icons:
Green – total count of selected unit/buildings;
Yellow – count of productions;
Orange or gray – total count of this type of building/unit or research level;
Purple – number units of this type in selected transport(s);
White – time to production end;
Red – ability charges:
- **UAC Rocket Launcher Station**: missiles count;
- **Hell Monastery**: Hell Powers's charges;
- **Hell Altar:** Invulnerability spheres;
Aqua – reload time;

Icons hint format

Short description (HOTKEY) [PRODUCTION TIME] {energy required} xupgrade max level
Description
Requirements: *(if exits)*

* possible to produce this upgrade in many buildings at time.


Unit selection, orders and hotkeys

Use left mouse button to select unit and right - to command it.
You can add units to selection with **Shift** button. Double click on unit to select all of it type on screen.
To bind units to hotkey-group - select it and press **Ctrl**+**1..9**. To add units to group – select it and press **Alt**+**1..9**. Fast double press on group hotkey to move camera to group position. **F2** hotkey will select all battle units on map. Fast double **F2** will move camera to you army.

Orders and hotkeys:
- Right click – «Move» or «Move»+«Attack» (you can pick action in menu);
- «Move» (**Q**), «Stay» (**W**), «Patrol» (**E**), ignore enemies;
- «Move» (**A**), «Stay» (**S**), «Patrol» (**D**), attack enemies;
- «Select all units» (**F2**) – select all battle units on map;
- «Action» (**Z**) – do some ability (if unit have);
- «Destroy» (**Delete**) – destroy selected units;
- «Action at point» (**X**) – do action at specific point;
- «Right click action» (**Alt+X**) – switch right click action;
- «Cancel production» (**C**) – abort current production (hotkey work on *Units* or *Upgrades/researches* tabs);
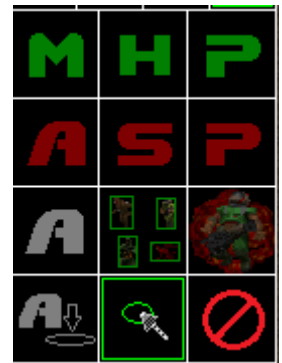
To fast select some special buildings (**UAC Radar**, **Tech Center, UAC Rocket Station**, **Hell Monastery**, **Hell Teleport** and **Hell Altar**) click on it icon or press hotkey.
For buildings, which can produce units, you can set rally-point with right click.

TAB – switching game control panel tabs;
Tab «*Buildings*»: **R T Y F G H V B N** – buildings;
Tab «*Units*»: **R T Y F G H V B N U I O** and **Ctrl + R T Y F G H V B N** – units;
Tab «*Upgrades/researches*»:
    R T Y F G H V B N U I O J K L and **Ctrl + R T Y F G H V B N** – upgrades;
- **Alt** - draw colored rectangles and health bars above units;
- **Pause/Break** – pause/continue game in network game. Client can't cancel server's pause.
- **PrtScr** - make screenshot.

Build base, units and upgrades production

For build you must have at least 1 main building: **UAC Command Center** or **Hell Keep**. Press on building icon on control panel to select which building type you need. It start draw circle around cursor. Radius of circle is radius of building. If circle is red - not enough space, if blue - too far from builder, if green - you can start build here. Right click to cancel selection. If icons are disabled, it can mean: there is no one main building, number of buildings of this type reached limit, not enough energy or not satisfied requirements. Destruction one of you builds adds 3 seconds of build cooldown. Maximum build cooldown – 12 seconds.

Unit's icons enabled when there is at least one **Hell Gate** or **UAC Military unit**, army size less than limit, number of this unit less than maximum, enough energy and requirements are satisfied. When you click on unit icon while no one **Hell Gate/UAC Military unit** is selected – unit producing order will send to any idle building. If any **HG/MU** is selected - order will send to selected buildings.

Upgrade's icons enabled when there at least one **Hell Pools** or **UAC Weapon Factory**, enough energy, upgrade research level less than maximum and requirements are satisfied. Most upgrade can be researched in one building at time.

Moving camera

To move camera use arrows buttons on keyboard or middle mouse button. Also, you can move camera with cursor - move it to screen border (this feature must be enabled in **SETTINGS** section in menu). You can change camera scroll speed in **SETTINGS** menu section.

Resources and army limit

There is no gold/wood/minerals/etc. like in other RTS games. There is energy level that means how many productions (producing units/building builds/upgrades researching) at one time you can. Maximum unit count (all units + all buildings!) for each player - 115.

Game settings


```
GAME OPTIONS

Game:                        DOOM 2
Game mode:                 Skirmish
Starting base:            1 builder
Show player starts:              -
Fill empty slots:            AI 4
          Random skirmish
```

Game:
- **DOOM 2** – «*DOOM 2*» mode.
- **UDOOM** – «*The Ultimate DOOM*» mode; there is no additional buildings/units/upgrades and some difference in game balance.

Game mode:
Skirmish - default mode - you must destroy all enemy players;
Two bases - 3x3 – red+orange+yellow vs green+aqua+blue players.
Three bases - 2x2x2 – red+orange vs yellow+green vs aqua+blue players.
Invasion - all players in one team. You need survive for 20 waves of powerful monsters.
Capturing points - there is 6 points on map that needs to capture. Capturing process will be faster if you use many units for this. Point will heal units stay inside.
Royal Battle – like **Skirmish**, but here is circle on map that slowly reduced radius. All units that step out this circle instantly die.

Starting base: buildings at game start;
Show player starts: if "+" game show you players start positions on map.
Fill empty slots: if set, empty player slots will filed with AI players;
Random skirmish: set random map and random game settings.

Units and buildings

Base things for units and buildings

Detector - unit/building that can detect invisible units.

Unfinished buildings have less armor and take more damage. If maximum energy level = 0 - all buildings will explode. In non-campaign games, if player loss all their builders – all his units revealed on map.

Armor will decrease damage.

Every unit can be advanced. Advanced units have some ability or increased some parameters.

Advanced unit have white symbol on selection rectangle: .

Invulnerable unit have white aura: .

Unit-detector have this symbol: .

Unit's categories:
Mechanical:
- *buildings*;
- *mechs*;
Biological:
- *light*;
- *medium*;
- *massive*;

- *Ground*;
- *Air (soaring and fly)*;

Other:
HPS – Hits Per Second.
SDR – Splash Damage Range.
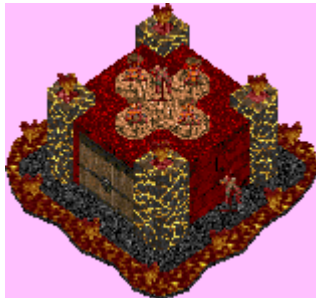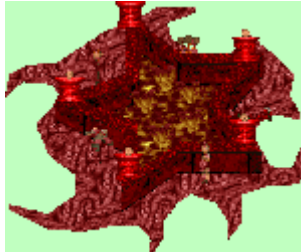
BUILDINGS

HELL

Sprite	Icon / Hot key	Description
	R	**Hell Keep** **Hits** 3000 **Size** 66 **Building time** 60 **Base sight radius** 280 **Max count** Unlimited **Energy required** 10 **Energy provided** 8 Main building. Allows you to build base. **Possible upgrades:** - **Hell Keep teleportation** – allow **HK** to teleport to any map location; - **Decay Aura** – **HK** damage enemy units around; - **Sight radius upgrade**; - **Free teleportation** – allow **HK** teleporting on map obstacles; - **Built-in Hell Symbol** – increase provided energy level.
	T	**Hell Gate** **Hits** 1500 **Size** 60 **Building time** 41 **Sight radius** 200 **Max count** Unlimited **Energy required** 4 Army production.
	Y	**Hell Symbol** **Hits** 125 **Size** 24 **Building time** 8 **Sight radius** 200 **Max count** Unlimited **Energy required** 1 **Energy provided** 1 Provide energy. **Possible upgrades:** - **Short distance teleportation**;

	F	**Hell Pool** **Hits** 1000 **Size** 53 **Building time** 41 **Sight radius** 200 **Max count** Unlimited **Energy required** 6 Research upgrades.
	G	**Hell Tower** **Hits** 700 **Size** 21 **Building time** 20 **Base sight/attack radius** 250 **Max count** Unlimited **Energy required** 2 Defense structure. Attacking all units with **Revenant** fireballs, but **Revenants** - with **Cacodemon** fireballs. **Possible upgrades:** **- Range attack upgrade**; - **Attack/sight radius upgrade**; - **Short distance teleportation**.
	H	**Hell Teleport** **Hits** 500 **Size** 28 **Building time** 31 **Sight radius** 200 **Max count** 1 **Energy required** 4 Teleport units to any location. Select **Hell Teleport** and do right click to set destination point. Next select units and do right click on **Hell Teleport** or it panel icon. Reload time after teleportation depend from unit power. Can teleport allies units. **Possible upgrades:** - **Teleport upgrade** – decrease reload time; - **Reverse teleport** - units can teleport back to **Hell Teleport**.

	V	**Hell Monastery** **Hits** 1000 **Size** 65 **Building time** 100 **Sight radius** 200 **Max count** Unlimited **Energy required** 10 **Requirements** *Hell Pool* building Can advance units. **Possible upgrades:** - **Hell Power** – charges for ability. There is 2 methods to make advance any unit: 1) Select **Hell Monastery** and do right click on unit; 2) Select unit and do right click to **Hell Monastery** building or it icon on control panel; Distance to unit doesn't matter.
	B	**Hell Totem** **Hits** 600 **Size** 21 **Building time** 25 **Base sight/attack radius** 250 **Max count** Unlimited **Energy required** 3 **Requirements** *Hell Monastery* building *Ancient Evil* upgrade Advanced defense structure. Attacking like **ArchVile** unit. **Possible upgrades:** **- Range attack upgrade**; - **Attack/sight radius upgrade**; - **Short distance teleportation**; - **Invisibility**.
	N	**Hell Altar** **Hits** 750 **Size** 50 **Building time** 31 **Sight radius** 200 **Max count** 1 **Energy required** 4 **Requirements** *Hell Monastery* building *Ancient Evil* upgrade Cast **Invulnerability** on units. **Possible upgrades:** - **Invulnerability**- charges for ability.

SPECIAL BUILDINGS

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Hell Eye

Base sight radius	250
Max count	Unlimited
Requirements	*Lost Soul* unit *Hell Eye* upgrade

Detector. Summoned by a **Lost Soul**. Live time - 2 minutes. Dies after single hit.

Possible upgrades:
- **Hell Eye** – increase sight radius;
- **Invisibility**;

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Hell Military Unit

Hits	1500
Size	70
Sight radius	200
Max count	Unlimited
Requirements	advanced *Lost Soul* unit *UAC Military Unit* building

Produce **zombies** and **Hell** units.

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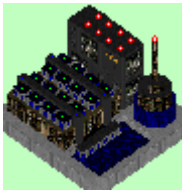
Possible upgrades for all Hell buildings:
- **Buildings armor upgrade**;
- **Building restoration** – restoration for damaged buildings.
In **UDOOM** game mode **Building restoration** ability working without upgrade.
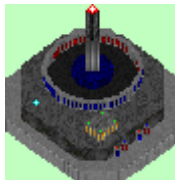
Hell can't build **Hell Totem** and **Hell Altar** in **UDOOM** game mode.

UAC

Sprite	Icon / Hot key	Description
	R	**UAC Command Center** **Hits** 2500 **Size** 66 **Building time** 83 **Base sight radius** 280 **Max count** Unlimited **Energy required** 10 **Energy provided** 8 Main building. Allows you to build base. **Possible upgrades:** - **Command Center flight** - **Command Center** gains ability to fly (use «Action» order to fly up or land **CC**); - **Sight radius upgrade**; this upgrade have effect on **CC** only when it ground; - **Command Center Turret** – **CC** can attack when it flying (attacking like **BFG Marine**, 0.1 HPS, 250 range, only _ground_ units, except other **CC**); - **Free placement** – **CC** can land to obstacles.
	T	**UAC Military Unit** **Hits** 1700 **Size** 66 **Building time** 40 **Sight radius** 200 **Max count** Unlimited **Energy required** 4 Army production.
	Y	**UAC Generator** **Hits** 250 **Size** 42 **Building time** 17 **Sight radius** 200 **Max count** Unlimited **Energy required** 2 **Energy provided** 2 Provide energy.

	F	**UAC Weapon Factory** **Hits** 1700 **Size** 62 **Building time** 40 **Sight radius** 200 **Max count** Unlimited **Energy required** 6 Research upgrades.
	G	**UAC Chaingun Turret** **Hits** 400 **Size** 17 **Building time** 15 **Base sight/attack radius** 250 **Max count** Unlimited **Energy required** 2 **Attack** 12 4 HPS Defense structure. Attacking like **Mastermind** unit. **Possible upgrades:** **- Range attack upgrade**; - **Attack/sight radius upgrade**; - **Turrets armor**;
	H	**UAC Radar** **Hits** 500 **Size** 35 **Building time** 31 **Base sight radius** 200 **Max count** 1 **Energy required** 2 Reveals map. To reveal map area – select **Radar** and do right click on this area. **Possible upgrades:** - **Detectors**; - **Radar upgrade** - Increase radar scouting time and radius.

	V	**UAC Tech Center** **Hits** 1700 **Size** 62 **Building time** 94 **Sight radius** 200 **Max count** 1 **Energy required** 10 **Requirements** *UAC Weapon Factory* building Can advance units. **Possible upgrades:** **- Advanced armory** - **Tech Center** will be able to upgrade units; **- Fast rearmament** - decrease **Tech Center** reloading time. To advance unit, select unit and do right click on **Tech Center** or it icon on control panel. Advance processes require short distance between unit and **Tech Center.**
	B	**UAC Plasma Turret** **Hits** 400 **Size** 17 **Building time** 20 **Base sight/attack radius** 250 **Max count** Unlimited **Energy required** 2 **Requirements** *UAC Tech Center* building Defense structure. Attacking like **Major** unit. **Possible upgrades:** **- Range attack upgrade**; - **Attack/sight radius upgrade**; - **Turrets armor**;
	N	**UAC Rocket Launcher Station** **Hits** 500 **Size** 40 **Building time** 31 **Sight radius** 200 **Max count** 1 **Energy required** 4 **Requirements** *UAC Tech Center* building Provide a missile strike. Missile strike requires "**Missile strike**" research. Missiles have 300 damage and 175 **SDR**. Deal x0,5 damage to *light* units, x2 to *buildings* and x0,75 to *air*.

		UAC Rocket Turret	
	Ctrl + T	**Hits**	500
		Size	17
		Building time	31
		Base sight/attack radius	250 common 190 against _air_
		Max count	Unlimited
		Energy required	4
		Requirements	*UAC Tech Center* building *Rocket turrets* upgrade
		Defense structure. Attacking like **Cyberdemon** unit with 0,6 HPS. **Possible upgrades:** **- Range attack upgrade**; - **Attack/sight radius upgrade**; - **Turrets armor**;	

SPECIAL BUILDINGS

		Shock Mine	
	---	**Hits**	1
		Size	5
		Attack	2 damage 100 range 1.5 seconds stun
		Base sight radius	100
		Max count	Unlimited
		Requirements	advanced *Engineer* unit
		Set by advanced **UAC Engineers**. **Possible upgrades:** **- Detectors**; - **Mine-sensor** – increase mine sight ranges to 250.	

Possible upgrades for all UAC buildings:
- **Buildings armor upgrade**.

UAC can't build **UAC Rocket Launcher** and **UAC Rocket Turret** in **UDOOM** mode.

UNITS

UNITS

All **Hell** units have «*pain state*» - state when it stun and cannot attack and move. «*Pain state*» happens every X hit from most attacks or more often from other.

Sprite	Icon / hot key	Description
	 R	**Lost Soul** **Class** — *soaring, light* **Hits** — 90 **Production time** — 8 **Energy required** — 1 **Speed** — 23 **Size** — 10 **Sight/attack radius** — 250 **Pain state** — every 3 hit **Attack** — 10, 1 HPS Fast air melee unit. Deal x0,5 damage to <u>*ground*</u> units and x0,25 to <u>*mechanical*</u> units. Advanced **Lost Soul** can capture **UAC infantry**/**UAC Military Unit** and transform it to **zombies**/**Hell Military Unit** (**UAC Military Unit** must have < 2/3 hits). **Possible upgrades:** - **Melee attack upgrade**; - **Hell Eye** – **Lost Soul** can transform to **Hell Eye** (use «Action» order);
	 T	**Imp** **Class** — *ground, light* **Hits** — 70 **Production time** — 5 **Energy required** — 1 **Speed** — 9 **Size** — 12 **Sight/attack radius** — 250 **Pain state** — every 3 hit **Attack** — 12, 1 HPS Weak ground unit with ranged attack. Deal x0,5 damage to <u>*air*</u> and <u>*mechanical*</u> units. Attacking other **Imps** only with melee attack (damage same as ranged attack). Advanced **Imp** has 2 HPS. **Possible upgrades:** **- Firepower** – increase missiles speed.

		Demon	
	Y	**Class**	*ground, medium*
		Hits	150
		Production time	8
		Energy required	2
		Speed	15
		Size	14
		Sight/attack radius	200
		Pain state	every 8 hit
		Attack	40 1 HPS
		Base armor	2

Fast ground unit with melee attack. Cannot attack *air* units (except Lost Soul). Advanced **Demon** has invisibility.

Possible upgrades:
- **Demon's anger** – increase Demon's movement speed and attack.

		Cacodemon	
	F	**Class**	*air, medium*
		Hits	225
		Production time	20
		Energy required	2
		Speed	9
		Size	14
		Base sight/attack radius	250
		Pain state	every 6 hit
		Attack	25 0,8 HPS
		Base armor	2

Air unit with ranged attack. Deal x1,25 damage to *light* units, 0,75 to *air* and *massive* units, x0,5 to *mechanical* units. Attacking other **Cacodemons** only with melee attack (damage same as ranged attack). Advanced **Cacodemon** has 275 attack and sight ranges.

Possible upgrades:
- **Firepower** – increase missiles speed.

		Baron of Hell / Hell Knight	
	G	**Class**	*ground, medium*
		Hits	350
		Production time	40
		Energy required	4
		Speed	9
		Size	14
		Sight/attack radius	250 common 190 against *air*
		Pain state	every 8 hit
		Attack	50 0,8 HPS
		Base armor	3

Heavy ground unit with ranged attack. Attacking other **Barons/Knights** only with melee attack (damage same as ranged attack). Deal x0,5

damage to _light_ units, x0,75 to _air_ and _mechanical_ units. **Baron Of Hell** (red skin) – it advanced **Hell Knight** (white skin). **Baron Of Hell** take x0,5 damage. In **UDOOM** mode this unit spawns as **Baron Of Hell**.

Possible upgrades:
- **Firepower** – increase missiles speed.

Cyberdemon

Class	_ground, massive_
Hits	2000
Production time	90
Energy required	8
Speed	10
Size	20
Base sight/attack radius	250 common 190 against _air_
Pain state	every 15 hit
Attack	100 0,85 HPS 45 SDR
Base armor	3
Max count	1
Requirements	_Hell Monastery_ building

Heavy ground unit with ranged attack. Deal x1,5 damage to _buildings_ and x0,5 to _light_ units. You can't product **Cyberdemon** when **Mastermind** production in progress. Don't take splash-damage from rockets and grenades. Advanced **Cyberdemon** has 275 attack (against _ground_) and sight ranges.

Spider Mastermind

Class	_ground, massive_
Hits	2000
Production time	90
Energy required	8
Speed	10
Size	35
Base sight/attack radius	275
Pain state	every 15 hit
Attack	12 9 HPS
Base armor	3
Max count	1
Requirements	_Hell Monastery_ building

Heavy ground unit with ranged attack. Deal x0,5 damage to _buildings_, x0,75 to _mechs_ and x1,5 to _light_ units. You can't product **Mastermind** when **Cyberdemon** production in progress. Don't take splash-damage from rockets and grenades. Advanced **Mastermind** has 325 attack (against _ground_) and sight ranges.

		Pain Elemental	
	B	**Class**	*air, medium*
		Hits	200
		Production time	40
		Energy required	6
		Speed	9
		Size	14
		Sight radius	250
		Attack radius	350
		Pain state	every 3 hit
		Attack	spawn **Lost Soul** 0.6 HPS
		Requirements	*Hell Monastery* building

Flying unit. Spawn **Lost Soul** when attack or on «Action» order. Advanced **Pain Elemental** spawn advanced **Lost Souls** and spawn 3 **Lost Souls** after death.

		Revenant	
	N	**Class**	*ground, light*
		Hits	200
		Production time	40
		Energy required	4
		Speed	12
		Size	13
		Base sight/attack radius	250
		Pain state	every 7 hit
		Attack	40 0.8 HPS
		Requirements	*Hell Monastery* building

Ground unit with ranged attack. Deal x0,5 damage to <u>ground</u>. Attacking other **Revenants** only with melee attack (damage same as ranged attack). Advanced **Revenant** has 350 attack ranges against <u>air</u>.

Possible upgrades:
- **Revenant missile upgrade** - missiles become homing.

		Mancubus	
	Ctrl + R	**Class**	*ground, massive*
		Hits	400
		Production time	60
		Energy required	6
		Speed	6
		Size	20
		Sight radius	250
		Attack radius	300 common 150 against <u>air</u>
		Pain state	every 4 hit
		Attack	35x2 1.2 HPS
		Base armor	3
		Requirements	*Hell Monastery* building *Ancient Evil* upgrade

Strong ground unit with ranged attack. Deal x1,5 to <u>buildings</u>, x0,5 to <u>light</u> units and x0,75 to <u>air</u> and <u>mechs</u>. Cannot attack other **Mancubus**. Advanced **Mancubus** have «*pain state*» resist.

		Arachnotron	
	Ctrl + T	**Class**	*ground, massive*
		Hits	350
		Production time	60
		Energy required	6
		Speed	9
		Size	20
		Sight/attack radius	250
		Pain state	every 4 hit
		Attack	15 4 HPS
		Base armor	4
		Requirements	*Hell Monastery* building *Ancient Evil* upgrade

Strong ground unit with ranged attack. Deal x2 damage to _mechs,_ x0,5 to _buildings_, _light_ and _air_ units. Cannot attack other **Arachnotrons**. Advanced **Arachnotron** has 350 attack ranges.

		ArchVile	
	Ctrl + Y	**Class**	*ground, medium*
		Hits	400
		Production time	90
		Energy required	12
		Speed	15
		Size	15
		Sight radius	250
		Attack radius	450
		Pain state	every 12 hit
		Attack	90 0.4 HPS 15 SDR
		Base armor	3
		Requirements	*Hell Altar* building *Ancient Evil* upgrade

Strong ground unit with ranged attack. Cannot attack _buildings_. Advanced **ArchVile** can resurrect dead units.

SPECIAL UNITS

		Zombies	
	Ctrl + F G H V B N	**Class**	*ground / air, light*
		Size	12
		Pain state	every 2 hit
		Requirements	*Hell Military Unit* building
	U	**UAC Infantry** corrupted by advanced **Lost Soul**. **Zombies** don't have **UAC Infantry** abilities (**Engineer's mines**, **Medic's** paralyze bullets).	

Possible upgrades for all Hell units:
- **Ranged attack upgrade** (for units with ranged attacks);
- **Unit armor upgrade**;
- **Regeneration** – damaged units will slowly regenerate their health;
- **Pain threshold** - decrease "pain state" chance.

UAC UNITS

UAC units have no «*pain state*».

Sprite	Icon / hot key	Description
	R	**Engineer** **Class** — *ground, light* **Hits** — 100 **Production time** — 10 **Energy required** — 1 **Speed** — 13 **Size** — 12 **Sight/attack radius** — 220 common / 165 against *air* **Attack** — 6 / 1.7 HPS **Place in transport** — 1 Weak ground unit with ranged attack. Can repair own and allies damaged *mechanical* units. Deal x1,5 damage to *light* units, x0,5 to *massive* and x0,25 to *mechanical* units. Advanced **Engineer** can paralyze *mechs* when attack it. **Possible upgrades:** - **Advanced repair and healing** - increase the efficiency of repairing; - **Shock Mines** - **Engineer** can set **Shock Mines** (use «Action» order).
	T	**Medic** **Class** — *ground, light* **Hits** — 100 **Production time** — 10 **Energy required** — 1 **Speed** — 13 **Size** — 12 **Sight/attack radius** — 220 common / 165 against *air* **Attack** — 6 / 1.5 HPS **Place in transport** — 1 Weak ground unit with ranged attack. Can repair own and allies damaged *biological* units. Deal x1,5 damage to *light* units, x0,5 to *massive* and x0,25 to *mechanical* units. Advanced **Medic** can paralyze *biological* units. **Possible upgrades:** - **Advanced repair and healing** - increase the efficiency of healing.

		Sergeant	
		Class	*ground, light*
		Hits	100
		Production time	10
		Energy required	2
	Y	**Speed**	13
		Size	12
		Sight/attack radius	240

Attack	**Not advanced**:	**Advanced**:
	- min: 9	- min: 12
	- max: 28	- max: 41
	max SDR: 30	max SDR: 40
	1 HPS, min SDR: 10	

Place in transport	1

Ground unit with ranged attack. Deal x0,5 damage to <u>*fly*</u>, <u>*light*</u> and <u>*massive*</u> units, x0,25 to <u>*mechanical*</u> units. Damage and splash-range depends from distance to target. Advanced **Sergeant** deal more damage and have more SDR. **Sergeant's** attack set Hell units into «*pain state*» more often than other units attack.

		Commando	
		Class	*ground, light*
		Hits	100
	F	**Production time**	15
		Energy required	2
		Speed	12
		Size	12
		Sight/attack radius	250 common
		Attack	6
			8 HPS
		Place in transport	1

Ground unit with ranged attack. Deal x1,5 damage to <u>*light*</u> units, x0,5 to <u>*massive*</u> and x0,25 to <u>*mechanical*</u> units. Advanced **Commando** has invisibility.

		Artillery soldier	
		Class	*ground, light*
		Hits	100
	G	**Production time**	30
		Energy required	4
		Speed	10
		Size	12
		Base sight/attack radius	250
		Attack	50
			0.6 HPS
		Place in transport	1
		Requirements	**UAC Weapon Factory** building

Ground unit with ranged attack. Deal x1,5 damage to <u>*buildings*</u> and x0,5 damage to <u>*light*</u> and <u>*mechs*</u> units. Cannot attack <u>*air*</u> units. Cannot attack

units closer than 45 pixels. Advanced **Artillery soldier** have 275 attack and sight radius.

		Major	
		Class	*ground/air, light*
		Hits	100
		Production time	20
		Energy required	4
	H	Speed	**Not advanced**: 9 **Advanced**: 13
		Size	12
		Sight/attack radius	250
		Attack	15 4 HPS
		Place in transport	1
		Requirements	**UAC Weapon Factory** building

Ground/air unit with ranged attack. Deal x1,5 damage to _mechs,_ x0,5 _light_ and _air_ units, x0,75 to _buildings_. Advanced **Major** can fly (use «Action» order).

		BFG Marine	
		Class	*ground, light*
		Hits	100
		Production time	60
		Energy required	5
	V	Speed	10
		Size	12
		Sight/attack radius	250
		Attack	125 125 SDR 0.4 HPS
		Place in transport	1
		Requirements	**UAC Weapon Factory** building

Ground unit with strong ranged attack. Damage depend from target's size radius. Deal x0,5 damage to _buildings_. Advanced **BFG Marine** has 275 attack and sight ranges.

Possible upgrades for all UAC Infantry:
- **Infantry armor upgrade**;
- **Lightweight armor** - increase infantry move speed

	B	**Air APC**

Class	*mech, ground*
Hits	250
Production time	25
Energy required	3
Speed	22
Size	30
Sight/attack radius	250
Attack (upgrade)	6/12 2 HPS
Base transport place count	10
Base armor	3
Requirements	**UAC Weapon Factory** building

Fast air transport. Can transporting all ground UAC units. Advanced **Air APC** has 14 places.

Possible upgrades:
- **APC turret**.

	N	**Ground APC**

Class	*mech, ground*
Hits	350
Production time	25
Energy required	3
Speed	15
Size	15
Sight/attack radius	250
Attack (after upgrade)	6/12 2 HPS
Base transport place count	4
Base armor	3
Places in transport	8
Requirements	**UAC Weapon Factory** building

Fast ground transport. Can transporting all ground **UAC infantry**. Advanced **Ground APC** has 6 places. Marines can attack while they in APC.

Possible upgrades:
- **APC turret**.

		Terminator	
	Ctrl + R	**Class**	*mech, ground*
		Hits	400
		Production time	60
		Energy required	6
		Speed	14
		Size	16
		Sight/attack radius	275 common
		Attack	6/12 8 HPS
		Base armor	3
		Place in transport	3
		Requirements	**UAC Tech Center** building **High technologies** upgrade

Heavy ground unit with ranged attack. Attacking with chain gun (not advanced - like **Commando**/advanced like **Mastermind**).

		Tank	
	Ctrl + T	**Class**	*mech, ground*
		Hits	450
		Production time	60
		Energy required	8
		Speed	10
		Size	20
		Sight/attack radius	250
		Attack	45 SDR 0.6 HPS
		Base armor	3
		Place in transport	7
		Requirements	**UAC Tech Center** building **High technologies** upgrade

Heavy ground unit with ranged attack. Deal x1,5 damage to *buildings* and x0,5 damage to *light* units. Cannot attack *air* units. Cannot attack units closer than 45 pixels. Advanced **Tank** has 325 attack ranges.

		Flyer	
	Ctrl + Y	**Class**	*mech, air*
		Hits	350
		Production time	60
		Energy required	8
		Speed	19
		Size	18
		Sight/attack radius	275
		Attack	30 2 HPS
		Base armor	3
		Requirements	**UAC Tech Center** building **High technologies** upgrade
		Heavy air unit with ranged attack. Deal x0,5 damage to _ground_ units and _buildings_. Advanced **Flyer** has 350 attack ranges against _air_.	

Possible upgrades for all UAC Mechs:
- **Mech armor upgrade**;
- **Advanced engines** - increase _mechs_ move speed.

UPGRADES

Hell

Icon / Hot key	Time Energy Level	Description	Requirements
R	180 4 4	**Range attack upgrade** Increase all ranged attacks damage.	
T	180 4 4	**Unit armor upgrade** Increase unit's armor.	
Y	120 4 4	**Buildings armor upgrade** Increase buildings armor.	
F	60 2 3	**Melee attack upgrade** Increase all melee attacks damage.	
G	120 3 2	**Regeneration** Damaged units will slowly regenerate their health.	
H	60 2 3	**Pain threshold** Decrease "pain state" chance.	
V	120 3 3	**Hell Eye** **Lost Soul** ability & **Hell Eye** sight radius. In **UDOOM** game mod, last level of upgrade make **Hell Eye** invisible.	
B	120 3 3	**Tower range upgrade** Increased range of defensive structures.	
N	120 2 3	**Teleport upgrade** Decrease teleport cooldown.	
U	180 3 1	**Hell Keep teleportation** **Hell Keep** can teleport to any location.	

I	**120** **3** **2**	**Decay Aura** **Hell Keep** will damage all enemies around. Also, this aura neutralize **UAC Medic's** toxins effects on own and allied units.	
O	**120** **2** **2**	**Hell Keep range upgrade** Increased **Hell Keep** view/build range.	
J	**60** **3** **1**	**Demon`s anger**    Increased **Demon`s** movement and attack speed.	
K	**60** **2** **1**	**Firepower** Increase missiles speed for **Imp**, **Cacodemon** and **Baron of Hell/Hell Knight**.	
L	**20** **10** **15**	**Hell power** Allow **Hell Monastery** upgrade units.	**Hell Monastery** building
Ctrl+R	**120** **12** **1**	**Ancient evil** New buildings, units and upgrades.	
Ctrl+T	**120** **3** **1**	**Reverse teleport** Units can teleport back to **Hell Teleport**.	
Ctrl+Y	**120** **2** **1**	**Revenant missile upgrade** Missiles become homing	
Ctrl+F	**120** **2** **1**	**Hell Totem and Eye invisibility**	**Hell Monastery** building **Ancient evil** upgrade
Ctrl+G	**120** **2** **3**	**Building restoration** Damaged buildings will slowly regenerate their health.	
Ctrl+H	**60** **2** **1**	**Free teleportation** **Hell Keep** can teleport on obstacles.	
Ctrl+V	**30** **1** **15**	**Short distance teleportation** **Hell Symbols**, **Towers**, **Totems** can teleport to short distance.	

Icon / Hot key	Time Energy Level	Description	Requirements
Ctrl+B	180 10 1	**Invulnerability** Charges for **Hell Altar's** ability.	**Hell Altar** building **Ancient evil** upgrade
Ctrl+N	180 4 3	**Built-in Hell Symbol** Additional energy for **Hell Keep**.	

UAC

Icon / Hot key	Time Energy Level	Description	Requirements
R	180 4 4	**Range attack upgrade** Increase all ranged attacks damage.	
T	120 4 5	**Unit armor upgrade** Increase infantry unit's armor.	
Y	180 4 4	**Buildings armor upgrade** Increase buildings armor.	
F	60 3 3	**Advanced repair and healing** Increases the efficiency of repair/healing of Engineers and Medics.	
G	120 3 2	**Lightweight armor** Increase infantry move speed.	
H	120 2 2	**APC turret** Weapon for APCs.	
V	120 3 1	**Detector device** Radar and mines becomes detectors.	
B	120 3 3	**Turrets range upgrade** Increased attack range of defensive structures.	

N	**120** **2** **3**	**Radar upgrade** Increase radar scouting time and radius.	
U	**180** **3** **1**	**Command Center engines** **Command Center** gains ability to fly.	
I	**180** **4** **1**	**Command Center turret** Flying **Command Center** will be able to attack	**Command Center engines** upgrade
O	**120** **2** **2**	**Command Center range** Increased **Command Center's** view/build range.	
J	**60** **4** **1**	**Shock Mines** **Engineer** ability.	
K	**60** **2** **1**	**Mine-sensor** **Shock Mine** ability.	**Shock Mines** upgrade
L	**120** **12** **1**	**Advanced armory** **Tech Center** will be able to upgrade own units.	**UAC Tech Center** building
Ctrl+R	**120** **12** **1**	**High technologies** New buildings, units and upgrades.	
Ctrl+T	**180** **12** **8**	**Missile strike** Missile for **Rocket Launcher Station**.	
Ctrl+Y	**120** **3** **2**	**Advanced engines** Increase mechs move speed.	**UAC Tech Center** building **High technologies** upgrade
Ctrl+F	**180** **4** **4**	**Mech armor upgrade** Increase mechs armor.	
Ctrl+G	**120** **2** **1**	**Fast rearming** Decrease **Tech Center** reloading time.	

Ctrl+H	60 2 1	**Free placement** **Command Center** will be able to land on obstacles.	**UAC Tech Center** building **High technologies** upgrade
Ctrl+V	120 3 2	**Turrets armor** Additional armor for turrets.	
Ctrl+B	120 4 1	**Rocket turrets** Allows you to build **Rocket turrets.**	
Ctrl+N	180 4 3	**Built-in generator** Additional energy for **Command Center**.	