CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING

(NOTES omitted)

TRANSPORTING

1/067

• • { with a plurality of flexible inserts}

B65 CONVEYING; PACKING; STORING; HANDLING THIN OR FILAMENTARY MATERIAL

B65F GATHERING OR REMOVAL OF DOMESTIC OR LIKE REFUSE (disinfecting refuse A61L; refuse disintegrators B02C; sorting refuse B03B; B07B; handcarts for transporting refuse receptacles B62B; sack holders B65B 67/00; converting refuse into fertilisers C05F; converting refuse into solid fuels C10L; sewers, cesspools E03F; arrangements in buildings for the disposal of refuse E04F 17/10; refuse-consuming furnaces F23G; {for surgical articles A61B 50/36})

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00	Refuse receptacles; {Accessories therefor} (containers not specially adapted for refuse, features	1/068 {with means aiding the removal of the flexible insert}
	of refuse receptacles of general interest <u>B65D</u>)	
1/0006	• {Flexible refuse receptables, e.g. bags, sacks}	8
1/0003	 With means for fixing and mounting of the 	1/085 {with a plurality of rigid inserts}
1/0013	receptacle to walls, doors	1/10 • with refuse filling means, e.g. air-locks
1/002	• • { with means for opening or closing of the	1/105 • { the filling means being pneumatic, e.g. using suction}
4 10 0 0 0	receptacle}	1/12 • with devices facilitating emptying
1/0026	• • {with odor controlling substances}	1/122 • • {Features allowing the receptacle to be lifted and
1/0033	• {specially adapted for segregated refuse collecting, e.g. receptacles with several compartments;	subsequently tipped by associated means on a vehicle}
	Combination of receptacles (<u>B65F 1/0093</u> takes precedence)}	1/125 • • {Features allowing the receptacle to be lifted and emptied by its bottom}
1/004	• • {the receptacles being divided in compartments	1/127 • • {by suction}
	by partitions}	1/14 • Other constructional features; {Accessories}
1/0046	• • • {the partitions being movable, e.g. for varying the volume of the compartments}	(holders or carriers for hand articles <u>A45F 5/00</u> ; fastening devices <u>E05C</u>)
1/0053	• • {Combination of several receptacles}	1/1405 • • {Compressing means incorporated in, or specially
1/006	• • • {Rigid receptacles stored in an enclosure or forming part of it}	adapted for, refuse receptacles (presses in general B30B)}
1/0066	• • • {Rigid receptacles fixed on racks or posts}	1/141 • • {Supports, racks, stands, posts or the like for
1/0073	• • • {Flexible receptacles fixed on a frame or in an enclosure (sack holders per se B65B 7/12)}	holding refuse receptacles (<u>B65F 1/0066</u> takes precedence)}
2001/008	• • {Means for automatically selecting the receptacle	1/1415 • • • { for flexible receptables, e.g. bags, sacks }
	in which refuse should be placed}	1/1421 {having means for operating lids or covers
2001/0086	• • {Means for holding receptacles together}	(pedal or hand-lever operated <u>B65D</u>)}
1/0093	 {specially adapted for collecting refuse from 	1/1426 • • {Housings, cabinets or enclosures for refuse
	arrangements in buildings}	receptacles (<u>B65F 1/006</u> , <u>B65F 1/1452</u> take
1/02	 without removable inserts 	precedence)}
1/04	 with removable inserts 	1/1431 {having a waste disposal chute integrally
1/06	• with flexible inserts, e.g. bags or sacks {(B65F 1/0073 takes precedence)}	connected to a work top or the like, the refuse receptacle remaining static}
2001/061	• • {the flexible inserts being used shopping bags}	1/1436 {having a waste receptacle withdrawn upon
1/062	• • {having means for storing or dispensing spare	opening of the enclosure}
1,002	bags}	1/1442 {the receptacle being rotated about a vertical
1/065	• • • { with means aiding the insertion of the flexible insert}	axis} 1/1447 • • • {located underground}

CPC - 2019.02

1/1452	• • {Lifting, hoisting, elevating mechanisms or the like for refuse receptacles (lifting in general B66)}	2003/0216	• • {the discharging means comprising a device for determining the volume of the content of refuse receptacles}
1/1457	{for refuse receptacles located underground}	2003/022	• • {the discharging means comprising a device for
1/1463	{Receptacles adapted to store one or more piles of used stackable containers, e.g. beverage cups}	2000,022	determining the weight of the content of refuse receptacles}
1/1468	• • {Means for facilitating the transport of the receptacle, e.g. wheels, rolls (hand-operated		• • {the discharging means comprising elements for holding the receptacle}
	refuse vehicles <u>B65F 3/005</u>)}	2003/0226	• • • {having means for adapting to different sized
1/1473	{Receptacles having wheels}		receptacles}
1/1478	• • {relating to noise reduction in receptacles during		• • • {Gripper arms for embracing the receptacle}
	collecting of refuse, e.g. of glass}		• • • { for embracing two or more receptacles }
1/1484	• • {relating to the adaptation of receptacles to carry		• • • {Suction or vacuum heads}
	identification means}	2003/024	{Means for locking the rim}
2001/1489	{Refuse receptacles adapted or modified for	2003/0243	• • • {Means for locking the side, e.g. via spigots or
	gathering compostable domestic refuse}		trunnion pins}
2001/1494	{Refuse receptacles comprising means for	2003/0246	• • • {Means for locking the front, e.g. via a handle}
	preventing or extinguishing fire}	2003/025	{Constructional features relating to actuating
1/16	• Lids or covers ({B65F 1/1421 takes precedence};		means for lifting or tipping containers}
	pedal or hand-lever operated {for containers in	2003/0253	• • • {Means for synchronising or coupling two or
	general} <u>B65D</u>)		more discharging devices, e.g. for allowing
1/1607	• • • {with filling openings}		the discharge of one large container or the
1/1615	{with means for locking, fastening or		simultaneous discharge of two or more
	permanently closing thereof}		containers}
1/1623	• • • { with means for assisting the opening or	2003/0256	• • • {Means for vibrating or shaking the containers
	closing thereof, e.g. springs (spring-actuated		for facilitating emptying}
	swinging wings <u>E05F 1/10</u>)}	2003/0259	• • • {Means for automatically varying the speed of
1/163	• • • {Pedal-operated lids}		operation}
1/1638	• • • {Electromechanically operated lids}	2003/0263	• • {Constructional features relating to discharging
1/1646	• • • {provided with means for mounting on		means}
	receptacles, e.g. hinges}	2003/0266	• • • {comprising at least one telescopic arm}
2001/1653	• • {Constructional features of lids or covers}	2003/0269	• • • {capable of moving along the side of the
2001/1661	{relating to noise reduction, e.g. during		vehicle}
	opening or closing}	2003/0273	• • • {capable of rotating around a vertical axis}
2001/1669	• • • {relating to means for fixing or latching the lid	2003/0276	• • • {capable of moving towards or away from the
	or cover in a certain angle}		vehicle}
2001/16/6	• • • {relating to means for sealing the lid or cover,	2003/02/9	• • • (the discharging means mounted at the front of
2001/1/04	e.g. against escaping odors}	2002/0202	the vehicle}
	{Water slot seals}	2003/0283	{between the cab and the collection
2001/1692	• • • {relating to safety means, e.g. for children	2002/0286	compartment}
	trapped inside the refuse receptacle}	2003/0280	• • {Means mounted on the vehicle for opening the lid or cover of the receptacle}
3/00	Vehicles particularly adapted for collecting refuse	2003/0280	{the opening means being mounted on the
	(vehicles in general <u>B60</u> ; driving vehicle equipment	2003/0289	discharging means desired mounted on the
	or auxiliaries <u>B60K</u> ; discharging contents by tilting	2003/0293	• • {Means mounted on the vehicle for supporting
	entire vehicles <u>B65G</u> ; wheeled apparatus for emptying	2003/02/3	the refuse receptacle in the tipping position}
	sewers or cesspools <u>E03F 7/10</u>)	2003/0296	• • • {the supporting means mounted on the
3/001	• {for segregated refuse collecting, e.g. vehicles with		discharging means}
	several compartments}	3/04	. Linkages, pivoted arms, or pivoted carriers for
2003/003	• • {Footboards}		raising and subsequently tipping receptacles
3/005	• {Hand-operated refuse vehicles}	3/041	• • • {Pivoted arms or pivoted carriers}
2003/006	• {Constructional features relating to the tank of the	3/043	• • • { with additional means for keeping the
2002/000	refuse vehicle}		receptacle substantially vertical during
2003/008	{interchangeable}		raising}
3/02	• with means for discharging refuse receptacles	3/045	• • • • {Four-bar linkages}
	thereinto (conveyor construction <u>B65G</u> ; loaders	3/046	• • • • { with additional means for assisting the
	separate from vehicles <u>B66F</u> ; fluid power control systems in general <u>F15B</u>)		tipping of the receptacle after or during
2/0202			raising}
3/0203	• { with crane-like mechanisms }	3/048	• • {Linkages (<u>B65F 3/041</u> takes precedence)}
3/0206	• • {while the receptacles remain in place or are still	3/06	Arrangement and disposition of fluid actuators
2/0200	attached to their supporting means}	3/08	Platform elevators or hoists with guides or
3/0209	{using suction}		runways for raising or tipping receptacles
3/0213	 {Means for facilitating the separation of discharging means from collecting vehicles} 		{(pivotable guides or runways <u>B65F 3/041</u>)}
	discharging means from concetting vehicles;	3/10	Arrangement and disposition of fluid actuators

CPC - 2019.02

3/12	Conjoint motion of lids, flaps, and shutters on	2210/112	Coding means to aid in recycling
3/12	vehicle and on receptacle; Operation of closures	2210/1121	Apertures
	on vehicle conjointly with tipping of receptacle	2210/1123	. Bar-codes
3/14	• with devices for charging, distributing or	2210/1125	. Colors
	compressing refuse in the interior of the tank of a	2210/1126	. Symbols
	refuse vehicle (<u>B65F 3/02</u> takes precedence)	2210/1128	Text
3/143	{Means facilitating the separation of the charging,	2210/1126	Cooling means
	distributing or compressing devices from the tank	2210/110	Crushing means
	of refuse vehicles}	2210/124	Counting means
2003/146	• • {Sensors, e.g. pressure sensors}	2210/126	Cutting means
3/16	• • with conveyor wheels (with screw conveyors	2210/128	Data transmitting means
2/10	<u>B65F 3/22</u>)	2210/129	Deodorizing means
3/18	• with endless conveyors, e.g. elevators	2210/13	• Double walls
3/20	• with charging pistons, plates, or the like (for	2210/132	Draining means
2/201	discharging B65F 3/28) {the charging pistons, plates or the like moving	2210/135	• Flower boxes
3/201	rectilinearly}	2210/136	. Dustpan
3/202	• • { with radially shiftable charging plates or the	2210/137	• Fans
3,202	like mounted on a rotary drum}	2210/138	. Identification means
3/203	• • • { with charging teeth, cutters or the like	2210/139	. Illuminating means
	mounted on an axle or a drum (B65F 3/202,	2210/14	. Incinerating means
	<u>B65F 3/205</u> , <u>B65F 3/206</u> take precedence)}	2210/144	. Level detecting means
3/205	{with two or more movable and co-operating	2210/1443	Electrical
	plates or the like for charging refuse from	2210/1446	Mechanical
	the loading hopper to the interior of a refuse	2210/148	. Locking means
2/20 -	vehicle}	2210/15	Marking means
3/206	• • • { with charging plates or the like rotating	2210/152	Material detecting means
2/207	around a vertical axis}	2210/1522	for glass
3/207	 { guided by tracks, channels, slots or the like provided on the vehicle} 	2210/1525	for metal
3/208	• • • {the charging pistons, plates or the like	2210/1527	for plastics
3/200	oscillating about a horizontal axis}	2210/156	. Mousetraps
3/22	with screw conveyors, rotary tanks	2210/16	Music playing devices
3/225	• • • {Tanks rotating about a transversal axis for	2210/162	Pressing means
5, 22 5	compressing the garbage by gravity}	2210/164	• Printers
3/24	• with devices for unloading the tank of a refuse	2210/165	Remote controls
	vehicle	2210/167	Sealing means
3/26	• • by tipping the tank	2210/1675	• by twisting, e.g. of a flexible tube
3/28	by a lengthwise movement of a wall, e.g. a plate,	2210/168	Sensing means
	a piston, or the like (for charging <u>B65F 3/20</u>)	2210/169	Shredding means
5/00	Gathering or removal of refuse otherwise than by	2210/17	Smoke detecting means Salar calls
	receptacles or vehicles (storage silos, charging and	2210/172	Solar cells
	discharging thereof <u>B65G</u>)	2210/176 2210/178	Sorting meansSteps
5/005	• {by pneumatic means, e.g. by suction (conveying	2210/178	Suction means, e.g. for forcing a bag inside the
	materials in bulk pneumatically in general	2210/177	receptacle
	<u>B65G 53/04</u>)}	2210/1795	• for sucking off dust particles during insertion of
7/00	Cleaning or disinfecting devices combined with	2210,1170	refuse in the receptacle
	refuse receptacles or refuse vehicles (such devices	2210/18	Suspending means
	per se A61L, B08B)	2210/181	Ventilating means, e.g. holes
7/005	• {Devices, mounted on refuse collecting vehicles, for	2210/1815	for assisting the removal of a liner
	cleaning or disinfecting refuse receptacles}	2210/182	Volume determining means
9/00	Transferring of refuse between vehicles or	2210/183	. Volume reducing means, e.g. inserts
2/00	containers with intermediate storage or pressing	2210/184	Weighing means
	(presses for baling per se B30B 9/30)	2210/188	Vacuum drawing means
	<u> </u>	2210/196	Tape dispensers
2210/00	Equipment of refuse receptacles	2210/20	Temperature sensing means
2210/102	Absorbing means	2220/00	Properties of refuse receptacles
2210/1023	for liquids	2220/00	assembled from a plurality of panels
2210/1026	for smelling substances	2220/101	assembled from a blank
2210/104	• Ashtrays	2220/102	Bomb resistant
2210/108	Authorization means	2220/104	Collapsible
2210/1085	Coins or tokens	2220/1063	. foldable

CPC - 2019.02

2220/1066	telescopic
2220/108	• connectable
2220/112	• floatable
2220/116	• inflatable
2220/12	• nestable
2220/122	Poster resistant surface
2220/124	• stackable
2220/128	 transparent
	•
2230/00	Shapes of refuse receptacles
2230/104	• Amphora
2230/108	• Animal
2230/112	. Bottle
2230/116	. Can
2230/12	. Golf ball
2230/124 2230/126	
2230/120	HexagonalHouse
2230/127	. Human
2230/128	Mushroom
2230/132	. Oval
2230/134	Potted plant
2230/135	Pyramide
2230/14	• Robot
2230/144	. Seat
2230/148	. Sleeve
2230/15	• Sleeve having a disconnectable bottom
2230/152	• Triangular
2230/156	• Wave-like
2240/00	Types of refuse collected
	Types of refuse collected
2240/104	• Ashes
2240/104 2240/108	AshesBatteries
2240/104 2240/108 2240/112	AshesBatteriesBottles
2240/104 2240/108 2240/112 2240/1123	AshesBatteriesBottlesGlass
2240/104 2240/108 2240/112 2240/1123 2240/1126	AshesBatteriesBottlesGlassPlastics
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116	AshesBatteriesBottlesGlassPlasticsBroken cutters
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/12	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/12 2240/121	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/12 2240/121 2240/121	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/12 2240/121	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/12 2240/121 2240/122 2240/124 2240/124	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/12 2240/121 2240/122 2240/124	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/12 2240/121 2240/121 2240/122 2240/124 2240/128 2240/132	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/12 2240/12 2240/121 2240/122 2240/124 2240/128 2240/132 2240/136	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/12 2240/121 2240/121 2240/124 2240/128 2240/136 2240/137	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/12 2240/121 2240/121 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/12 2240/121 2240/122 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138 2240/138	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease
2240/104 2240/108 2240/112 2240/1123 2240/116 2240/116 2240/12 2240/121 2240/124 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138 2240/138 2240/14	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/121 2240/121 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138 2240/14 2240/142 2240/142	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease Ink cartridges
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/121 2240/121 2240/122 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138 2240/14 2240/142 2240/143 2240/143 2240/143 2240/144	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease Ink cartridges Leather
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/12 2240/121 2240/121 2240/124 2240/128 2240/136 2240/137 2240/138 2240/138 2240/14 2240/142 2240/144 2240/143	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease Ink cartridges Leather Medicine
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/12 2240/121 2240/121 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138 2240/14 2240/142 2240/142 2240/143 2240/144 2240/145 2240/146	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease Ink cartridges Leather Medicine Nails
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/121 2240/121 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138 2240/138 2240/14 2240/142 2240/142 2240/143 2240/144 2240/143 2240/144 2240/144 2240/146 2240/148	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease Ink cartridges Leather Medicine Nails Neon tubes
2240/104 2240/108 2240/112 2240/1123 2240/1126 2240/116 2240/118 2240/121 2240/121 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138 2240/138 2240/14 2240/142 2240/143 2240/143 2240/144 2240/144 2240/145 2240/148 2240/148 2240/152	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease Ink cartridges Leather Medicine Nails Neon tubes Oil
2240/104 2240/108 2240/112 2240/1126 2240/116 2240/118 2240/121 2240/121 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138 2240/14 2240/142 2240/143 2240/144 2240/145 2240/146 2240/146 2240/156 2240/1562 2240/1564	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease Ink cartridges Leather Medicine Nails Neon tubes Oil Paper confidential Carton
2240/104 2240/108 2240/112 2240/1123 2240/116 2240/118 2240/121 2240/121 2240/122 2240/124 2240/128 2240/136 2240/137 2240/138 2240/14 2240/142 2240/143 2240/144 2240/145 2240/146 2240/146 2240/148 2240/156 2240/1564 2240/1566	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease Ink cartridges Leather Medicine Nails Neon tubes Oil Paper confidential Carton handkerchiefs
2240/104 2240/108 2240/112 2240/1126 2240/116 2240/118 2240/121 2240/121 2240/124 2240/128 2240/132 2240/136 2240/137 2240/138 2240/14 2240/142 2240/143 2240/144 2240/145 2240/146 2240/146 2240/156 2240/1562 2240/1564	 Ashes Batteries Bottles Glass Plastics Broken cutters Building waste Cans Carrions CD's, DVD's Christmas trees Clothing Diapers Dog dirt Drilling dust Garden debris Gum Grease Ink cartridges Leather Medicine Nails Neon tubes Oil Paper confidential Carton

2240/162 • Pressurized containers

2240/164	Sanitary towels
2240/166	• Staples
2240/168	 Telephone cards
2240/172	• Vomit
2250/00	Materials of refuse receptacles
2250/105	 Biodegradable
2250/106	. Carton
2250/107	. Glass
2250/108	• Paper
2250/11	. Metal
2250/111	Aluminum
2250/112	Steel
2250/114	• Plastics
2250/1143	Polyethylene
2250/1146	Polypropylene
2250/116	. Recycled material
2250/12	. Rubber

2250/128 . Wood

CPC - 2019.02 4