

# Shared (typed)

Monday, March 2, 2020 3:38 PM

Implements Serializable Δ

```
Board Δ
(-) static final long serialVersionUID = 7L
(-) List<Region> regions
(+> Board()
(+> Board(List<Region> regionList)
(+> List<Region> getRegions()
(+> int getNumRegionsOwned(AbstractPlayer player)
(+> Map<AbstractPlayer, List<Region>> getPlayerToRegionMap()
(+> Set<AbstractPlayer> getPlayerSet()
(+> Set<String> getVisibleRegions(String playerName)
(+> Set<String> getVisibleRegionsIncludingCloaked(String playerName)
(+> Set<String> getRegionSet(String playerName, boolean includeAdj)
(+> void initializeSpies(List<String> players)
```

```
<<MessageInterface<T>> Δ
(+> T unpacker()
```

```
ConfirmationMessage<Boolean>
(-) boolean message
(-) static final long serialVersionUID = 4L
(+> ConfirmationMessage(boolean m)
(+> boolean unpacker()
(+> boolean getMessage()
```

```
StringMessage<String>
(-) String message
(-) static final long serialVersionUID = 3L
(+> StringMessage(String m)
(+> String unpacker()
(+> String getMessage()
```

```
IntegerMessage<Integer>
(-) Integer message
(-) static final long serialVersionUID = 30L
(+> IntegerMessage(Integer m)
(+> Integer unpacker()
(+> Integer getMessage()
```

```
<<OrderInterface>> Δ
(+> int getPriority()
(+> void findValuesInBoard(Board board)
(+> List<String> doAction()
(+> List<Set<String>> getPlayersVisibleTo()
```

```
<<RegionUnitOrder>>
```

```
<<RegionPlayerOrder>>
```

```
<<RegionOrder>>
```

```
<<PlayerOrder>>
```

```
Unit Δ
(-) List<Integer> units
(-) static Map<Integer, Integer> techToBonusMap;
(-) static Map<Integer, String> techToTypeMap;
(-) static Map<Integer, String> techToTypeMap;
(-) static final long serialVersionUID = 2L
(+> Unit()
(+> Unit(Integer numUnits)
(+> Unit(List<Integer> unitList)
(-) void setEvenDistribution(Integer numOffTypes, Integer numOffEach)
(+> void addUnits(int numUnits, int tech)
(+> List<String> getUnits(Integer tech)
(+> Integer getTotalUnits()
(+> List<Integer> getUnits()
(+> void setUnits(List<Integer> u)
(+> List<Integer> getUnitList()
(+> Integer getBonusFromTech(Integer tech)
(+> Integer getCostFromTech(Integer tech)
(+> String getTypeFromTech(Integer tech)
(+> void upgradeUnit(Integer tech, int increase)
(+> void subtractUnits(Unit subtracted)
(+> void addUnits(Unit added)
```

```
Path
(-) List<Region> path
(+> Path()
(+> Path(Path copy)
(+> int getTotalCost()
(+> void add(Region r)
(+> List<Region> getPath()
```

```
PathComparator implements Comparator<Path>
(+> int compare (Path path1, Path path2)
```

```
AbstractPlayer Δ
(-) String name
(-) boolean isPlaying
(-) boolean isWatching
(-) TechnologyLevel maxTechLevel
(-) PlayerResources playerResource
(-) static final long serialVersionUID = 5L
(+> PlayerResources getResources()
(+> String getName()
(+> void setName(String name)
(+> boolean isPlaying()
(+> void setPlaying(boolean isPlaying)
(+> boolean isWatching()
(+> void setWatching(boolean isWatching)
(+> void setWatchingNull()
(+> int compareTo(AbstractPlayer p)
(+> TechnologyLevel getMaxTechLevel()
(+> void setMaxTechLevel(TechnologyLevel maxTechLevel)
(+> void setMaxTechLevel(int maxTechLevel)
(+> void setPlayerResource(PlayerResources playerResource)
(+> boolean equals(Object obj)
```

```
HumanPlayer
(-) static final long serialVersionUID = 6L
(+> HumanPlayer()
(+> HumanPlayer(String name)
```

```
Abstract SourceDestinationUnitOrder
(-) static final long serialVersionUID = 8L
(-) Region source
(-) Region destination
(-) Unit units
(+> void setDestination(Region destination)
(+> Region getDestination()
(+> void setSource(Region source)
(+> Region getSource()
(+> Unit getUnits()
(+> int getPriority()
(+> void findValuesInBoard(Board board)
(+> List<Set<String>> getPlayersVisibleTo()
(+> abstract List<String> doAction()
```

```
Abstract DestinationUnitOrder
(-) static final long serialVersionUID = 10L
(-) Region destination
(-) Unit units
(+> void setDestination(Region destination)
(+> Region getDestination()
(+> Unit getUnits()
(+> abstract int getPriority()
(+> void findValuesInBoard(Board board)
(+> List<Set<String>> getPlayersVisibleTo()
(+> abstract List<String> doAction()
```

```
Abstract SourceDestinationPlayerOrder
(-) static final long serialVersionUID = 48L
(-) Region source
(-) Region destination
(-) AbstractPlayer player
(+> void setDestination(Region destination)
(+> Region getDestination()
(+> void setSource(Region source)
(+> Region getSource()
(+> void setPlayer(AbstractPlayer player)
(+> AbstractPlayer getPlayer()
(+> int getPriority()
(+> void findValuesInBoard(Board board)
(+> List<Set<String>> getPlayersVisibleTo()
(+> abstract List<String> doAction()
```

```
Abstract DestinationOrder
(-) static final long serialVersionUID = 40L
(-) Region destination
(+> void setDestination(Region destination)
(+> Region getDestination()
(+> abstract int getPriority()
(+> void findValuesInBoard(Board board)
(+> List<Set<String>> getPlayersVisibleTo()
(+> AbstractList<String> doAction()
```

```
TechBoost
(-) static final long serialVersionUID = 15L
(-) AbstractPlayer p
(+> TechBoost(AbstractPlayer p)
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
(+> int getPriority()
(+> AbstractPlayer getPlayer()
(+> void setPlayer(AbstractPlayer player)
```

```
Abstract SourceDestinationOrder
(-) static final long serialVersionUID = 55L
(-) Region source
(-) Region destination
(+> void setDestination(Region destination)
(+> Region getDestination()
(+> void setSource(Region source)
(+> Region getSource()
(+> int getPriority()
(+> void findValuesInBoard(Board board)
(+> List<Set<String>> getPlayersVisibleTo()
(+> abstract List<String> doAction()
```

```
MoveOrder
(-) static final long serialVersionUID = 9L
(+> MoveOrder(Region S, Region d, Unit u)
(+> int getPriority()
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
```

```
AttackMove
(-) static final long serialVersionUID = 20L
(+> AttackMove(Region attacker, Region defender, Unit attackingUnits)
(+> int getPriority()
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
```

```
AttackCombat
(-) static final long serialVersionUID = 21L
(+> AttackCombat(Region attacker, Region defender, Unit attackingUnits)
(+> int getPriority()
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
(-) Integer getHighestBonus(Unit u)
(-) Integer getLowestBonus(Unit u)
(-) boolean isWinner(Region s, Region d, Unit u)
(-) Region rollHelper(Region d, Region, Region attackRegion)
```

```
PlacementOrder
(-) static final long serialVersionUID = 11L
(+> PlacementOrder(Region d, Unit u)
(+> int getPriority()
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
```

```
UnitBoost
(-) static final long serialVersionUID = 16L
(+> UnitBoost(Region d, Unit u)
(+> int getPriority()
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
(-) Unit getUpgradedUnits()
(-) int generateCost()
```

```
ResourceBoost
(-) static final long serialVersionUID = 24L
(+> ResourceBoost(Region d)
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
(+> int getPriority()
```

```
SpyMoveOrder
(-) static final long serialVersionUID = 46L
(+> SpyMoveOrder(Region s, Region d, AbstractPlayer player)
(+> int getPriority()
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
```

```
CloakOrder
(-) static final long serialVersionUID = 41L
(+> CloakOrder(Region destination)
(+> int getPriority()
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
```

```
SpyUpgradeOrder
(-) static final long serialVersionUID = 50L
(+> SpyUpgradeOrder(Region destination)
(+> int getPriority()
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
```

```
RaidOrder
(-) static final long serialVersionUID = 56L
(+> RaidOrder(Region source, Region destination)
(+> int getPriority()
(+> List<Set<String>> getPlayersVisibleTo()
(+> List<String> doAction()
```

```
Region Δ
(-) static final long serialVersionUID = 1L
(-) AbstractPlayer owner
(-) String name
(-) Unit units
(-) List<Region> adjRegions
(-) int regionSize
(-) int foodProduction
(-) int technologyProduction
(-) int cloakTurns
(-) Map<String, List<Spy>> spies
(+> Region()
(+> Region(String n)
(+> Region(AbstractPlayer p, Unit u)
(+> int getCloakTurns()
(+> void setCloakTurns(int cloakTurns)
(+> Map<String, List<Spy>> getSpies()
(+> List<Spy> getSpies(String name)
(+> void addSpy(List<String> name, List<Spy> list)
(+> void addSpy(String name, Spy spy)
(+> void setAllSpies(false)
(+> void initializeSpies(List<String> players)
(+> void assignRegion(AbstractPlayer p, Unit u)
(+> void setOwner(AbstractPlayer p)
(+> void setUnits(Unit u)
(+> void setAdjRegions(List<Region> adj)
(+> void setName(String n)
(+> void setName(int i)
(+> int getScore()
(+> void setFoodProduction(int f)
(+> void setTechnologyProduction(int t)
(+> AbstractPlayer getOwner()
(+> Unit getUnit()
(+> List<Region> getAdjRegions()
(+> String getName()
(+> Path findShortestPath(Region destination)
(+> void findShortestPathHelper(Region end, Path path, Queue<Path> pq)
(+> boolean alreadyPath(Path p, Region adj)
(+> void copySpies(Region regionCopy)
(+> void copyCopySpies(Region regionCopy)
```

```
Pair<K, V> Δ
(-) final K first
(-) final V second
(-) static final long serialVersionUID = 31L
(+> Pair(K first, V second)
(+> K getFirst()
(+> V getSecond()
(+> boolean equals(Object obj)
```

```
Constants
(+> static final double START_WAIT_MINUTES = 2.5
(+> static final double TURN_WAIT_MINUTES = 3.0
(+> static final double LOGIN_WAIT_MINUTES = 1.0
(+> static final int UNIT_START_MULTIPLIER = 3
(+> static final int MAX_PLAYERS = 5
(+> static final int MAX_REGIONS = 12
(+> static final int DEFAULT_PORT = 12345
(+> static final int MAX_MISSED = 1
(+> static final int MAX_TECH_LEVEL = 6
(+> static final boolean FOG_OF_WAR = true
(+> static final int ATTACK_COMBAT_PRIORITY = 70
(+> static final int ATTACK_MOVE_PRIORITY = 50
(+> static final int MOVE_PRIORITY = 30
(+> static final int PLACEMENT_PRIORITY = 10
(+> static final int UPGRADE_UNITS_PRIORITY = 20
(+> static final int UPGRADE_TECH_PRIORITY = 60
(+> static final int TELEPORT_ORDER_PRIORITY = 40
(+> static final int SPYMOVE_PRIORITY = 65
(+> static final int CLOAK_PRIORITY = 66
(+> static final int SPYUPEGRADE_PRIORITY = 64
(+> static final int ATTACK_COST = 1
(+> static final int TELEPORT_COST = 50
(+> static final int STARTING_FOOD = 50
(+> static final int STARTING_TECH = 30
(+> static final int FOG_COST = 100
```

```
Connection Δ
(-) static final long serialVersionUID = 11L
(-) Socket socket
(-) ObjectOutputStream outputStream = null
(-) ObjectInputStream inputStream = null
(+> Connection()
(+> Connection(Socket socket)
(+> Connection(ObjectInputStream inputStream,
```

```
DeepCopy
(+> static Object deepCopy(Object obj)
```

DeepCopyFailure Exception extends RuntimeException

```
AttackValidator
(-) Board tempBoard
(-) AbstractPlayer player
(+> AttackValidator(AbstractPlayer player, Board boardCopy)
(+> boolean isValidAttack(AttackOrder a)
(+> boolean validateRegions(List<AttackOrder> attackList)
(+> boolean validateOrders(List<AttackOrders> attackList)
```

```
MoveValidator
(-) Board tempBoard
(-) AbstractPlayer player
(+> MoveValidator(AbstractPlayer player, Board boardCopy)
(-) boolean isValidRegionPath(Region start, Region end)
(+> boolean isValidMove(MoveOrder a, int sum)
(+> boolean validateOrders(List<MoveOrder> moveList)
(+> boolean validateRegions(List<MoveOrder> moveList)
(+> boolean validateUnits(List<MoveOrder> m)
```

```
UnitBoostValidator
(-) AbstractPlayer p
(-) Board tempBoard
(+> UnitBoostValidator(AbstractPlayer player, Board boardCopy)
(+> boolean validateOrders(List<TechBoost> orders)
(+> boolean validateUnits(List<UnitBoost> orders)
(+> boolean validateRegion(UnitBoost order)
```

```
PlacementValidator
(-) AbstractPlayer p
(-) Unit playerUnits
(-) Board tempBoard
(+> PlacementValidator(AbstractPlayer p, Unit u, Board boardCopy)
(+> boolean isValidPlacement(PlacementOrder p, AbstractPlayer ap)
(+> boolean validateRegions(List<PlacementOrder> placementList)
(+> boolean validateOrders(List<PlacementOrder> orders)
(+> boolean validateUnits(List<PlacementOrder> orders)
```

```
TechBoostValidator
(-) Board tempBoard
(+> TechBoostValidator(AbstractPlayer player, Board boardCopy)
(+> boolean validateOrders(List<TechBoost> orders)
```

```
SpyMoveValidator
(-) AbstractPlayer p
(-) Board tempBoard
(+> SpyMoveValidator(AbstractPlayer player, Board boardCopy)
(-) boolean hasSpyPath(Region start, Region end)
(+> boolean isValidMove(SpyMoveOrder move)
(+> boolean validateOrders(List<SpyMoveOrder> order)
```

```
ValidateHelper
(-) ValidatorInterface<AttackOrder> attackValidator
(-) ValidatorInterface<MoveOrder> moveValidator
(-) ValidatorInterface<PlacementOrder> placementValidator
(-) ValidatorInterface<TechBoost> techBoostValidator
(-) ValidatorInterface<UnitBoost> unitBoostValidator
(-) ValidatorInterface<TeleportOrder> teleportValidator
(-) ValidatorInterface<ResourceBoost> resourceBoostValidator
(-) ValidatorInterface<CloakOrder> cloakValidator
(-) ValidatorInterface<SpyUpgradeOrder> spyUpgradeValidator
(-) ValidatorInterface<SpyMoveOrder> spyMoveValidator
(-) ValidatorInterface<RaidOrder> raidValidator
(-) Board tempBoard
(-) AbstractPlayer player
(+> ValidatorHelper(AbstractPlayer player, Board currentBoard)
(+> ValidatorHelper(AbstractPlayer player, Unit u, Board currentBoard)
(+> boolean allOrdersValid(List<OrderInterface> orders)
(+> boolean allPlacementsValid(List<OrderInterface> placements)
```

```

(-) AbstractPlayer p
(-) Board tempBoard

(+) UnitBoostValidator(AbstractPlayer player, Board boardCopy)
(+) boolean validateOrders(List<TechBoost> orders)
(+) boolean validateRegions(List<UnitBoost> orders)
(+) boolean validateRegion(UnitBoost order)
(+) boolean validateUnits(List<UnitBoost> orders)
(-) boolean validateUnit(UnitBoost order)
(-) boolean preventBoostingMaxLevel(UnitBoost order)
(+) boolean validateCost(List<UnitBoost> orders)

```

```

CloakValidator

(-) AbstractPlayer p
(-) Board tempBoard

(+) CloakValidator(AbstractPlayer player, Board boardCopy)
(+) boolean validateOrders(List<CloakOrder> orders)
(+) boolean isValidOrder(CloakOrder order)

```

```

ResourceBoostValidator

(-) Board tempBoard
(-) AbstractPlayer p

(+) ResourceBoostValidator(AbstractPlayer player, Board boardCopy)
(+) boolean validTechLevel(List<ResourceBoost> orders)
(+) boolean validOwnership(List<ResourceBoost> orders)
(+) boolean validResources(List<ResourceBoost> order)
(+) boolean validateOrders(List<ResourceBoost> orders)

```

```

(-) AbstractPlayer p
(-) Board tempBoard

(+) SpyMoveValidator(AbstractPlayer player, Board boardCopy)
(-) boolean hasSpyPath(Region start, Region end)
(-) boolean isValidMove(SpyMoveOrder move)
(-) boolean validateOrders(List<SpyMoveOrder> order)

```

```

SpyUpgradeValidator

(-) AbstractPlayer p
(-) Board tempBoard

(+) SpyUpgradeValidator(AbstractPlayer player, Board boardCopy)
(-) boolean validateOrders(List<SpyMoveOrder> order)
(+) boolean isValidOrder(SpyUpgradeOrder order)

```

```

TeleportValidator

(-) AbstractPlayer p
(-) Board tempBoard

(+) TeleportValidator(AbstractPlayer player, Board boardCopy)
(+) boolean validTechLevel()
(+) boolean validOwnership(List<TeleportOrder> tList)
(+) boolean validUnits(List<TeleportOrder> tList)
(+) boolean validateOrders(List<TeleportOrder> orders)

```

```

RaidValidator

(-) Board tempBoard
(-) AbstractPlayer p

(+) RaidValidator(AbstractPlayer player, Board boardCopy)
(+) boolean validateOrders(List<ResourceBoost> orders)
(+) boolean isValidOrder(RaidOrder order)

```

```

(+) static final int SPYMOVE_PRIORITY = 65
(+) static final int CLOAK_PRIORITY = 66
(+) static final int SPYUPGRADE_PRIORITY = 64
(+) static final int ATTACK_COST = 1
(+) static final int TELEPORT_COST = 50
(+) static final int STARTING_FOOD = 50
(+) static final int STARTING_TECH = 30
(+) static final int CLOAK_COST = 100
(+) static final int SPYUPGRADE_COST = 20
(+) static final int UPGRADE_RESOURCE_PRIORITY = 35
(+) static final int RAID_PRIORITY = 69
(+) static final int REGION_SIZE = 10
(+) static final int STARTING_TECH_LEVEL = 1
(+) static final int STARTING_UPGRADE_COST = 50

```

```

(-) static final long serialVersionUID = 11L
(-) Socket socket = null
(-) ObjectOutputStream outputStream = null
(-) ObjectInputStream inputStream = null

(+) Connection()
(+) Connection(Socket socket)
(+) Connection(ObjectInputStream inputStream, ObjectOutputStream outputStream)
(+) <T> void sendObject(T object) throws IOException
(+) <T> T receiveObject() throws IOException, ClassNotFoundException
(+) ObjectInputStream getInputStream()
(+) ObjectOutputStream getOutputStream()
(+) void closeAll()
(+) void setInputStream(ObjectInputStream inputStream)
(+) void setOutputStream(ObjectOutputStream outputStream)
(+) Socket getSocket()
(+) void setSocket(Socket socket)
(+) void getStreamFromSocket() throws IOException

```

```

DeepCopy

(+) static Object deepCopy(Object obj)

DeepCopyFailure Exception extends RuntimeException
(-) static final long serialVersionUID = 13L
(+) final Exception exn
(+) DeepCopyFailureException(Exception exn)
(+) Exception getCause()

```

```

PlayerResources Δ

(-) static final long serialVersionUID = 17L
(-) FuelResources fuelResources
(-) TechResources techResources

(+) PlayerResources(int startingFood, int startingTech)
(+) FuelResources getFoodResource()
(+) TechResources getTechResource()

```

```

FuelResources Δ

(-) static final long serialVersionUID = 18L
(-) int fuelStash

(+) FuelResources(int startingFuel)
(+) void setFuel(int startingFuel)
(+) int getFuel()
(+) void addFuel(int fuel)
(+) void useFuel(int fuel)

```

```

TechResources Δ

(-) static final long serialVersionUID = 19L
(-) int techStash

(+) TechResources(int startingTech)
(+) void setTech(int startingTech)
(+) int getTech()
(+) void addTech(int tech)
(+) void useTech(int tech)

```

```

TechnologyLevel Δ

(-) static final long serialVersionUID = 14L
(-) int maxTechLevel
(-) int costToUpgrade

(+) TechnologyLevel()
(+) int getMaxTechLevel()
(+) void upgradeLevel()
(+) int getCostToUpgrade()

```

```

Spy

(-) static final long serialVersionUID = 43L
(-) boolean hasMoved

(+) Spy()
(+) boolean getHasMoved()
(+) void setHasMoved(boolean hasMoved)

```