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Testdokumentation

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Team 10

smarten
professional software development

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1 Vorgehen bei Tests

Um eine hohe Qualität unseres Codes zu gewährleisten, muss dieser die folgenden fünf Phasen durchlaufen:

REVIEW: Jede unserer Klassen (ob Test- oder Produktivcode) wurde von einer zweiten Person gereviewed. Dadurch sind schnell logische Fehler oder konzeptionelle Probleme aufgefallen.

STORY TEST: Jede geschriebene Klasse wurde dann von einem dritten Teammitglied explorativ getestet. Unter einem explorativen Test versteht man, dass der Tester den Code frei bedient und die Anwendung beliebig nutzt. Wichtig ist dabei, dass der Tester jeden seiner Schritte aufschreibt um gegebenenfalls anfallende Probleme reproduzieren zu können.

UNITTEST: Parallel zum Story Test wurden, wenn sich die zu testenden Klassen dafür anboten, automatisierte `JUnit` Tests geschrieben. Hierbei wurde besonders darauf geachtet, zu jedem Positiv-Testfall auch einen Negativ-Fall ab zu testen. Diese passen jedoch nicht immer 1:1 zueinander, da zum Beispiel eine Konfiguration nur auf eine Art richtig sein kann, aber auf viele verschiedene Arten falsch. Diese Tests beschäftigen sich mit einzelnen implementierten Klassen und Methoden.

KOMPONENTENTEST: Nach dem Fertigstellen der GUI wurden dann manuelle Tests geschrieben. Da wir nicht die Ressourcen aufbringen konnten (finanziell und personell) automatisierte GUI Tests zu schreiben, stellen wir mithilfe von manuellen Tests die Qualität unserer Produkte sicher. Hier wird, anders als beim explorativen Testen, ein spezielles Vorgehen in Dokumenten definiert. Anhand dieser Dokumente klickt sich unser Tester dann durch das Produkt und notiert, sollten sich Unregelmäßigkeiten auftuen. Der Komponententest überprüft, ob eine einzelne Komponente alleinstehend funktioniert.

SYSTEMTEST: Der Systemtest ist am aufwendigsten durchzuführende Test. Hier werden alle unsere Softwarekomponenten miteinander getestet. So wird z.B. anders als beim Komponententest, eine Konfiguration nicht nur im Konfigurator erstellt, sondern zusätzlich wird sie von unserem Server geladen und die unterschiedlichen Clients spielen ein Spiel mit dieser Konfiguration. Der Systemtest umfasst also die komplette von smarten tsuro angebotene Produktkette und legt seinen Fokus daruf, ob die einzelnen Elemente miteinander harmonieren.

Nachfolgend werden die dokumentierten Tests, die in den Phasen JUNIT, MANUELL und SYSTEMTEST entstanden sind, zusammengefasst. Um sowohl Übersichtlichkeit als auch Informationsgehalt zu gewährleisten, finden Sie die zusammengefassten JUNIT Tests im Hauptdokument und die ausführliche Auflistung aller JUNIT Tests mit allen gesammelten Informationen im Anhang **??**. Die Dokumentation der eigentlichen Tests ist stehts auf Englisch gehalten, da auch der Quellcode auf Englisch ist.

2 Automatische Tests

Aufgrund von finanziellen und personellen Engpässen war es nicht möglich, automatisierte GUI Tests umzusetzen. Daher konzentrieren sich die automatischen Tests auf die Komponente `Shared Components`, welche die Packages `GameModel`, `Utility` und `Network` umfasst.
Alle im folgenden aufgeführten Tests können zum jetzigen Zeitpunkt fehlerfrei ausgeführt werden.

2.1 Shared Components

2.1.1 GameModel

Name	ClientTest
Package	`shared.gamemodel.test.ClientTest`
Beschreibung	Es wird getestet, ob ein `Client`-Objekt korrekt angelegt werden kann und ob die `String`-Darstellung und Setter Funktionen korrekt arbeiten. Das heißt, es werden die Funktionen ausgeführt und kontrolliert, ob die erwarteten Werte in der Objektinstanz gespeichert wurden.

Name	ConfigurableTileTest
Package	`shared.gamemodel.test.ConfigurableTileTest`
Beschreibung	Es wird getestet, ob ein `ConfigurableTile`-Objekt korrekt angelegt werden kann. Darüber hinaus werden die `equals` und die `getPaths`-Methoden getestet. Das heißt, es werden die Funktionen ausgeführt und kontrolliert, ob die erwarteten Werte in der Objektinstanz gespeichert wurden, bzw. ob die erwarteten Werte zurückgegeben werden.

Name	ConfigurationTest
Package	`shared.gamemodel.test.ConfigurationTest`
Beschreibung	Es wird getestet, ob ein `Configuration`-Objekt korrekt angelegt werden kann. Darüber hinaus wird die `equals`-Methode getestet. Das heißt, es wird die Funktion ausgeführt und kontrolliert, ob die erwarteten Werte zurückgegeben werden.

Name	GameTest
Package	`shared.gamemodel.test.GameTest`

Beschreibung	Es wird getestet, ob ein `Game`-Objekt korrekt angelegt werden kann. Darüber hinaus werden die `equals` und alle Methoden bezüglich der Verwaltung von `Player`-Objekten getestet. Das heißt, es werden die Funktionen ausgeführt und kontrolliert, ob die erwarteten Werte in der Objektinstanz gespeichert wurden, bzw. ob die erwarteten Werte zurückgegeben werden.

Name	PathTest
Package	`shared.gamemodel.test.PathTest`
Beschreibung	Es wird getestet, ob ein `Path`-Objekt korrekt angelegt werden kann. Darüber hinaus werden die `equals` und alle Methoden bezüglich der Veränderung des Objekts getestet. Das heißt, es werden die Funktionen ausgeführt und kontrolliert, ob die erwarteten Werte in der Objektinstanz gespeichert wurden, bzw. ob die erwarteten Werte zurückgegeben werden.

Name	PlayerTest
Package	`shared.gamemodel.test.PlayerTest`
Beschreibung	Es wird getestet, ob ein `Player`-Objekt korrekt angelegt werden kann. Darüber hinaus wird getestet, ob die erwarteten Werte der internen TileList in der Objektinstanz gespeichert wurden, bzw. ob die erwarteten Werte zurückgegeben werden.

2.1.2 Network

Name	GameModelTranslatorTest
Package	`shared.network.test.GameModelTranslatorTest`
Beschreibung	Es wird getestet, ob die Übersetzung von einem beliebigen eObject aus dem EMF Modell in ein internes `GameModel`-Objekt (und invers) funktioniert. Für jeden Objekttypen gibt es die Hin- und Rückrichtung mit jeweils einem Positiv und einem Negativ-Test.

2.1.3 Utility

Name	StopwatchTest
Package	`shared.utility.test.StopwatchTest`
Beschreibung	Es wird getestet, ob die `Stopwatch` mit all ihren Methoden funktioniert, d.h., ob die `Stopwatch` die Zeit korrekt misst und die `Observer` korrekt benachrichtigt werden. Des Weiteren wird die Pausen-Funktionalität und die Funktionalität des regelmäßigen Benachrichtigens getestet.

Name	TileTranslatorTest
Package	`shared.utility.test.TileTranslatorTest`
Beschreibung	Es wird getestet, ob vom `TileTranslator` global nur eine Instanz erstellt wird und alle vorhandenen Übersetzungsfunktionen zwischen `ConfigurableTile`, `Tile` und einer beliebigen `tileId` funktionieren.

3 Manuelle Tests

3.1 AI Konsole

3.1.1 SetNamePositive

Name	manual.ai.test.SetNamePositive		
Description	This test checks if the AI-name can be set to a String via setName		
Positive/Negative	positive		
Owner	SebastianP		
Testpreparation	Start Eclipse 4.5.2 with smarten_tsuro Maven Project and run AIWindow.java		
Teststeps	1	Type setName Name into the AI console and enter the input	
Expectet behavior	AI sets its name to "Name"		
Verdict	pass	**last run**	21.07.2017 14:45

3.1.2 SetNameNegative

Name	manual.ai.test.SetNameNegative		
Description	This test checks if the AI-name can be set to an empty String via setName		
Positive/Negative	negative		
Owner	SebastianP		
Testpreparation	Start Eclipse 4.5.2 with smarten_tsuro Maven Project and run AIWindow.java		
Teststeps	1	type setName into the AI console and enter the input	
Expected behavior	AI declines the input and tells user that the input is invalid		
Verdict	pass	**last run**	21.07.2017 14:45

3.1.3 SetNameNegative2

Name	manual.ai.test.SetNameNegative2		
Description	This test checks if the AI-name can be set via setName after joining a game/queue		
Positive/Negative	negative		
Owner	SebastianP		
Testpreparation	Start Eclipse 4.5.2 with smarten_tsuro Maven Project and run AIWindow.java		
	1	type connect to connect to the local reference server	

Teststeps

	2	type joinGame -1 to join the game on the server	
	3	type setName Name into the AI console and enter	
Expected behavior	AI declines the input and shows an error message		
Verdict	pass	**last run**	21.07.2017 14:45

3.1.4 StatusPositive

Name	manual.ai.test.StatusPositive		
Description	This test checks if the status command is executed properly in all situations		
Positive/Negative	positive		
Owner	SebastianP		
Testpreparation	Start Eclipse 4.5.2 with smarten_tsuro maven project imported. Start AIWindow.java Run the runServer.bat or runServer.sh from the git repository. You can find them root/reference_server		
Teststeps	1	type status into the AI console and enter the input	
	2	type connect to connect to the local reference server	
	3	type status into the AI console and enter the input	
	4	type joinGame -1 to join a game on the server	
	5	type status into the AI console and enter the input	
	6	type disconnect into the AI console and enter	
Expected behavior	1: AI displays the status with IsConnected::false and InQueue::false 3: AI displays the status with IsConnected::true and inQueue::false 5: AI displays the status with IsConnected:true and InQueue::true		
Verdict	pass	**last run**	21.07.2017 14:45

3.1.5 StatusNegative

Name	manual.ai.test.StatusNegative		
Description	This test checks if the status command works properly with additional input after the command		
Positive/Negative	negative		
Owner	SebastianP		
Testpreparation	Start Eclipse 4.5.2 with smarten_tsuro Maven Project and run AIWindow.java		
Teststeps	1	type status param and enter the input	
Expected behavior	AI ignores parameters and displays the current AI configuration and status		

Verdict	pass	**last run**	21.07.2017 14:45

3.1.6 helpPositive

Name	manual.ai.test.helpPositive		
Description	This test checks if the status command is executed properly in all situations		
Positive/Negative	positive		
Owner	SebastianP		
Testpreparation	Start Eclipse 4.5.2 with smarten_tsuro maven project imported. Start AIWindow.java Run the runServer.bat or runServer.sh from the git repository. You can find them root/reference_server		
Teststeps	1	type help into the AI console and enter the input	
	2	type connect to connect to the local reference server	
	3	type help into the AI console and enter the input	
	4	type joinGame -1 to join a game on the server	
	5	type help into the AI console and enter the input	
	6	type disconnect into the AI console and enter	
Expected behavior	1: AI displays the help view 3: AI displays the help view 5: AI displays the help view		
Verdict	pass	**last run**	21.07.2017 14:45

3.1.7 helpNegative

Name	manual.ai.test.helpNegative		
Description	This test checks if the help command works properly with additional input after the command		
Positive/Negative	negative		
Owner	SebastianP		
Testpreparation	Start Eclipse 4.5.2 with smarten_tsuro Maven Project and run AIWindow.java		
Teststeps	1	type setName param into the AI console and enter the input	
Expected behavior	AI ignores parameters and displays the defined help message		
Verdict	pass	**last run**	21.07.2017 14:45

3.1.8 ExitPositive

Name	manual.ai.test.ExitPositive		
Description	This test checks if the exit command works properly with additional input after the command		
Positive/Negative	positive		
Owner	SebastianP		
Testpreparation	Start Eclipse 4.5.2 with smarten_tsuro maven project imported. Start AIWindow.java Run the runServer.bat or runServer.sh from the git repository. You can find them root/reference_server		
Teststeps	1	type exit into the AI console and enter the input	
	2	type exit into the AI console and enter the input	
	3	restart the AIWindow.java and execute Teststep 1	
	4	type connect to connect to the local reference server	
	5	type exit into the AI console and enter the input	
	6	restart the AIWindow.java and execute Teststep 1 and 4	
	7	type joinGame -1 to join a game	
	8	type exit into the AI console and enter the input	
Expected behavior	2: AI closes the application 5: AI closes the application 8: AI closes the application		
Verdict	pass	**last run**	21.07.2017 14:45

3.2 Mobil Client

3.2.1 ConnectNegative

Name	manual.mobileClient.test.connectNegative		
Description	This test checks if the mobile client shows a valid errormessage when the user trys to connect to a wrong server.		
Positive/Negative	negative		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro Client on your Android smartphone		
Teststeps	1	type 123.asdf.123.bla into the Input IP adress textfield. Click on Register.	
	2	Click Quit to leave the app.	
Expected behavior	The following errormessage should be displayed on the app: ERROR OCCURED: Connection to server couldn't be established. In the end the app is closed.		
Verdict	pass	**last run**	22.07.2017 15:36

3.2.2 ConnectPositive

Name	manual.mobileClient.test.connectPositive		
Description	This test checks if the mobile client is able to connect to a valid server.		
Positive/Negative	positive		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro Client on your Android smartphone. Also start a tsuro server on a desktop computer.		
Teststeps	1	type the computer IP adress into the Input IP adress textfield. Click on Register	
	2	Type a name of your choice into the textfield called your name	
	3	Choose a Gameroom, click on it and click the Join Game Button	
	4	Click Quit to leave the app.	
Expected behavior	The client connects to the server and enters the gameroom. In the end the app is closed.		
Verdict	pass	**last run**	22.07.2017 15:41

3.2.3 JoinGameTwiceNegative

Name	manual.mobileClient.test.joinGameTwiceNegative		
Description	This test checks, if it is not possible to enter to different game rooms in the same time.		
Positive/Negative	negative		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro Client on your Android smartphone. Also start a tsuro server on a desktop computer.		
Teststeps	1	type the computer IP adress into the Input IP adress textfield. Click on Register	
	2	Type a name of your choice into the textfield called your name	
	3	Choose a Gameroom, click on it and click the Join Game Button	
	4	Click the Join Game Button again.	
	5	Click Quit to leave the app.	
Expected behavior	The client should display a error message after test step 4. In the end the client should be closed.		
Verdict	pass	**last run**	22.07.2017 16:08

3.2.4 JoinGameTwiceDifferentNameNegative

Name	manual.mobileClient.test.joinGameTwiceDifferentNameNegative		
Description	This test checks, if it is not possible to enter to different game rooms in the same time.		
Positive/Negative	negative		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro Client on your Android smartphone. Also start a tsuro server on a desktop computer.		
Teststeps	1	type the computer IP adress into the Input IP adress textfield. Click on Register	
	2	Type a name of your choice into the textfield called your name	
	3	Choose a Gameroom, click on it and click the Join Game Button	
	4	Click the Join Game Button again.	
	5	Change the your name in the Your name textfield	
	6	Click Quit to leave the app.	
Expected behavior	The client should display a error message after test step 4. In the end the client should be closed.		
Verdict	pass	**last run**	24.07.2017 17:07

3.2.5 JoinGameWithoutParamNegative

Name	manual.mobileClient.test.joinGameWithoutParamNegative	
Description	This test checks, if the client displays an error message when you want to enter a room without choosing one, or enter a name	
Positive/Negative	negative	
Owner	ReneS	
Testpreparation	Start the smarten Tsuro Client on your Android smartphone. Also start a tsuro server on a desktop computer.	
Teststeps	1	type the computer IP adress into the Input IP adress textfield. Click on Register
	2	Click the Join Game Button.
	3	Type a name of your choice into the textfield called your name
	4	Click the Join Game Button again.
	5	Click Quit to leave the app.

Expected behavior	The client should display an error message after test step 2 and 4, because no game room is choosen. In the end the client should be closed.		
Verdict	pass	**last run**	24.07.2017 17:07

3.2.6 StartGamePositive

Name	manual.mobileClient.test.startGamePositive	
Description	This tests starts a game	
Positive/Negative	negative	
Owner	ReneS	
Testpreparation	Start the smarten Tsuro Client on two Android smartphones. Also start a tsuro server on a desktop computer.	
Teststeps	1	type the computer IP adress into the Input IP adress textfield of your smartphones. Click on Register
	2	Type two different names into the Your name textfield.
	3	Click the Join Game Buttons on your smartphones.
	4	End both apps on the smartphones.
Expected behavior	The clients should start a game. the Stopwhatches runs.	
Verdict	pass	**last run** 24.07.2017 17:07

3.2.7 PlayPvPPositive

Name	manual.mobileClient.test.playPvPPositive	
Description	In this test, two mobile clients play tsuro against each other.	
Positive/Negative	positive	
Owner	ReneS	
Testpreparation	You need two smartphones, with the smarten tsruo app installed. Start the App on both smartphones. Also start a tsuro server on a desktop computer.	
Teststeps	1	Connect both apps to your tsuro server using the ip adress.
	2	Type two different names into the Your name textfield.
	3	Choose with both apps the same game room.
	4	Click the Join Game Buttons on your smartphones.
	5	Drag a tile from the library of the active player and drop it onto the field.
	6	Change the library view threw the colered arrows left and right.
	7	Click on a tile in your library.

	8	Repeate the teststeps 5,6 and 7 till the game is over.	
	9	End both mobile clients.	
Expected behavior	4: The PC observer should start a game. the Stopwhatches runs. 5: The tile is now displayed on the field. The token updates its position. The stopwhatch starts counting down from the expectet time. 6: The expected tiles of the choosen player are displayed. 7: If you are on your own tiles, the tile should trun 90 degrees to the right. If these are your oponent tiles, nothing should happen. 9: The app closes.		
Verdict	pass	**last run**	23.07.2017 16:34

3.2.8 timeoutPositive

Name	manual.mobileClient.test.playPvPPositive		
Description	In this test, two mobile clients play tsuro against each other. One of them loose because of a timeout.		
Positive/Negative	positive		
Owner	ReneS		
Testpreparation	You need two smartphones, with the smarten tsruo app installed. Start the App on both smartphones. Also start a tsuro server on a desktop computer.		
Teststeps	1	Connect both apps to your tsuro server using the ip adress.	
	2	Type two different names into the Your name textfield.	
	3	Choose with both apps the same game room.	
	4	Click the Join Game Buttons on your smartphones.	
	5	Drag a tile from the library of the active player and drop it onto the field.	
	6	Let the stopwatch count till 0.	
	7	End both mobile clients.	
Expected behavior	4: The PC observer should start a game. the Stopwhatches runs. 5: The tile is now displayed on the field. The token updates its position. The stopwhatch starts counting down from the expectet time. 6: The active player loose the game. The inactive player win. 7: The app closes.		
Verdict	pass	**last run**	23.07.2017 16:34

3.3 PC Observer

3.3.1 ConnectNegative

Name	manual.PC_Observer.test.connectNegative		
Description	This test checks if the PC observer shows a valid errormessage when the user trys to connect to a wrong server.		
Positive/Negative	negative		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro PC observer		
Teststeps	1	type 123.asdf.123.bla into the Input IP adress textfield. Click on Register.	
	2	Click Quit to leave the PC observer.	
Expected behavior	The following errormessage should be displayed on the PC observer: ERROR OCCURED: Connection to server couldn't be established. In the end the PC observer is closed.		
Verdict	pass	**last run**	22.07.2017 15:36

3.3.2 ConnectPositive

Name	manual.PC_Observer.test.connectPositive		
Description	This test checks if the PC observer is able to connect to a valid server.		
Positive/Negative	positive		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro PC observer. Also start a tsuro server on a desktop computer.		
Teststeps	1	type the computer IP adress into the Input IP adress textfield. Click on Register	
	2	Type a name of your choice into the textfield called your name	
	3	Choose a Gameroom, click on it and click the Join Game Button	
	4	Click Quit to leave the PC observer.	
Expected behavior	The PC observer connects to the server and enters the gameroom. In the end the PC observer is closed.		
Verdict	pass	**last run**	22.07.2017 15:41

3.3.3 JoinGameTwiceNegative

Name	manual.PC_Observer.test.joinGameTwiceNegative		
Description	This test checks, if it is not possible to enter to different game rooms in the same time.		
Positive/Negative	negative		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro PC observer. Also start a tsuro server on a desktop computer.		
Teststeps	1	type the computer IP adress into the Input IP adress textfield. Click on Register	
	2	Type a name of your choice into the textfield called your name	
	3	Choose a Gameroom, click on it and click the Join Game Button	
	4	Click the Join Game Button again.	
	5	Click Quit to leave the PC observer.	
Expected behavior	The PC observer should display a error message after test step 4. In the end the PC observer should be closed.		
Verdict	pass	**last run**	22.07.2017 16:08

3.3.4 JoinGameTwiceDifferentNameNegative

Name	manual.PC_Observer.test.joinGameTwiceDifferentNameNegative		
Description	This test checks, if it is not possible to enter to different game rooms in the same time.		
Positive/Negative	negative		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro PC observer. Also start a tsuro server on a desktop computer.		
Teststeps	1	type the computer IP adress into the Input IP adress textfield. Click on Register	
	2	Type a name of your choice into the textfield called your name	
	3	Choose a Gameroom, click on it and click the Join Game Button	
	4	Click the Join Game Button again.	
	5	Change the your name in the Your name textfield	
	6	Click Quit to leave the PC observer.	
Expected behavior	The PC observer should display a error message after test step 4. In the end the PC observer should be closed.		
Verdict	pass	**last run**	24.07.2017 17:07

3.3.5 JoinGameWithoutParamNegative

Name	manual.PC_Observer.test.joinGameWithoutParamNegative		
Description	This test checks, if the PC observer displays an error message when you want to enter a room without choosing one, or enter a name		
Positive/Negative	negative		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro PC observer. Also start a tsuro server on a desktop computer.		
Teststeps	1	type the computer IP adress into the Input IP adress textfield. Click on Register	
	2	Click the Join Game Button.	
	3	Type a name of your choice into the textfield called your name	
	4	Click the Join Game Button again.	
	5	Click Quit to leave the PC observer.	
Expected behavior	The PC observer should display an error message after test step 2 and 4, because no game room is choosen. In the end the PC observer should be closed.		
Verdict	pass	**last run**	24.07.2017 17:07

3.3.6 StartGamePositive

Name	manual.PC_Observer.test.startGamePositive		
Description	This tests starts a game		
Positive/Negative	negative		
Owner	ReneS		
Testpreparation	Start the smarten Tsuro PC observer. Also start a tsuro server on a desktop computer.		
Teststeps	1	type the computer IP adress into the Input IP adress textfield of your smartphones. Click on Register	
	2	Type two different names into the Your name textfield.	
	3	Click the Join Game Buttons on your smartphones.	
	4	End both PC observer.	
Expected behavior	The PC observer should start a game. the Stopwhatches runs.		
Verdict	pass	**last run**	24.07.2017 17:07

3.4 Konfigurator

3.4.1 CheckingInvalidValues

Name	manual.PC_Observer.test.checkingInvalidValues	
Description	This test checks if the configurator shows a valid errormessage when the user tries to enter invalid values.	
Positive/Negative	negative	
Owner	RobinW	
Testpreparation	Start the smarten configurator	
Teststeps	1	set the player count to 23id. Click on Apply.
	2	set the player count to -4. Click on apply and click on File/Save.
	3	set the player count to 6. Click on apply and click on File/Save.
	4	set the board length to 'asdf'. Click on apply.
	5	set the board length to -3. Click on apply and click on File/Save.
	6	set the AI time (ms) to 'asdf'. Click on apply.
	7	set the AI time (ms) to -3. Click on apply and click on File/Save.
	8	set the Player time (ms) to 'asfd'. Click on apply.
	9	set the Player time (ms) to -3. Click on apply and click on File/Save.
	10	set the Presentation time to 'asfd'. Click on apply.
	11	set the Presentation time to -3. Click on apply and click on File/Save.
	12	set gate 0 to 'asdf'. Click on Apply button under the gate textfields.
Expected behavior	1: The following errormessage should be displayed on the configurator: 'ERROR: The entered value of the 'Player Count' textfield is no integer.' should be displayed as a message. 2, 3: The following errormessage should be displayed on the configurator: 'ERROR: *.turo.configurator.controller.configurationInvalidException: Not enough or to many players.' should be displayed as a message. 4: The following errormessage should be displayed on the configurator: 'ERROR: The entered value of the 'Board Length' textfield is no integer.' should be displayed as a message.	

	5: The following errormessage should be displayed on the configurator: 'ERROR: *.turo.configurator.controller.configurationInvalidException: The board size is to small.' should be displayed as a message. 6: The following errormessage should be displayed on the configurator: 'ERROR: The entered value of the 'AI time' textfield is no integer.' should be displayed as a message. 7: The following errormessage should be displayed on the configurator: 'ERROR: *.turo.configurator.controller.configurationInvalidException: The round time for the AI is to small.' should be displayed as a message. 8: The following errormessage should be displayed on the configurator: 'ERROR: The entered value of the 'Player time' textfield is no integer.' should be displayed as a message. 9: The following errormessage should be displayed on the configurator: 'ERROR: *.turo.configurator.controller.configurationInvalidException: The round time for the Player is to small.' should be displayed as a message. 10: The following errormessage should be displayed on the configurator: 'ERROR: The entered value of the 'Presentation time' textfield is no integer.' should be displayed as a message. 11: The following errormessage should be displayed on the configurator: 'ERROR: The entered value is no integer.' should be displayed as a message.		
Verdict	pass	**last run**	23.07.2017 20:36

3.4.2 CheckingValidValues

Name	manual.PC_Observer.test.checkingValidValues	
Description	This test checks if the configurator shows a valid errormessage when the user tries to enter invalid values.	
Positive/Negative	positive	
Owner	RobinW	
Testpreparation	Start the smarten configurator	
Teststeps	1	set the player count to 2. Click on Apply.
	2	set the board length to 5. Click on Apply.
	3	set the AI time (ms) to 30000. Click on Apply.
	4	set the Player time (ms) to 30000. Click on Apply.
	5	set the Presentation time to 2000. Click on Apply.

	6	click on the blocked positions board on the field (2,2).
	7	click on the blocked positions board on the field (2,2).
	8	click on the blocked positions board on the field (2,2).
	9	set the board length to 3. Click on Apply.
	10	set the board length to 5. Click on Apply.
	11	click on any player tile in your deck.
	12	click on any available tile.
	13	click on the textfield regarding gate 0 and enter any different number.
	14	click on the Apply button on the right hand side.
	15	click on File/Save.
	16	save the file in a specific directory.
	17	click on File/quit.
	18	open the smarten tsuro configurator again.
	19	click on File/open.
	20	open your saved configuration file.
Expected behavior	1 - 5: No errormessages should be displayed. 6: The field (2,2) is brighten. 7: The field (2,2) is dark again. 8: The field (2,2) is brighten again. 9: The blocked positions board becomes 3x3 in size. The field (2,2) is still brighten. 10: The blocked positions board becomes 5x5 in size. The field (2,2) is still brighten. 11: The clicked tile becomes brighten and the focused tile darkens again. 12: The focused tile is equal to the clicked tile and the gate numbers are changing regarding the new tile. 13: The other gate numbers change, so that a valid tile is created. 14: The focused tile changed its paths representing the calculated gates. 15: The file save dialog appears. 16: The configuration is saved in the chosen directory. 17: The configurator is closed. 18: The configuration is booting. 19: The file open dialog is displayed. 20: The same configuration is loaded again.	
Verdict	pass	**last run** | 23.07.2017 21:11

3.5 Server-Engine

3.5.1 ArrangeSingleGame

Name	manual.PC_Observer.test.arrangeSingleGame	
Description	This test checks if server engine is able to host a game	
Positive/Negative	positive	
Owner	ReneS	
Testpreparation	Start the smarten tsuro server. You need a valid configuration.	
Teststeps	1	Click Arrange Single Game
	2	Type a game room name.
	3	Click Choose Configuration
	4	Open the before created Configuration.
	5	Connect a client to the server, set a name and join the room.
	6	Click Create
	7	Drag one of your clients and drop them to the Player in the Game list.
	8	Choose the client as the starting player
	9	Click choose spectatores.
	10	Drag another client and drop it to the Player in the Game list.
	11	Click choose spectatores.
	12	Drag one of the spectator clients and drop them to the Player in the Game list.
	13	Click Start Game
Expected behavior	1: The following errormessage should be displayed on the configurator: 'ERROR: The entered value of the 'Player Count' textfield is no integer.' should be displayed as a message. 3: A file open dialog appears 5: The view changes. The connectet client(s) are displayed on the left list 7: The client is now displayed in the right list. 9: An errormessage is displayed, telling you there are not enough players. 11: The view changes 12: The spectator is added to the right Spectators in the Game list. 13: The server goes back to the starting screen. You see the clients starting a game.	

4 System Tests

4.1 System Tests 1

Name	manual.system.test.systemTest1		
Description	This test checks the complete system. All components will be involved in this test		
Positive/Negative	positive		
Owner	ReneS		
Testpreparation	The tester should have pre knowledge for testing the complete system.		
Teststeps	1	Start the smarten configurator.	
	2	Create a configuration with the following values: Player coun 4; Board length 7; AI time 10000; Player time 30000; Presentation Time 1000; Blocked positions (4,4) and choose some Tiles.	
	3	Save the configuration next to a smarten server.	
	4	Start the smarten server, load the saved configuration.	
	5	Connect all clients to the started smarten server.	
	6	Set a different name for all clients	
	7	Choose the same game room and connect the PC Observers to this game room	
	8	Connect the AI and the mobile clients to the same game room	
	9	Play against the AI until you or the AI wins the game.	
Expected behavior	1: The IP is set correctly 1: No error Messages are displayed. 2: The config file is saved correctly. 4: All clients are able to connect to the smarten server. 8: The game starts. All clients can follow the play. 9: There are no errormesseges or crashes.		
Verdict	pass	**last run**	24.07.2017 08:02

5 Überprüfung der Produktcharakteristiken

5.1 Systemanforderungen

Unsere Software wurde auf mehreren unterschiedlichen Geräten, welche die zuvor im Pflichtenheft definierten Hard-/ und Software Anforderungen erfüllen, getestet. Ein reibungsloser Ablauf kann also mit entsprechenden Geräten garantiert werden.

5.2 Nicht funktionale Anforderungen

Mithilfe unseres ausführlichen Review Konzeptes durch unsere gewissenhaften Teammitglieder, wurde jeder Code von mindestens zwei Teammitgliedern angeschaut und verstanden. Bei einem solchen Review wurde auch besonders Wert auf die nichtfunktionalen Anforderungen gelegt.

5.2.1 Codekommentare

Durch unsere ausführlichen Reviews können wir sicher stellen, dass unsere Codekommentare im Javadoc-Format und auf Englisch geschrieben sind.

5.2.2 Java Style Guidelines

Durch unsere ausführlichen Reviews können wir sicher stellen, dass der Code nach den Google Java Style Guidelines geschrieben wurde.

5.2.3 Dokumentation

Mithilfe von JavaDoc haben wir sämtlichen Code kommentiert. Dadurch wird es späteren Entwicklerteams deutlich vereinfacht, nachträgliche Änderungen an unserem Produkt vorzunehmen.

5.2.4 Trennung von Daten, Logik und View

Die Trennung von Daten, Logik und View wurde konsequent von uns durchgesetzt. Hier haben wir mithilfe des MVC Pattern zu jeder Komponente die Packages Model, View und Control erstellt, in denen die entsprechenden Klassen organisiert sind. Eine Ausnahme macht hier die Spielengine, die aufgrund von technischen Problemen und der mangelnden Ressourcen das MVC Pattern nicht komplett umsetzen konnte.

5.2.5 Spielerstellung

Unser Spielkonfigurator ist nicht in der lage falsche Konfigurationen zu erstellen. Dies konnte unter Zuhilfenahme unserer umfangreichen explorativen Tests sichergestellt werden.

5.2.6 Intuitive Bedienung

Die Intuitive Bedienbarkeit unserer Software ist nur sehr schwer zu messen, da jeder Mensch andere Strukturen als intuitiv empfindet. Wir haben dafür unsere Software einem möglichst großen Kreis an fachfremden Probanten gegeben, die unsere Software getestet und uns ausführliches Feedback gegeben haben. Durch die Zufriedenstellung dieser Testpersonen und ihrem guten Feedback können wir nun unsere Software als intuitve Bedienbar ansehen.

5.2.7 Handliche Bedienung

Es ist möglich alle Schaltflächen der App mit nur einem Finger zu bedienen.

A JUnit Test Documentation

The following takes effect for all tests:

- Testpreperation: The testing System needs eclipse 4.5.2 and the newest version of the code and tests.

A.1 Shared Components - GameModel

In the package `shared.gamemodel.test` following test classes were written:

A.1.1 ClientTest

Name	clientConstructorTest		
Owner	JostR	**Last run**	20.06.2017 18:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The correct functionality of the constructor ist tested. The test checks, if the get methods return the right values.		

Name	clientSetterTest		
Owner	JostR	**Last run**	20.06.2017 18:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The setClient ID ist tested. The test checks, if the method sets the values correctly.		

Name	ClientTest.clientToStringTest		
Owner	JostR	**Last run**	20.06.2017 18:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The test checks, if the overwritten toString method print the correct describing string.		

Name	clientConstructorTestNegative		
Owner	ReneS	**Last run**	20.06.2017 18:30
Positive/Negative	Negative	**Verdict**	pass
Discription	The correct functionality of the constructor ist tested. The test checks, if the get methods return the right values and are not equal to other values.		

Name	clientSetterTestNegative		
Owner	ReneS	**Last run**	20.06.2017 18:30
Positive/Negative	Negative	**Verdict**	pass
Discription	The setClient ID ist tested. The test checks, if the method sets the values correctly. It is checked if the new value is not equal to the old one.		

Name	clientToStringTestNegative		
Owner	ReneS	**Last run**	20.06.2017 18:30
Positive/Negative	Negative	**Verdict**	pass
Discription	The test checks, if the overwritten toString method print the correct describing string.		

A.1.2 ConfiguratbleTileTest

Name	constructorTestPositive		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The test checks, if the constructor works correctly and creates a correct configuration.		

Name	constructorTestNegative1		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Negative	**Verdict**	pass
Discription	The test checks, if the constructor gets wrong parameter, the constructor must not return a correct configuration. Wrong parameter: to many paths.		

Name	constructorTestNegative2		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Negative	**Verdict**	pass
Discription	The test checks, if the constructor gets wrong parameter, the constructor must not return a correct configuration. Wrong parameter: not enough path		

Name	constructorTestNegative3		
Owner	JostR	**Last run**	20.07.2017 14:30

Positive/Negative	Negative	**Verdict**	pass
Discription	The test checks, if the constructor gets wrong parameter, the constructor must not return a correct configuration. Wrong parameter: doubled gates.		

Name	notEqualToAnyObject		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Negative	**Verdict**	pass
Discription	The test checks, if the ConfigurableTile is not equal to an arbitrary object.		

Name	equalToSelf		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The test checks, if the ConfigurableTile ist equal to itself.		

Name	equalToClone1		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The test checks, if it is equal to identical structured clone.		

Name	equalToClone2		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The test checks, if it is equal to differently structured clone.		

Name	equalToClone3		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The test checks, if it is not equal to differently structured clone with different rotation.		

Name	notEqualToOtherTile1		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Negative	**Verdict**	pass
Discription	The test checks, if it is not equal to different tile with same rotation.		

Name	notEqualToOtherTile2		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Negative	**Verdict**	pass
Discription	The test checks, if it is not equal to different tile with different rotation.		

Name	getPathsStillEqual1		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The test checks, if it the paths are still equal (without rotation).		

Name	getPathsStillEqual2		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	The test checks, if it the paths are still equal (with rotation).		

A.1.3 ConfigurationTest

Name	constructorTestPositive		
Owner	ReneS	**Last run**	20.07.2017 22:26
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks the constructor and the getter methods of the Configuration object.		

Name	constructorTestNegative		
Owner	ReneS	**Last run**	20.07.2017 22:26
Positive/Negative	Negative	**Verdict**	pass
Discription	This test checks the constructor and the getter methods of the configuration object. The test checks if the values set in the constructor are not equal to different values returned from the get methods.		

Name	equalTestPositive		
Owner	ReneS	**Last run**	20.07.2017 22:26
Positive/Negative	Negative	**Verdict**	pass
Discription	This test checks, if a configuration is equal to itself.		

Name	equalTestNegative		
Owner	ReneS	**Last run**	20.07.2017 22:26
Positive/Negative	Negative	**Verdict**	pass
Discription	This test checks, if a configuration is not equal to a different object.		

A.1.4 GameTest

Name	getterTest		
Owner	JostR	**Last run**	20.07.2017 23:25
Positive/Negative	Positive	**Verdict**	pass
Discription	The test checks, if it the get methods work well. The methods getConfig, getGameId, and getName are called. The test checks if this get methods return the right values.		

Name	addPlayerTest		
Owner	JostR	**Last run**	20.07.2017 23:25
Positive/Negative	Positive/Negative	**Verdict**	pass
Discription	This test checks the addPlayer method. The addPlayer method is used to add different player. It returns a bool value if this player is added or not. Some player should be add and some must not. So this test contains positive and negative teststeps.		

Name	addWinnerTest		
Owner	JostR	**Last run**	20.07.2017 23:25
Positive/Negative	Positive/Negative	**Verdict**	pass
Discription	This test checks the addWinner method. The addWinner method is used to add different player. It returns a bool value if this player is added or not. Some player should be add and some must not. So this test contains positive and negative teststeps.		

Name	kickPlayerTest		
Owner	JostR	**Last run**	20.07.2017 23:25
Positive/Negative	Positive/Negative	**Verdict**	pass
Discription	This test trys to kick a player and if the kickstate is set to the right value. This test contains positive and negative teststeps.		

A.1.5 PathTest

Name	notEqualsToAnyObject		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Negative	**Verdict**	pass
Discription	This test checks, if a path is not equal to an object which is not a ConfigurableTile.		

Name	equalToSelf		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if the path object is equal to itself.		

Name	equalToClone1		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if the path object is equal to identical structured clone		

Name	equalToClone2		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if the path object is equal to differently structured clone		

Name	notEqualsToDifferentPath		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Negative	**Verdict**	pass
Discription	This test checks, if the path object is not equal to different path object		

Name	equalsAfterRerouting		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if the path object is equal after a reroute.		

Name	equalsAfterSetting		
Owner	JostR	**Last run**	20.07.2017 14:30

Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if the path object is equal after setting new parameters.		

Name	onlySettingOwner		
Owner	JostR	**Last run**	20.07.2017 14:30
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if a player object can be set as owner for the path object.		

A.1.6 PlayerTest

Name	playerConstructorTest1Positive		
Owner	JostR	**Last run**	20.07.2017 23:30
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if the constructor works fine. A constructor sets values. The test checks the return values of the get methods.		

Name	playerConstructorTest1Negative		
Owner	JostR	**Last run**	20.07.2017 23:30
Positive/Negative	Negative	**Verdict**	pass
Discription	This test checks, if the constructor works fine. A constructor sets values. The test checks the return values are not equal to different values.		

Name	playerConstructorTest2Positive		
Owner	JostR	**Last run**	20.07.2017 23:30
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if the constructor works fine. A constructor sets values. The test checks the return values of the get methods. The client is not set.		

Name	playerConstructorTest2Negative		
Owner	JostR	**Last run**	20.07.2017 23:30
Positive/Negative	Negative	**Verdict**	pass

Discription	This test checks, if the constructor works fine. A constructor sets values. The test checks the return values are not equal to different values. The Client is not set.

Name	tileListTestSet		
Owner	JostR	**Last run**	20.07.2017 23:30
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if the player's tile list can be set correctly and if it can not be set a second time.		

Name	tileListTestRemove		
Owner	JostR	**Last run**	20.07.2017 23:30
Positive/Negative	Positive	**Verdict**	pass
Discription	This test checks, if a tile can be added to the player's tile list and if it can not be set a second time.		

A.2 Shared Components - Network

A.2.1 GameModelTranslatorTest

Name	ePositionToPositionPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an ePosition. The GameModelTranslator convert the ePosition to a Position. The test checks if the values were converted correctly.		

Name	ePositionToPositionNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an ePosition. The GameModelTranslator convert the ePosition to a Position. The test checks if the values were converted correctly.		

Name	PositionToEPositionPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass

Discription	This test creates a position. The GameModelTranslator convert the position to an ePosition. The test checks if the values were converted correctly.

Name	PositionToEPositionNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a position. The GameModelTranslator convert the position to an ePosition. The test checks if the values were converted correctly.		

Name	rotationToERotationPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an eRotation. The GameModelTranslator convert the eRotation to a rotation. The test checks if the values were converted correctly.		

Name	rotationToERotationNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an eRotation. The GameModelTranslator convert the eRotation to a rotaiton. The test checks if the values convert correctly.		

Name	eRotationToRotationPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates a rotation. The GameModelTranslator convert the rotation to an eRotaiton. The test checks if the values convert correctly.		

Name	eRotationToRotationNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass

Discription	This test creates a rotation. The GameModelTranslator convert the eRotation to a Rotaiton. The test checks if the values convert correctly.

Name	eGateToGatePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an eGate. The GameModelTranslator convert the eGate to a gate. The test checks if the values convert correctly.		

Name	eGateToGateNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an eGate. The GameModelTranslator convert the eGate to a gate. The test checks if the values convert correctly		

Name	gateToEGatePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates a gate. The GameModelTranslator convert the gate to an eGate. The test checks if the values convert correctly		

Name	gateToEGateNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a gate. The GameModelTranslator convert the gate to an eGate. The test checks if the values convert correctly		

Name	eGameStateToGameStatePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an eGameState. The GameModelTranslator convert the eGameState to a gameState. The test checks if the values convert correctly		

Name	eGameStateToGameStateNegative

Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an eGameState. The GameModelTranslator convert the eGameState to a gameState. The test checks if the values convert correctly		

Name	gameStateToEGameStatePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates a gameState. The GameModelTranslator convert the gameState to an eGameState. The test checks if the values convert correctly		

Name	gameStateToEGameStateNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a gameState. The GameModelTranslator convert the gameState to an eGameState. The test checks if the values convert correctly		

Name	eFinishedReasonToFinishedReasonPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an eFinishedReason. The GameModelTranslator convert the eFinishedReason to a finishedReason. The test checks if the values convert correctly		

Name	eFinishedReasonToFinishedReasonNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an eFinishedReason. The GameModelTranslator convert the eFinishedReason to a finishedReason. The test checks if the values convert correctly		

Name	finishedReasonToEFinishedReasonPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass

Discription	This test creates a finishedReason. The GameModelTranslator convert the finishedReason to an eFinishedReason. The test checks if the values convert correctly

Name	finishedReasonToEFinishedReasonNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a finishedReason. The GameModelTranslator convert the finishedReason to an eFinishedReason. The test checks if the values convert correctly		

Name	eJoinResponseToJoinResponsePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	eJoinResponseToJoinResponsePositive		

Name	eJoinResponseToJoinResponseNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an eJoinResponse. The GameModelTranslator convert the eJoinResponse to a joinResponse. The test checks if the values convert correctly		

Name	joinResponseToEJoinResponsePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates a joinResponse. The GameModelTranslator convert the joinResponse to an eJoinResponse. The test checks if the values convert correctly		

Name	joinResponseToEJoinResponseNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a joinResponse. The GameModelTranslator convert the joinResponse to an eJoinResponse. The test checks if the values convert correctly		

Name	eKickReasonToKickStatePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an eKickReason. The GameModelTranslator convert the eKickReason to a kickReason. The test checks if the values convert correctly		

Name	eKickReasonToKickStateNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an eKickReason. The GameModelTranslator convert the eKickReason to a kickReason. The test checks if the values convert correctly		

Name	kickStateToEKickReasonPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates a kickReason. The GameModelTranslator convert the kickReason to an eKickReason. The test checks if the values convert correctly		

Name	kickStateToEKickReasonNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a kickReason. The GameModelTranslator convert the kickReason to an eKickReason. The test checks if the values convert correctly		

Name	eClientRoleToRolePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an eClientRole. The GameModelTranslator convert the eClientRole to a clientRole. The test checks if the values convert correctly		

Name	eClientRoleToRoleNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35

Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an eClientRole. The GameModelTranslator convert the eClientRole to a clientRole. The test checks if the values convert correctly		

Name	roleToEClientRolePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates a clientRole. The GameModelTranslator convert the clientRole to an eClientRole. The test checks if the values convert correctly		

Name	roleToEClientRoleNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a clientRole. The GameModelTranslator convert the clientRole to an eClientRole. The test checks if the values convert correctly		

Name	ePlacementToPlacementPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an ePlacement. The GameModelTranslator convert the ePlacement to a placement. The test checks if the values were converted corretly.		

Name	ePlacementToPlacementNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an ePlacement. The GameModelTranslator convert the ePlacement to a placement. The test checks if the values were converted corretly.		

Name	placementToEPlacementPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass

Discription	This test creates a placement. The GameModelTranslator convert the placement to an ePlacement. The test checks if the values were converted corretly.

Name	placementToEPlacementNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a placement. The GameModelTranslator convert the placement to an ePlacement. The test checks if the values were converted corretly.		

Name	eTileToTilePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an eTile. The GameModelTranslator convert the eTile to a tile. The test checks if the values were converted corretly.		

Name			
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an eTile. The GameModelTranslator convert the eTile to a tile. The test checks if the values were converted corretly.		

Name	tileToETilePositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates a tile. The GameModelTranslator convert the tile to an eTile. The test checks if the values were converted corretly.		

Name	tileToETileNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a tile. The GameModelTranslator convert the tile to an eTile. The test checks if the values were converted corretly.		

Name	eTokenToTokenPositive

Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an eToken. The GameModelTranslator convert the eToken to a token. The test checks if the values were converted corretly.		

Name	eTokenToTokenNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates an eToken. The GameModelTranslator convert the eToken to a token. The test checks if the values were converted corretly.		

Name	tokenToETokenPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates a token. The GameModelTranslator convert the token to an eToken. The test checks if the values were converted corretly.		

Name	tokenToETokenNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a token. The GameModelTranslator convert the token to an eToken. The test checks if the values were converted corretly.		

Name	eConfigurationToConfigurationPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates an eConfiguration. The GameModelTranslator convert the eConfiguration to a configuration. The test checks if the values were converted corretly.		

Name	eConfigurationToConfigurationNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass

Discription	This test creates an eConfiguration. The GameModelTranslator convert the eConfiguration to a configuration. The test checks if the values were converted corretly.

Name	configurationToEConfigurationPositive		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Positive	**Verdict**	pass
Discription	This test creates a configuration. The GameModelTranslator convert the configuration to an eConfiguration. The test checks if the values were converted corretly.		

Name	configurationToEConfigurationNegative		
Owner	ReneS	**Last run**	20.07.2017 14:35
Positive/Negative	Negative	**Verdict**	pass
Discription	This test creates a configuration. The GameModelTranslator convert the configuration to an eConfiguration. The test checks if the values were converted corretly.		

A.3 Shared Components - Utility

A.3.1 StopwatchTest

Name	stopwatchIsNotOffTime		
Owner	JostR	**Last run**	20.07.2017 23:37
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests if a started Stopwatch thread is not off by more than a few milliseconds to the system time when started and stopped without pausing. The test is made over an average of a thousand runs.		

Name	stopwatchIsOffTime		
Owner	JostR	**Last run**	20.07.2017 23:37
Positive/Negative	Negative	**Verdict**	pass
Discription	Tests if a started Stopwatch thread is indeed off by more than a few milliseconds to the system time when started and stopped with pausing it but not the system time. The test is made over an average of a thousand runs.		

Name	stopwatchNotification		
Owner	JostR	**Last run**	20.07.2017 23:37
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests if a listening object is notified if the Stopwatch's time is up and if that happens with a reasonable amount of lag.		

Name	stopwatchNotificationNotifyTimes		
Owner	JostR	**Last run**	20.07.2017 23:37
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests if a listening object is notified if the Stopwatch's time is passing the defined notify times and if that happens with a reasonable amount of lag. Tested without pausing the Stopwatch.		

Name	stopwatchNotificationNotifyTimesPausing		
Owner	JostR	**Last run**	20.07.2017 23:37
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests if a listening object is notified if the Stopwatch's time is passing the defined notify times and if that happens with a reasonable amount of lag. Tested with pausing the Stopwatch.		

Name	stopwatchNotificationRegular		
Owner	JostR	**Last run**	20.07.2017 23:37
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests if a listening object is notified each n milliseconds and if that happens with a reasonable amount of lag. Tested without pausing the Stopwatch.		

A.3.2 TileTranslatorTest

Name	onlyOneTileArrayIsCreated		
Owner	JostR	**Last run**	24.06.2017 13:15
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests if the static properties of the TileTranslator are working, that only one instance of it will be created systemwide and that all the Tiles are created only once.		

Name	convertTest1

Owner	JostR	**Last run**	24.06.2017 13:15
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests the convertToTile method for all tile IDs.		

Name	convertTest2		
Owner	JostR	**Last run**	24.06.2017 13:15
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests the convertToTile and the convertToConfigurableTile method for all tile IDs.		

Name	convertTest3		
Owner	JostR	**Last run**	24.06.2017 13:15
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests the nested convertToTile and the convertToConfigurableTile method for all tile IDs.		

Name	convertTest4		
Owner	JostR	**Last run**	24.06.2017 13:15
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests the convertToTile method for all tile IDs and ConfigurableTiles.		

Name	convertTest5		
Owner	JostR	**Last run**	24.06.2017 13:15
Positive/Negative	Positive	**Verdict**	pass
Discription	Tests the convertToConfigurableTile method for all tile IDs and Tiles.		

Name	testConfigurableTileValues		
Owner	JostR	**Last run**	24.06.2017 13:15
Positive/Negative	Positive/Negative	**Verdict**	pass
Discription	Tests if everytime any configurable tile, in every direction is searched a result is found.		