Use Case Model

Inkboard

11/11/04

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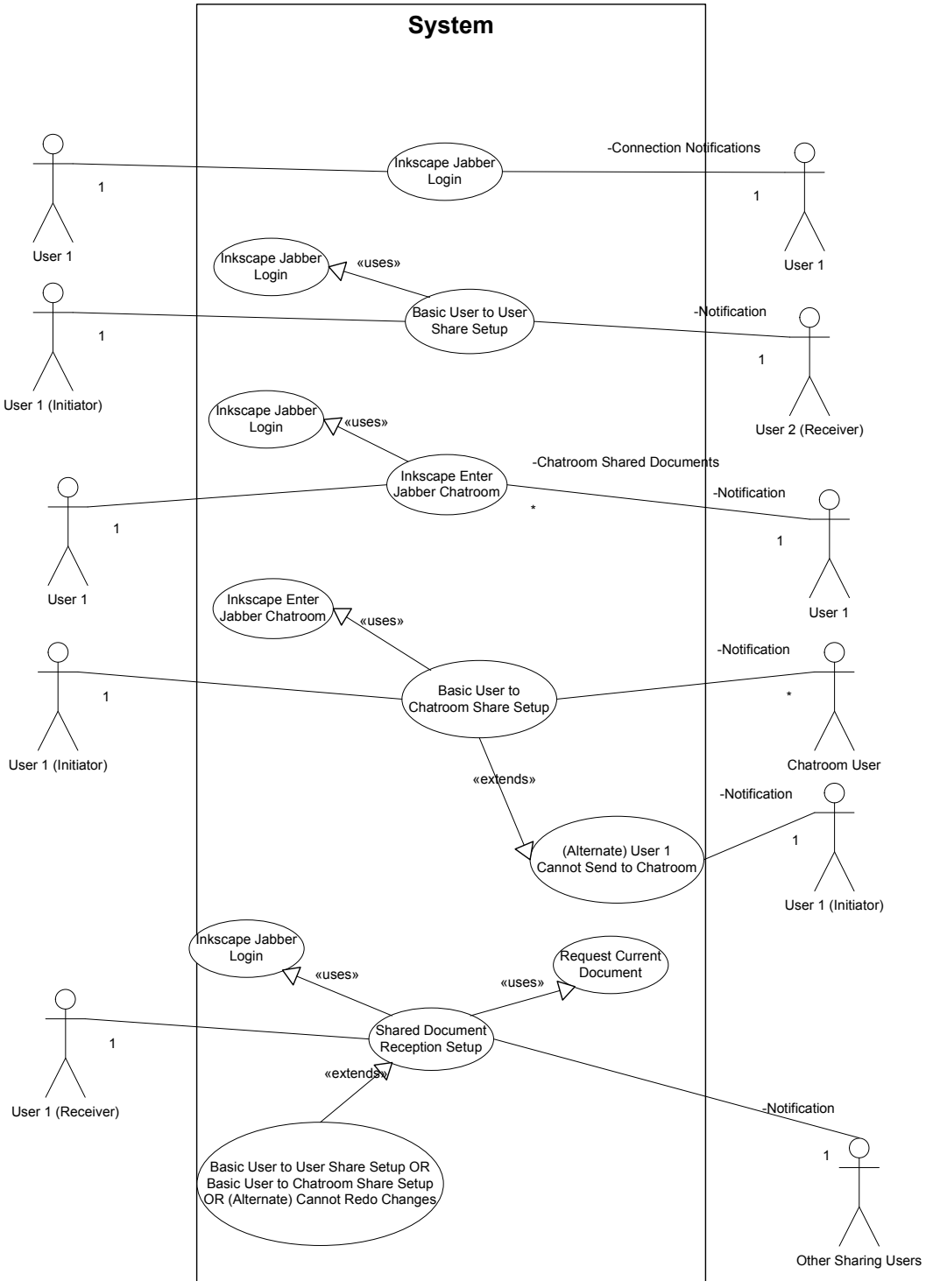
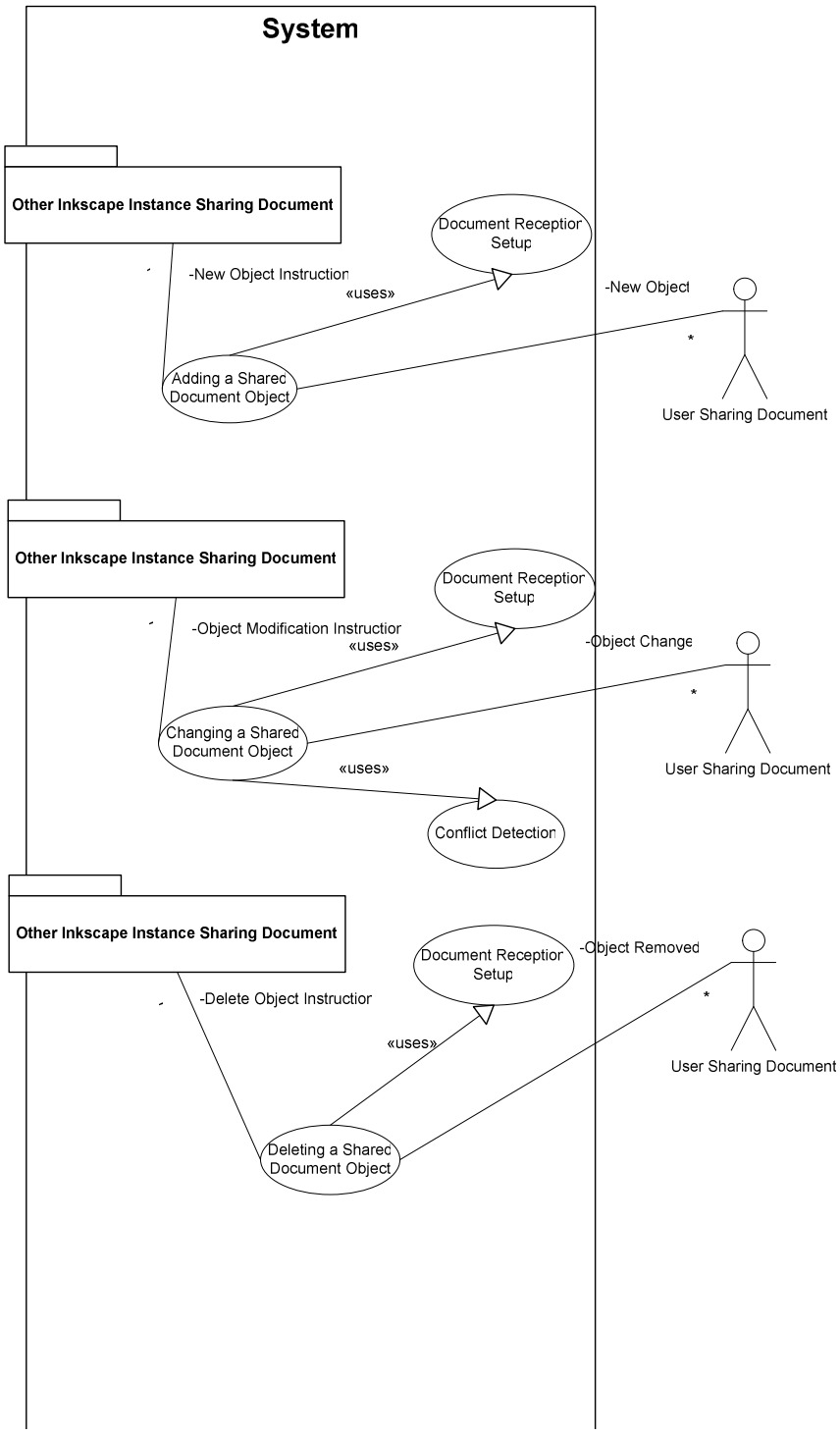
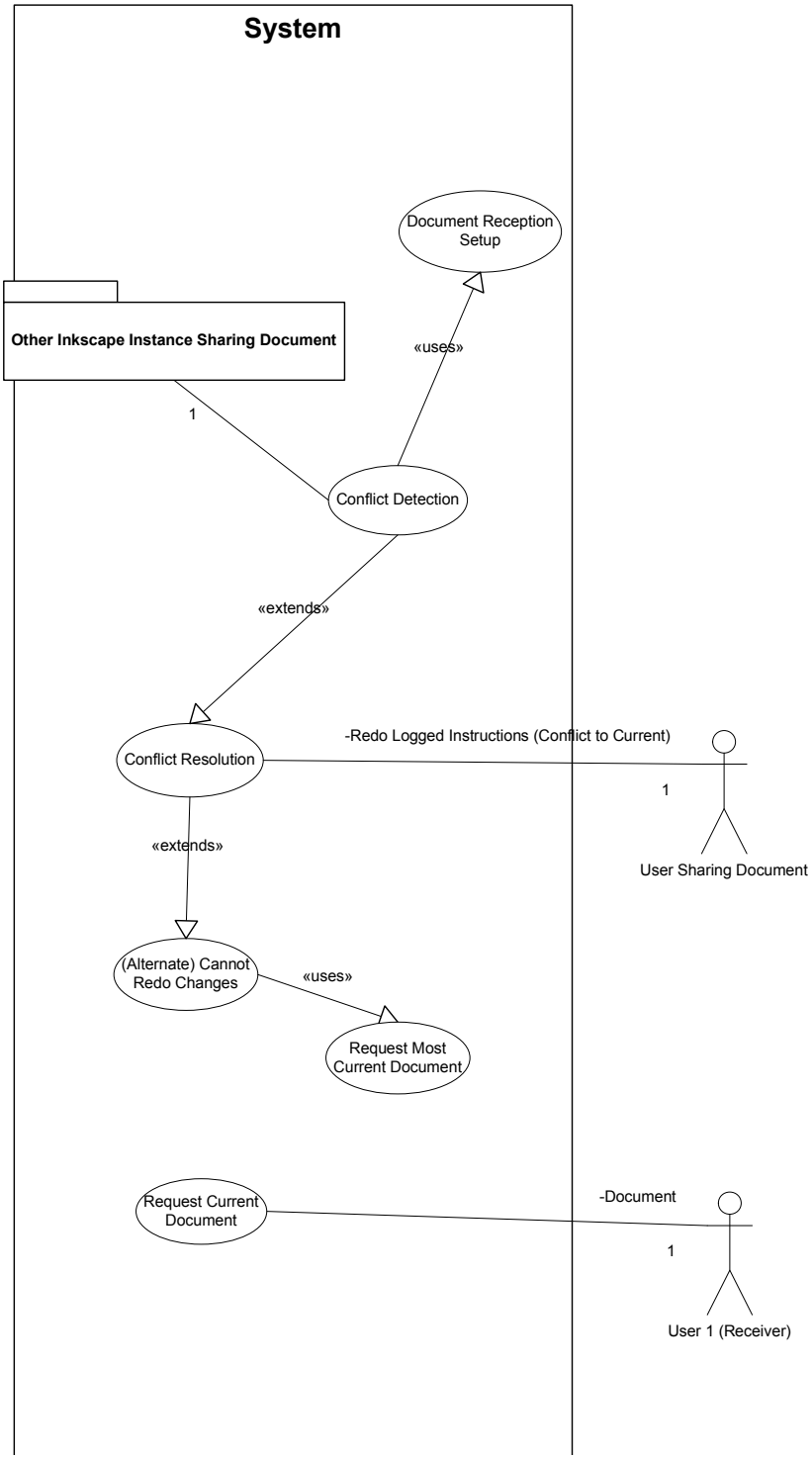
1. Use-Case Diagram


System
Inkscape Jabber Login
-Connection Notifications
1
User 1
1
User 1
Inkscape Jabber Login
«uses»
Basic User to User Share Setup
-Notification
1
User 1 (Initiator)
1
User 2 (Receiver)
Inkscape Jabber Login
«uses»
Inkscape Enter Jabber Chatroom
-Chatroom Shared Documents
-Notification
1
User 1
*
1
User 1
Inkscape Enter Jabber Chatroom
«uses»
Basic User to Chatroom Share Setup
-Notification
1
User 1 (Initiator)
*
Chatroom User
«extends»
(Alternate) User 1 Cannot Send to Chatroom
-Notification
1
User 1 (Initiator)
Inkscape Jabber Login
«uses»
Request Current Document
«uses»
Shared Document Reception Setup
1
User 1 (Receiver)
«extends»
Basic User to User Share Setup OR Basic User to Chatroom Share Setup OR (Alternate) Cannot Redo Changes
-Notification
1
Other Sharing Users


System
Other Inkscape Instance Sharing Document
Document Reception Setup
-New Object Instruction
«uses»
-New Object
*
Adding a Shared Document Object
User Sharing Document
Other Inkscape Instance Sharing Document
Document Reception Setup
-Object Modification Instruction
«uses»
-Object Change
*
Changing a Shared Document Object
User Sharing Document
«uses»
Conflict Detection
Other Inkscape Instance Sharing Document
Document Reception Setup
-Object Removed
-Delete Object Instruction
*
«uses»
User Sharing Document
Deleting a Shared Document Object



2. Use Cases

Item	Value

Use-case name	Inkscape Jabber Login
Brief description	The user establishes a Jabber connection
Actor(s) involved	User
Basic flow of events	1. User opens Inkscape 2. User opens or creates an Inkscape Document (or continues using the default document) 3. User clicks the File->Connect Whiteboard menu option 4. User is presented with a Jabber login screen 5. User logs on to a Jabber server 6. User is notified that the login was successful
Alternate flow(s) of events	User Fails to Log in to Jabber Server 1. User opens Inkscape 2. User opens or creates an Inkscape Document 3. User clicks the File->Connect Whiteboard menu option 4. User is presented with a Jabber login screen 5. User attempts to log on to a Jabber server, but fails 6. User is notified that the login was unsuccessful
Pre-conditions to use case	1. User has a valid Jabber account 2. User can contact a Jabber server
Post-conditions of use case	1. User should now be able to use Whiteboard features of Inkscape
Special requirements	None

Item	**Value**
Use-case name	Basic User to User Share Setup
Brief description	The user shares one Inkscape document with a single Jabber user
Actor(s) involved	User 1 (The user sharing the document) User 2 (The user receiving the document)
Basic flow of events	1. User 1 enters or selects User 2 and offers to share the current document 2. User 2 accepts the shared document 3. User 1 is informed that an Inkboard connection has been established 4. The document being shared by User 1 appears on the screen of User 2 in a new Inkscape window
Alternate flow(s) of events	User 2 does not accept the connection (refuses the connection, is not logged in, is not running Inkscape, etc.) 1. User 1 enters or selects User 2 and offers to share the current document 2. User 2 rejects the shared document 3. User 1 is informed that an Inkboard connection has been

	denied
Pre-conditions to use case	1. (Use Case: Inkscape Jabber Login) 2 User 2 accepts the document shared by User 1
Post-conditions of use case	1. Both users should see the shared image in an Inkscape window
Special requirements	None

Item	**Value**
Use-case name	Inkscape Enter Jabber Chatroom
Brief description	The user establishes a Jabber connection
Actor(s) involved	User
Basic flow of events	1. User enters or selects the name of a chatroom 2. User chooses to join the chatroom 3. User is provided with notification of documents being shared in the chatroom and the opportunity to share them
Alternate flow(s) of events	User Fails to Join Jabber Chatroom (Not allowed to Join, Loses Connection, etc.) 1. User enters or selects the name of a chatroom 2. User chooses to join the chatroom 3. User receives notification that the attempt to join the chatroom failed
Pre-conditions to use case	1. (Inkscape Jabber Login)
Post-conditions of use case	1. User should now be able to share documents being shared with the chatroom
Special requirements	None

Item	**Value**
Use-case name	Basic User to Chatroom Share Setup
Brief description	The user shares one Inkscape document with all users in a Jabber chat room
Actor(s) involved	User 1 (The user sharing the document) Chat Users (All users in the chat room with which the document is shared except User 1)
Basic flow of events	1. User 1 enters or selects the name of a chat room 2. Chat Users receive notification that a new file is available
Alternate flow(s) of events	User 1 cannot send to the target chat room (denied permission to enter, denied permission to post messages, chat room does not exist, etc.) 1. User 1 enters or selects the name of a chat room on the server and chooses to share the current document 2. User 1 is informed that an Inkboard connection cannot be established
Pre-conditions to use case	1. (Use Case: Inkscape Enter Jabber Chatroom)

	2. User 1 can send messages to the target chat room
Post-conditions of use case	1. Chat Users should see popup with option to view User 1's shared document
Special requirements	None

Item	**Value**
Use-case name	Shared Document Reception Setup
Brief description	The user logs in to a Jabber server, is presented with an Inkboard share request, and accepts the shared document
Actor(s) involved	User 1 (The user receiving the document) User 2 (The user sharing the document)
Basic flow of events	1. User 2 attempts to share a document with User 1 (Use Case: Basic User to User Share Setup OR Basic User to Chat Room Share Setup) 2. User 1 is presented with a share request from User 2 3. User 1 accepts the request 4. User 1 sees the document being shared by User 2 in a new Inkscape window 5. User 2 sees a notification that User 1 is now sharing the document
Alternate flow(s) of events	User 1 Declines to Share the Document 1. User 2 attempts to share a document with User 1 (See Case: Basic User to User Share Setup) 2. User 1 is presented with a share request from User 2 3. User 1 rejects the request 4. User 2 sees a notification that User 1 has rejected the share request
Pre-conditions to use case	1. (Use Case: Basic User to User Share Setup OR Basic User to Chat Room Share Setup) 2. User 1 accepts the document shared by User 2
Post-conditions of use case	(Use Case: Request Current Document) 2. User 1 should see User 2's shared document in a new Inkscape window
Special requirements	None

Item	**Value**
Use-case name	Adding a Shared Document Object
Brief description	One user adds a new object to the shared document and any user with whom it is being shared sees the new object
Actor(s) involved	User 1 (The user changing the document) User 2 (Another user sharing the document)
Basic flow of events	1. User 1 adds the new object to the shared document 2. User 2 sees the new object added by User 1

Alternate flow(s) of events	Either user ceases sharing the document before the change is received (disconnected, logged off, or disabled sharing) 1. User 1 adds the new object to the shared document 2. User 2 continues to see the document as it existed previous to (1)
Pre-conditions to use case	1. (Use Case: Shared Document Reception Setup) 2. User 1 and User 2 continue to share the document until the change has been received by User 2
Post-conditions of use case	1. Both users should see new object on the shared Inkscape document
Special requirements	None

Item	**Value**
Use-case name	Modifying a shared Document Object
Brief description	One user changes an object in the shared document and any user with whom it is being shared sees the changed object
Actor(s) involved	User 1 (The user changing the document) User 2 (Another user sharing the document)
Basic flow of events	1. User 1 changes an object in the shared document 2. User 2 sees the changes made by User 1
Alternate flow(s) of events	Either user ceases sharing the document before the change is received (disconnected, logged off, or disabled sharing) 1. User 1 changes an object in the shared document 2. User 2 continues to see the document as it existed previous to (1) User 2 has already made a change to the object that User 1 has not yet received 1. User 2 changes an object in the shared document 2. User 1 changes the same object 3. User 1 receives the change made in (1) 4. User 2 receives the change made in (2) 5. See Use Case: Collision Detection
Pre-conditions to use case	1. . (Use Case: Shared Document Reception Setup) 2. User 1 and User 2 continue to share the document until the change has been received by User 2
Post-conditions of use case	1. Both users should now see the change made to the Inkscape document object by User 1
Special requirements	None

Item	**Value**
Use-case name	Deleting a shared Document Object
Brief description	One user removes an object from the shared document and

	any user with whom it is being shared no longer sees the object
Actor(s) involved	User 1 (The user changing the document) User 2 (Another user sharing the document)
Basic flow of events	1. User 1 deletes an object from the shared document 2. User 2 no longer see the object deleted by User 1
Alternate flow(s) of events	Either user ceases sharing the document before the change is received (disconnected, logged off, or disabled sharing) 1. User 1 deletes an object in the shared document 2. User 2 continues to see the document as it existed previous to (1) User 2 has already made a change to the object that User 1 has not yet received 1. User 2 changes an object in the shared document 2. User 1 deletes the same object 3. User 1 receives the change made in (1) 4. User 2 receives the change made in (2) 5. User 1's instance of Inkscape ignores the change, since the object no longer exists 6. User 2's instance of Inkscape removes the object
Pre-conditions to use case	1. (Use Case: Shared Document Reception Setup) 2. User 1 and User 2 continue to share the document until the change has been received by User 2
Post-conditions of use case	1. Neither user should see the Inkscape document object deleted by User 1
Special requirements	None

Item	**Value**
Use-case name	Conflict Detection
Brief description	The system identifies a potential conflict, a situation in which two users think they are making the "next" change to the document
Actor(s) involved	User 1 (User making a change to a shared document) User 2 (Another user sharing a document with User 1)
Basic flow of events	1. User 1 changes a shared document object 2. User 1's instance of Inkscape receives a message indicating that User 2 made a change or add operation that was simultaneous with User 1's operation (they have the same message number) 3. User 1's instance of Inkscape determines that the changes conflict with one another (Ex: User 1 and User 2 are trying to set the same property of the same object to different values.)

	4. (See Use Case: Conflict Resolution)
Alternate flow(s) of events	The changes do not cause a collision 1. User 1 changes a shared document object 2. User 1's instance of Inkscape receives a message indicating that User 2 made a change or add operation that was simultaneous with User 1's operation (they have the same message number) 3. User 1's instance of Inkscape determines that the changes do not conflict with one another (Ex: User 1 and User 2 are trying to set two unrelated attributes of the same object, or attributes of different objects.) 4. User 2's changes can be implemented normally
Pre-conditions to use case	1. . (Use Case: Shared Document Reception Setup)
Post-conditions of use case	1. (Use Case: Conflict Resolution)
Special requirements	None

Item	**Value**
Use-case name	Conflict Resolution
Brief description	The system checks the User Order established as each user connected to the shared document. The change made by the user with the highest User Order index should be implemented last, if two messages have the same message number. This instance of Inkscape is in a Conflict Resolution state because it has already implemented a change out of order. (It received two messages with the same message number, but only received the change with the highest User Order after it had implemented the one with the lowest User Order)
Actor(s) involved	User (User of this instance of Inkscape)
Basic flow of events	1. The new change (the one that should originally have been implemented last) is implemented. 2. All subsequent changes (those with message numbers after the message number of the conflicting messages) are re-implemented in order to return the document to its current state.
Alternate flow(s) of events	The subsequent changes cannot be re-implemented (this instance of Inkscape no longer holds all the necessary information) 1. (Request Current Document)
Pre-conditions to use case	1. (Use Case: Conflict Detection)
Post-conditions of use case	1. User sees the correct version of the document

Special requirements	None

Item	Value
Use-case name	Request Current Document
Brief description	This instance of Inkscape requests the latest version of the shared document and replaces whatever it is currently viewing with the correct document. (Usually, this means setting up the current document on a blank page when sharing begins. It may also be used to resolve collisions when other options are not available.)
Actor(s) involved	User (User of this instance of Inkscape)
Basic flow of events	1. This instance of Inkscape sends a request for the latest version of the document to all other instances known to be sharing the document, then waits for a reply 2. This instance of Inkscape sends a request confirmation message to the first other instance to reply. The other instance then sends its current version of the document. 3. User sees the current version of the document
Alternate flow(s) of events	
Pre-conditions to use case	1. (Use Case: nkscape Reception Setup)
Post-conditions of use case	1. User sees the current version of the document
Special requirements	None

To Do List

#	Who	Due	What
1	Undecided	Undecided	Update “Modifying a shared Document Object” to reflect future design decision on conflict resolution
2			

Revision History

Date	Who	Revision
09/23/04	Jason Segal	Created Document
10/13/04	Steven Montgomery	Modified to reflect changes communicated by client on 10/07/04 and better understanding of Jabber(clients can be connected to different servers and still communicate)
11/11/04	Jason Segal	Updated Document and Created Complementary UML Document (“Use Case UML Diagrams.vsd”)

Last updated: 09/20/2004 10:27:50