knowledge16

Experience the Service Revolution



# Source Control

## Tracking Your Application Development in Git


CHRIS MALOY
SR. SOLUTION ARCHITECT
ServiceNow

CHUCK TOMASI
PLATFORM ARCHITECT
ServiceNow


© 2016 ServiceNow All Rights Reserved

servicenow

# Introduction: Chris Maloy

Sr. Architect, Platform Specialist



- 17+ Years Professional Development Experience
- Almost 5 years here at ServiceNow
- Worked with many customers
- Background in Integrations
- Background in Automation
- Other stuff:
  - Family man (4 kids), snowboard, food, home brewer, travel, video games, comic books



© 2016 ServiceNow All Rights Reserved

# Introduction: Chuck Tomasi

Platform Architect, Solution Consulting

- 30+ Years IT experience
- ServiceNow Customer 2008-2010
- First Innovation of the Year Award Winner @K10
- ServiceNow (various roles) 2010-Present
- Lots of custom apps, integrations, special projects
- Co-host of ServiceNow web series TechNow
- Other stuff:
  - Author, Podcaster, golfer, downhill skier, photographer, sci-fi geek, podcaster, martial artist





© 2016 ServiceNow All Rights Reserved

# We Encourage Participation






© 2016 ServiceNow All Rights Reserved

# Agenda

The Basics – Terminology, Architecture, and Setup

Branching and Tagging



Conflict Resolution

Stashing



Q&A



© 2016 ServiceNow All Rights Reserved

# Business Case

Why build this integration?

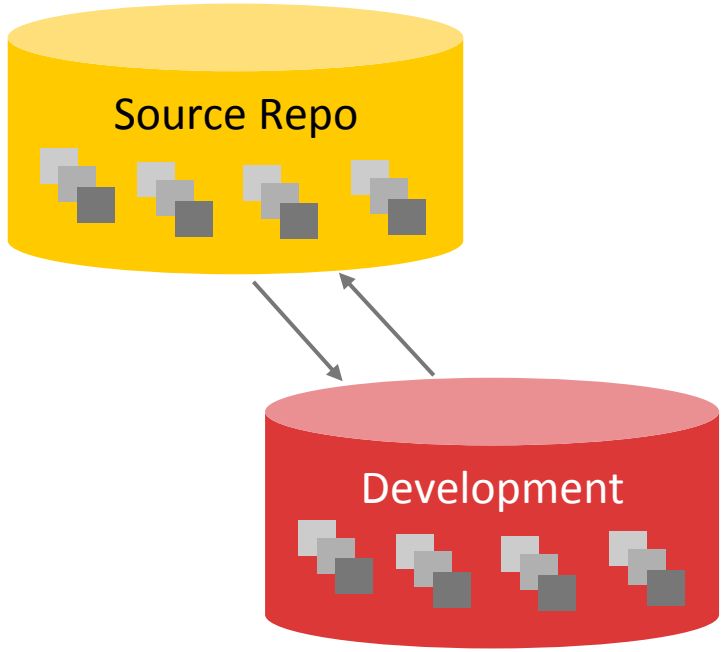




© 2016 ServiceNow All Rights Reserved

# Business Case

- Enable Release Management
- Next step in supporting app development
  - Using tools and methodologies that developers are familiar with
- Customer request
- Commit history in Git






© 2016 ServiceNow All Rights Reserved

# Terminology

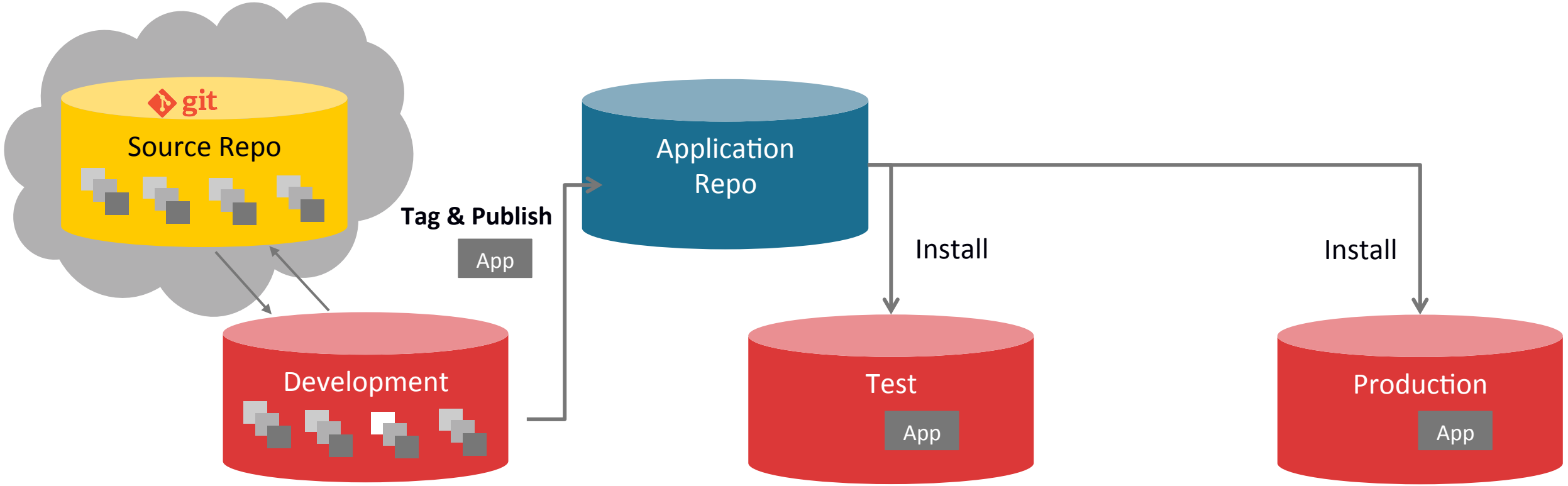
- Repository
  - Git Repo – a collection of files in a Git database
  - SN App Repo – a database containing SN apps
- Commit – sending local changes to Git
- Stash – storing local changes on your instance for later application
- Merge – combining changes from different branches, or local vs. remote changes
- Branch – a copy of an apps files under the same account. Typically a version/release
- Fork – a copy of a repository under a new account (includes branches)
- Tag – a point in time marker. Once set, it cannot be modified. Can be used to create a branch in ServiceNow
- Version
  - Git Version
  - ServiceNow Version
- Publish – the process of sending the current local application to the ServiceNow repository. Once published, the app is available to other ServiceNow instances linked to that repository
- Import – Bringing an existing app in a Git repository in to ServiceNow
- Link – Connecting a local ServiceNow application to a new Git repository



© 2016 ServiceNow All Rights Reserved

# Architecture

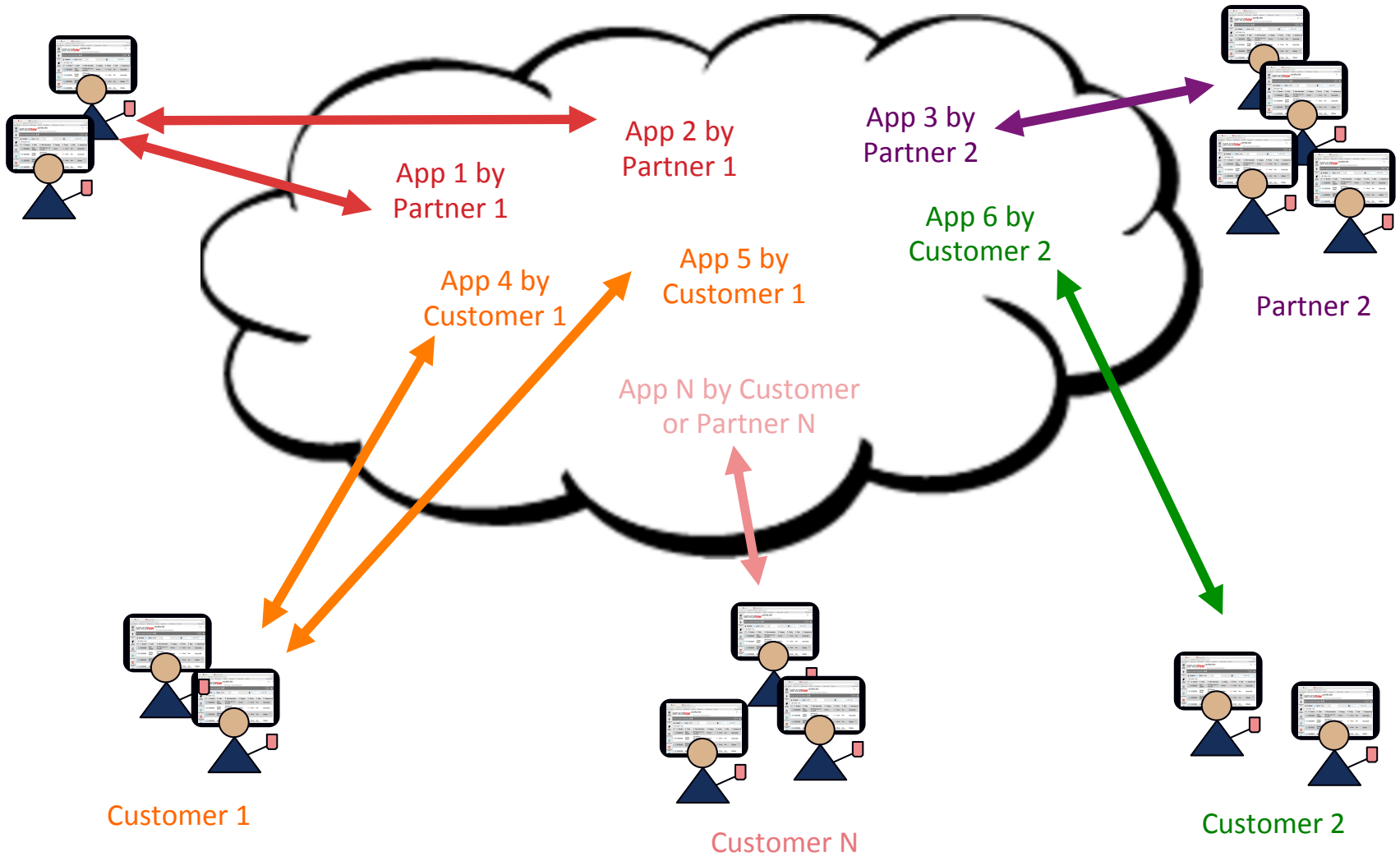
## Source Control Integration






© 2016 ServiceNow All Rights Reserved

# ServiceNow Repository






© 2016 ServiceNow All Rights Reserved

# Development with Source Control

- Tracking Files
  - Develop in ServiceNow (make updates, commit, pull into another instance)
- Release Management
  - Create a tag when publishing
  - Create a branch from existing tag and then patch development
- Branch for testing (and dead end branches)
- Collaboration
  - Single and multiple development instances
  - Integration and tooling is not a replacement for development collaboration
  - Pull changes before next commit and can merge changes



© 2016 ServiceNow All Rights Reserved

# Caveats

- Only supporting Git integration for VCS
- Works only with scoped applications
- Have to use Studio to link applications to Git repo
- Git repository must be accessible from instance via HTTPS
- All or nothing commit (commits all changes in app instance)
- We store credentials in instance
- MID Server not supported in Helsinki
- Development outside of ServiceNow not supported
- Changing branches removes all local files and reloads the selected branch from the repo
- Publishing your app does an implicit commit



© 2016 ServiceNow All Rights Reserved

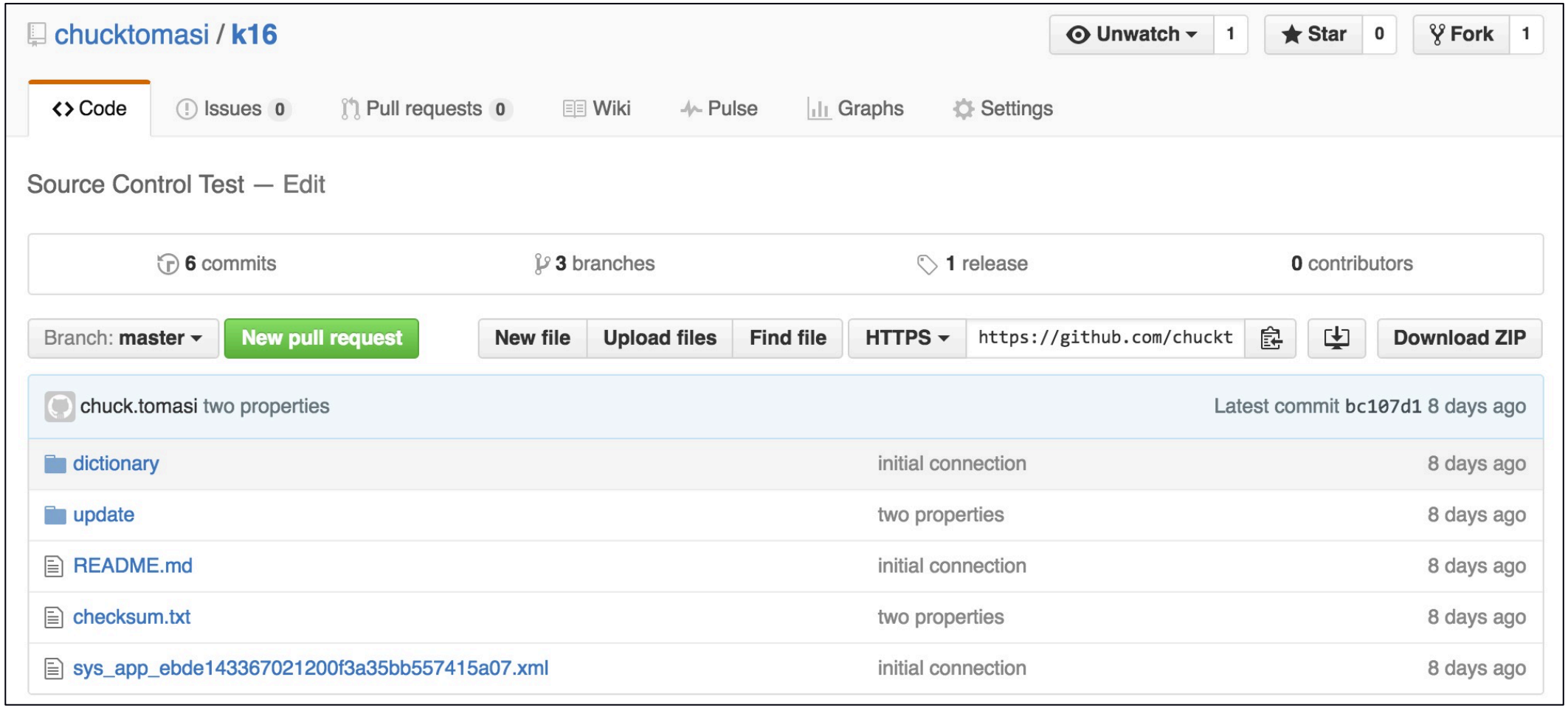
# How This Works with Team Development

- Team Development
  - Allows work in global scope
  - Code review
  - Enforce application lifecycle
  - Selective as to which changes you wish to push into a master developer instance
  - Not app specific
- Git Integration
  - Enables different flow
    - Patch Management Solution
    - Release Management Solution
  - Track code outside of ServiceNow
  - Agile
    - You can reset an instance and reimport code quickly
  - Application focused
  - Commits all changes no matter who made them



© 2016 ServiceNow All Rights Reserved

# The GitHub UI

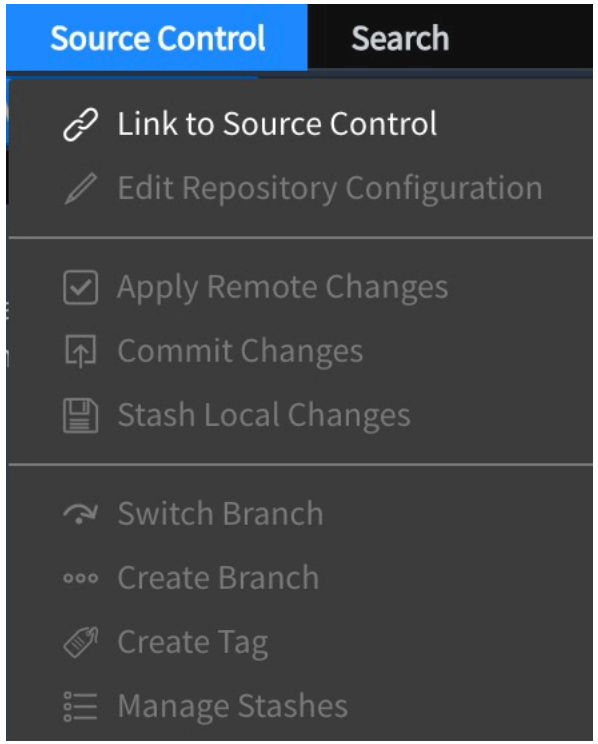


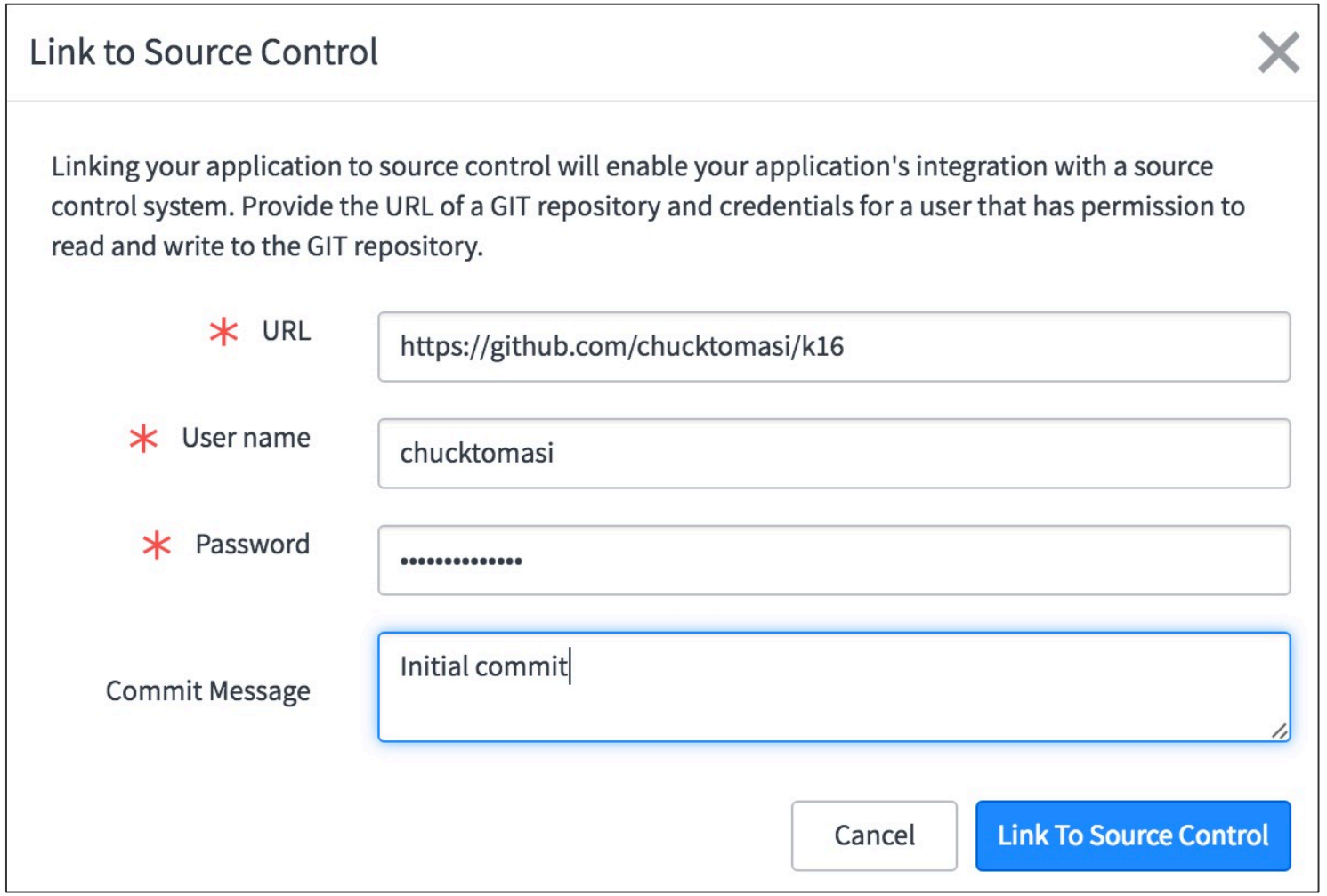

DEMO



© 2016 ServiceNow All Rights Reserved

# ServiceNow Source Control UI



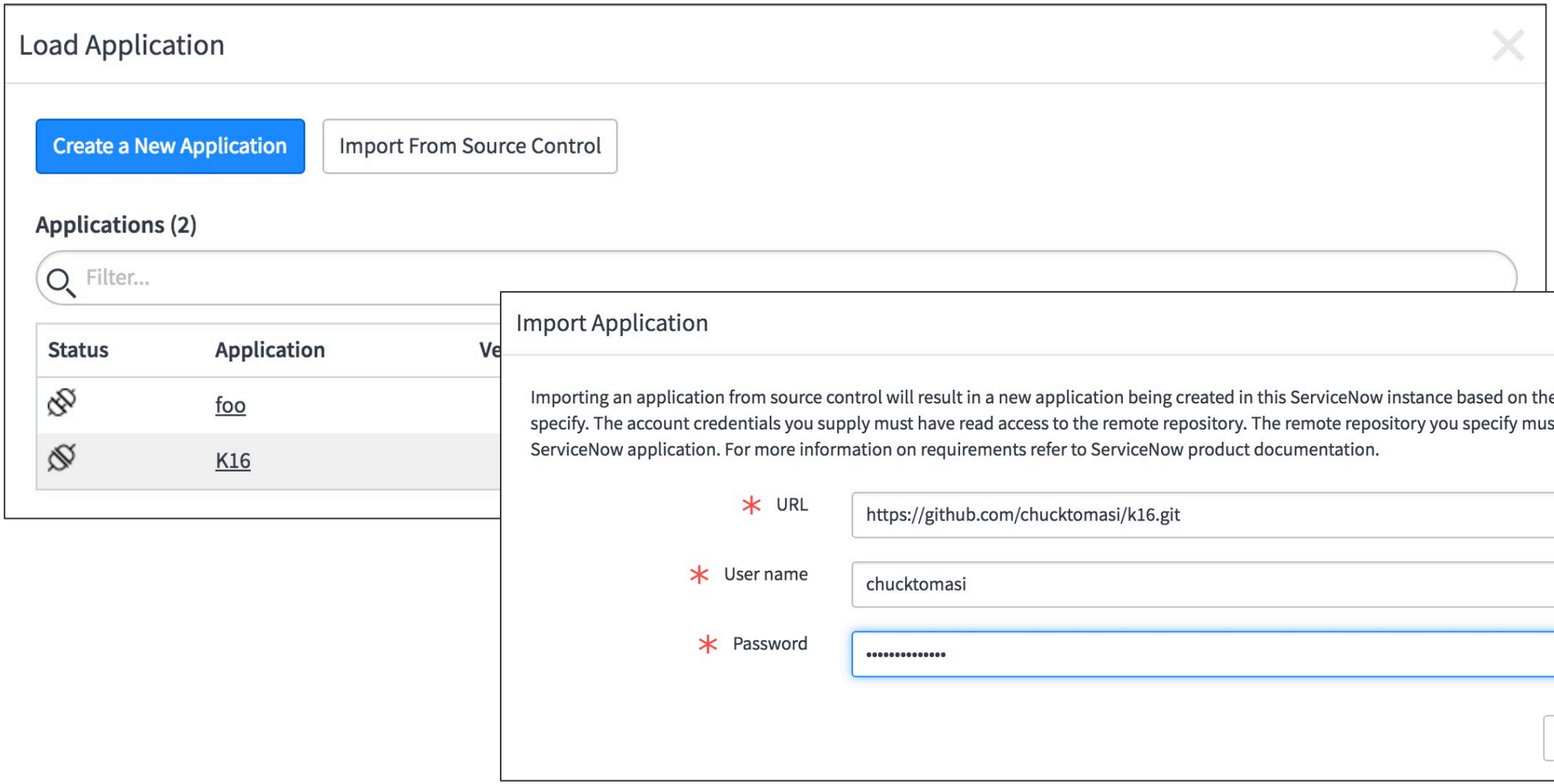




DEMO



© 2016 ServiceNow All Rights Reserved

# ServiceNow Source Control UI









© 2016 ServiceNow All Rights Reserved

# Let’s Do Lab 1.1

Basics



© 2016 ServiceNow All Rights Reserved

# Branching and Tagging

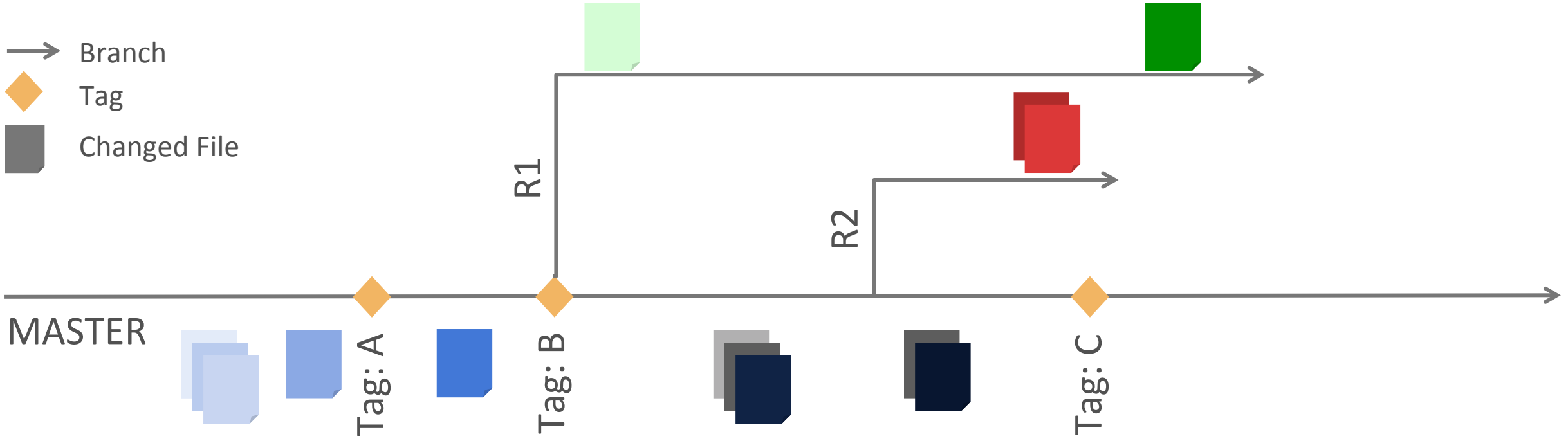
Managing Revisions





© 2016 ServiceNow All Rights Reserved

# Branching and Tagging

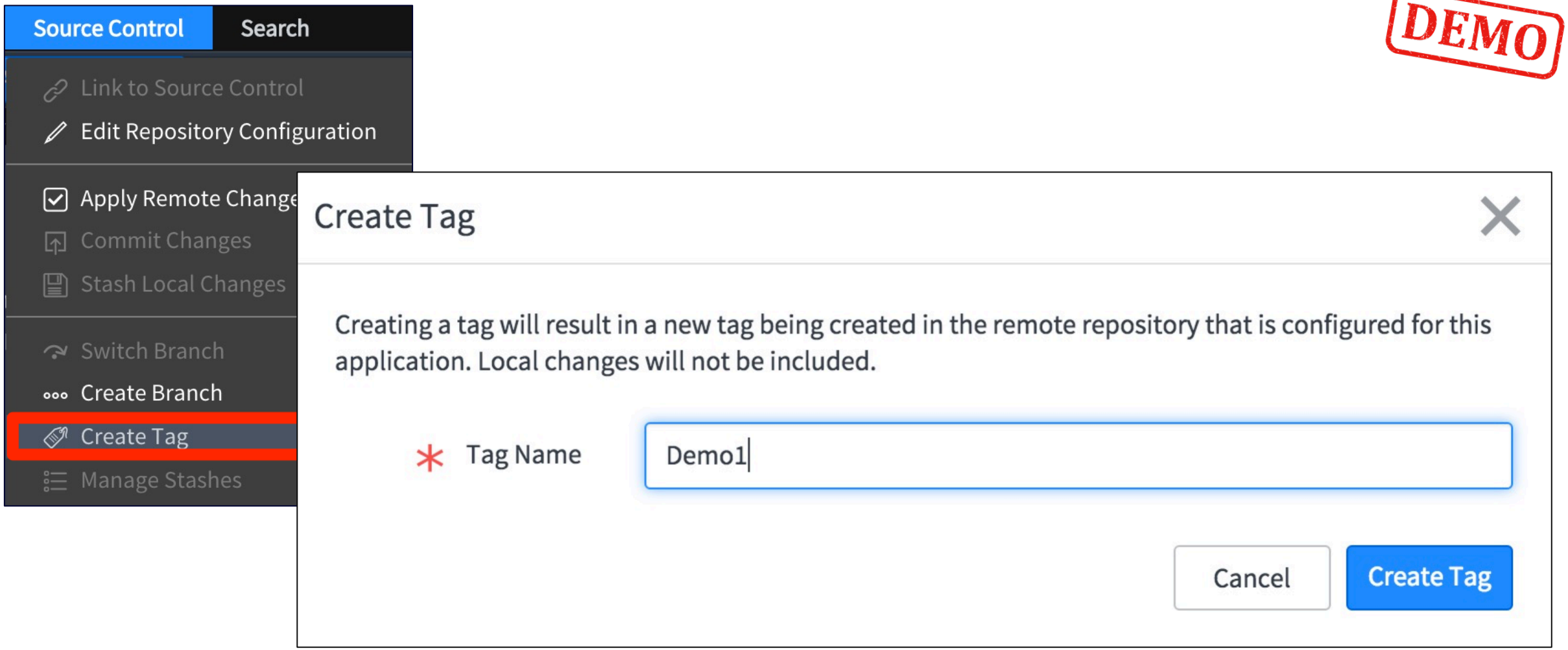



Yes, you can create branches off of branches – be careful!



© 2016 ServiceNow All Rights Reserved

# Creating a Tag

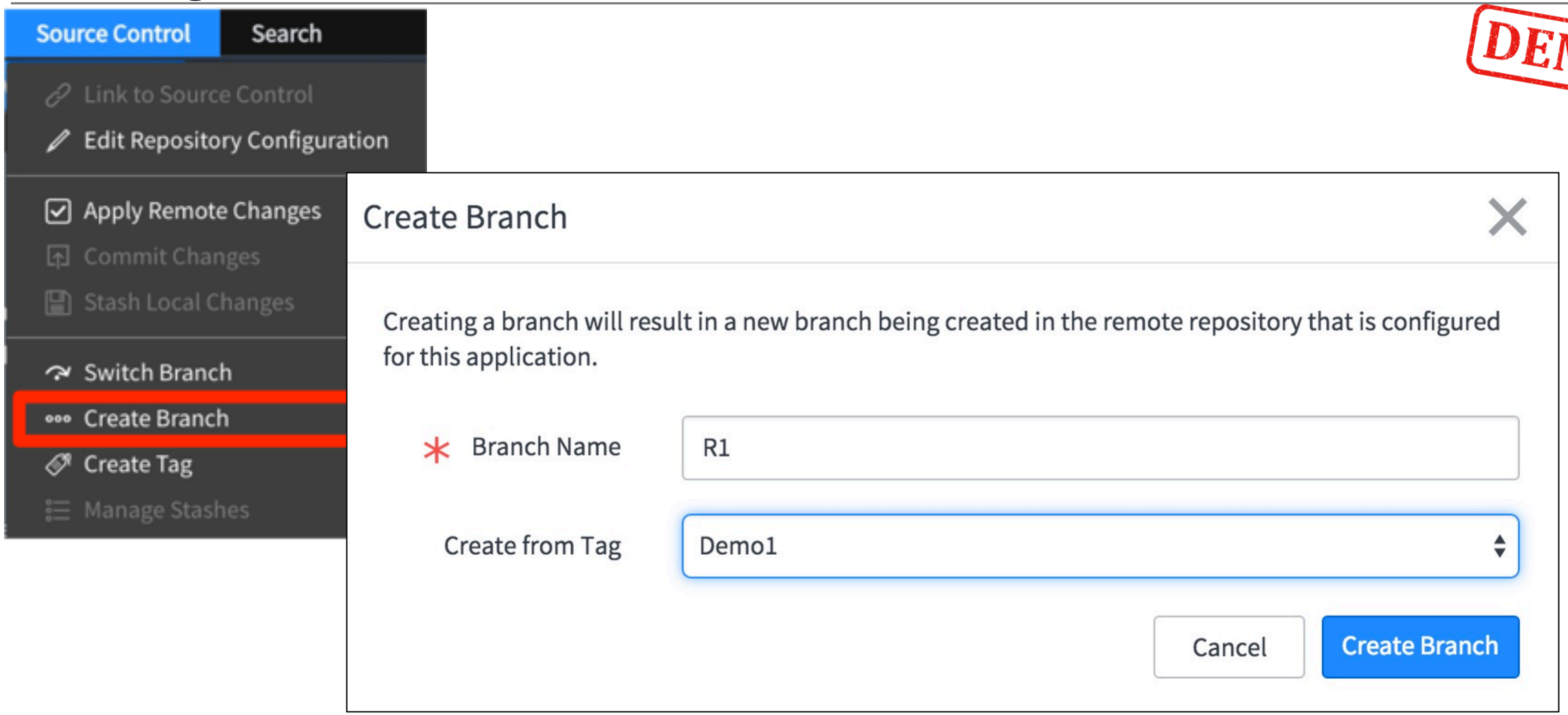



DEMO



© 2016 ServiceNow All Rights Reserved

# Creating a Branch




DEMO



© 2016 ServiceNow All Rights Reserved

# Important Reminder

Switching Branches removes all files of the current branch and reloads all files from the repository!

Larger apps will take a longer time to switch

You could lose local changes



© 2016 ServiceNow All Rights Reserved

# Let’s Do Lab 1.2

Tagging and Branching



© 2016 ServiceNow All Rights Reserved

# Conflict Resolution

WHEW! That was close!



© 2016 ServiceNow All Rights Reserved

# Multiple Instances

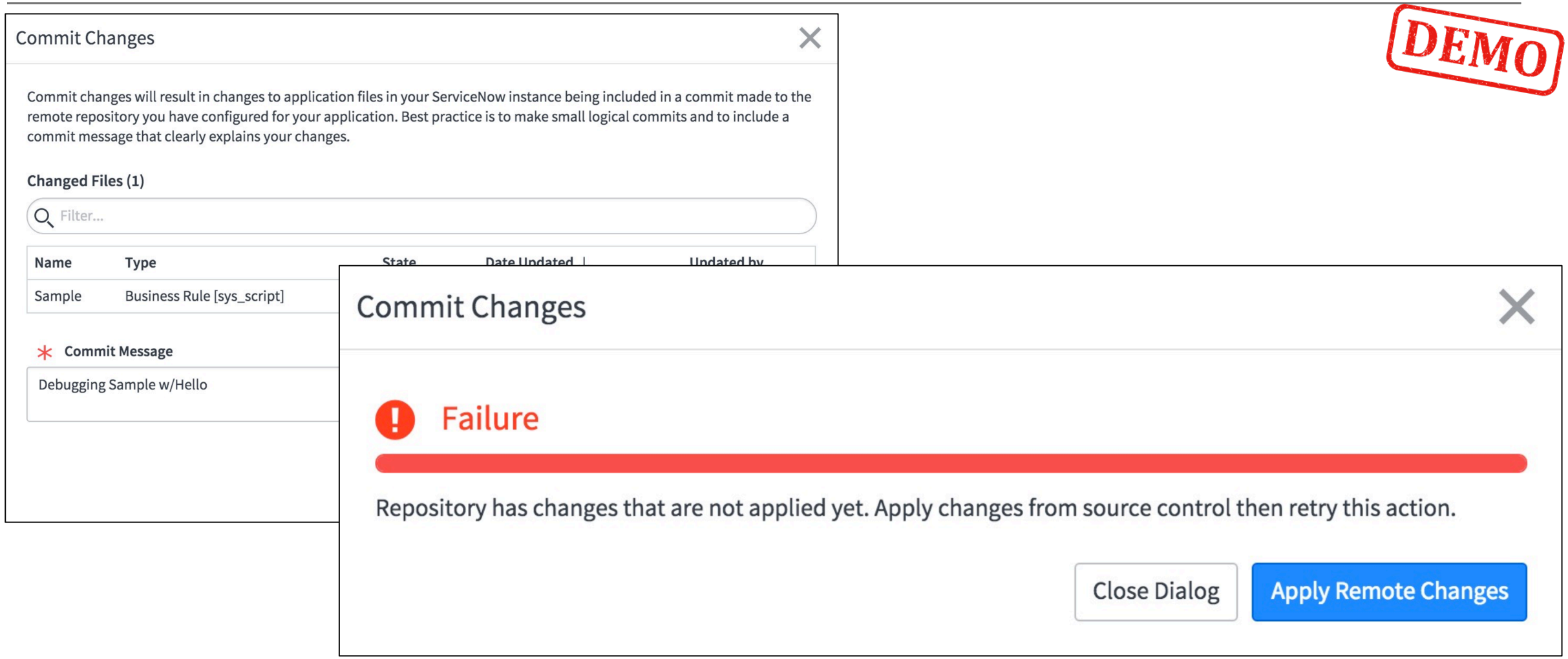
- Chris creates BR
- Chris commits changes
- Chuck pulls changes & gets BR
- Chris updates BR & commits
- Chuck updates BR & tries to commit
- System detects conflict
- Chuck can elect to
  - Use Chris' update 100% (overwrite his own), or
  - Stash his changes, use Chris' update, apply stash
- Chuck commits changes






© 2016 ServiceNow All Rights Reserved

# Conflict Resolution




DEMO



© 2016 ServiceNow All Rights Reserved

# Conflict Resolution




## Apply Remote Changes

Performing this action saves any changed application files, pulls the latest version of application files from the repository, and then applies them to this instance. When complete, your application file versions will match those in the repository, and you will have a stash of local changes you can recover and apply at a later time. You have the option to save (stash) or discard any local changes that have not yet been committed to your repository.

**Locally Changed Files (1)**

Filter...

| Name | Type | State | Date Updated ↓ | Updated By |
|---|---|---|---|---|
| Sample | Business Rule [sys_script] | modified | 2016-03-03 20:35:02 | admin |

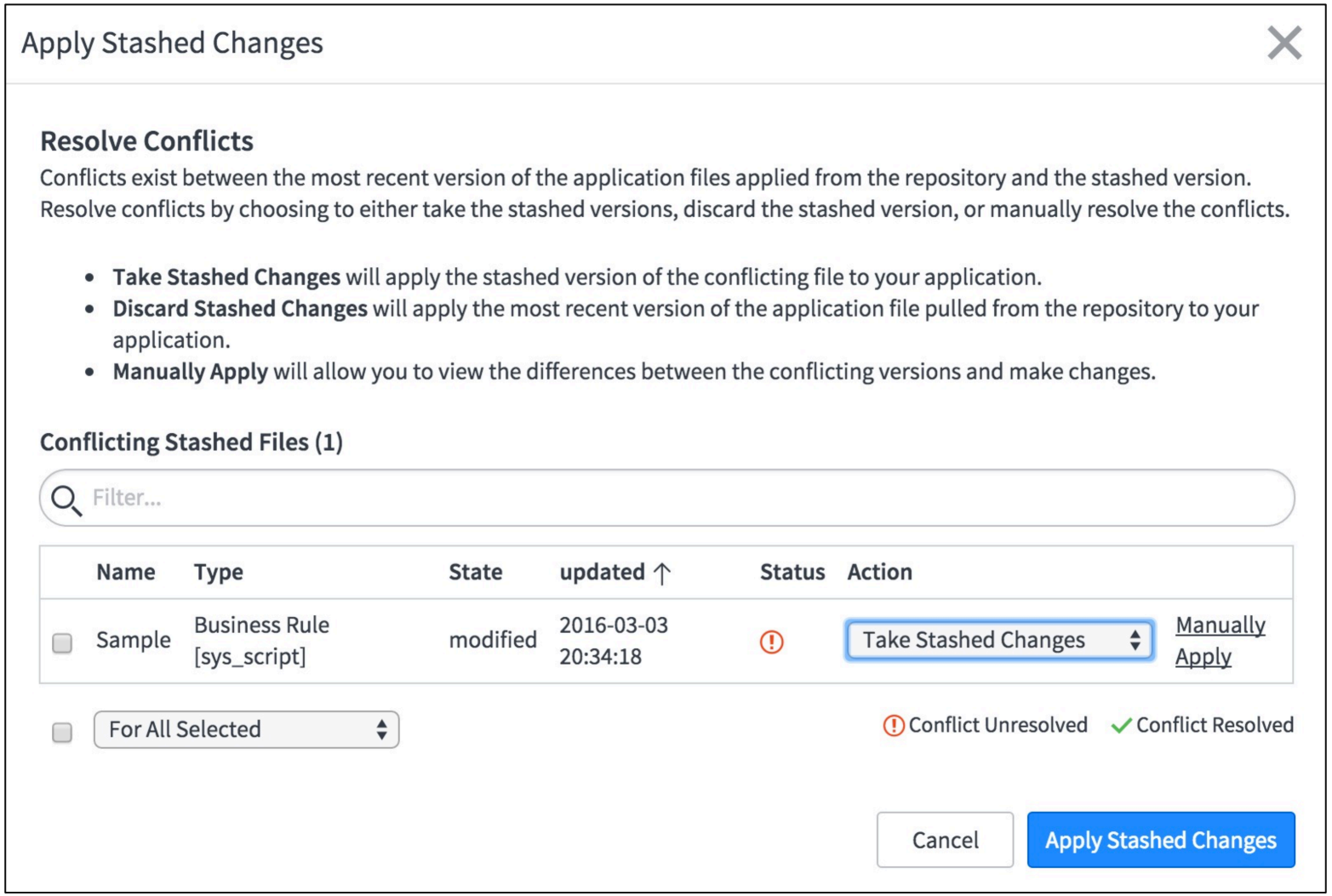
○ Discard local changes ◉ Stash local changes

Cancel | Apply Remote Changes



© 2016 ServiceNow All Rights Reserved

# Conflict Resolution




DEMO



© 2016 ServiceNow All Rights Reserved

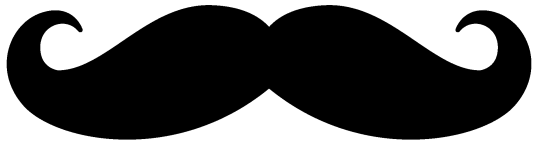
# Let’s Do Lab 2.1

Conflict Resolution



© 2016 ServiceNow All Rights Reserved

# Stashing





© 2016 ServiceNow All Rights Reserved

# Stash Use Cases



Keep a copy of your local changes

Apply that copy to another branch

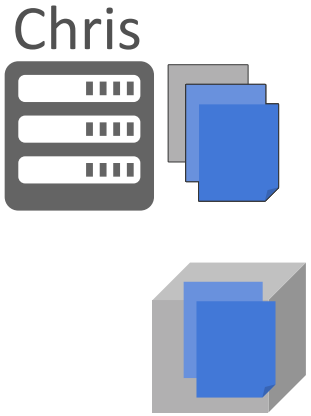


© 2016 ServiceNow All Rights Reserved

# Stashing Your Changes

- Chris creates a file & commits it to the master branch
- He creates a R1 branch then creates two more files on that branch
- He wants to apply these files to the master branch
- He creates a stash with the two local changes,
- Applies the stash to the R1 branch & commits,
- Switches branches to master,
- Applies the stash to the master & commits






You can only create a stash from local changes



© 2016 ServiceNow All Rights Reserved

# Stashing UI




Source Control | Search

- Link to Source Control
- Edit Repository Configuration
- Apply Remote Changes
- Commit Changes
- Stash Local Changes
- Switch Branch
- Create Branch
- Create Tag
- Manage Stashes

**Stash Local Changes**

Performing this action saves any changed application files, pulls the latest version of application files from the repository, and then applies them to this instance. When complete, your application file versions will match those in the repository, and you will have a stash of local changes you can recover and apply at a later time.

**Locally Changed Files (5)**

Filter...

| Name | Type | | | |
|---|---|---|---|---|
| Description | Table Column [sys_dictionary] | | | |
| User | Table Column [sys_dictionary] | | | |
| Description | sys_documentation | | | |
| User | sys_documentation | modified | 2016-03-23 22:22:01 | admin |
| Sample | Business Rule [sys_script] | modified | 2016-03-23 22:18:40 | admin |

Cancel | Stash Local Changes

**Stash Local Changes**

Success

Successfully applied commit bc107d17c8e7bd8d94e2a91188a313d287c34504 from source control

Close Dialog | Apply Stashed Changes



© 2016 ServiceNow All Rights Reserved

# Applying Stashed Changes




Manage Stashes

**Stashes (1)**

Filter...

| User Actions | Name | Description | Created On ↓ |
|---|---|---|---|
| Apply Delete | Stash of changes on bc107d17c8e7bd8d94e2a91188a313d287c34504 | Stash Changes developed on commit bc107d17c8e7bd8d94e2a91188a313d287c34504 Does not target a particular commit Can be previewed multiple times onto multiple commitsContains changes overwritten by operation Import Application | 2016-03-23 22:23:13 |

ose Dialog

All changes in a stash are applied together



© 2016 ServiceNow All Rights Reserved

# Let’s Do Lab 3.1

Manual Stashing



© 2016 ServiceNow All Rights Reserved

# Top Takeaways – Source Control

1. Offers you improved management of your app development.
2. Allows easy distribution to other development instances.
3. Leverages industry standard applications.



© 2016 ServiceNow All Rights Reserved

## Take the Survey

Please take a moment to complete a session survey in the Knowledge16 app.

# Thank You


**Chris Maloy**

*Sr. Solution Architect*

ServiceNow

chris.maloy@servicenow.com

**Chuck Tomasi**

*Platform Architect*

ServiceNow

chuck.tomasi@servicenow.com


Instance Registration: https://klabs.link/sc | #Know16

© 2016 ServiceNow All Rights Reserved