# RD Web Access and Web Client Theme Development Tutorial

Show Image Show Image Show Image

A comprehensive guide to developing custom themes for Remote Desktop Web Access (RD Web Access) and RDS Web Client. Learn to customize the appearance and branding of your RD Web interface.

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*https://github.com/KashifzGit/RDP-Web-Webclient-theme-*

## Overview

Remote Desktop (RD) Web Access provides a browser-based interface for accessing remote desktops and applications. Theme development allows you to customize the appearance and branding of the RD Web client to match your organization's identity and requirements.

This tutorial covers:

- Creating custom themes from scratch
- Styling the login/logon page
- Customizing the connection center interface
- Integrating custom images and assets
- Implementing responsive design
- Deploying themes to production
- Advanced customization techniques

## Prerequisites

Before starting, ensure you have:

- **Windows Server 2012 R2 or later** with Remote Desktop Services installed
- **Remote Desktop Web Access role service** enabled
- **Basic knowledge** of HTML, CSS, and JavaScript

- **Administrator access** to the RDS server
- **Text editor or IDE** for development (Visual Studio Code, Sublime Text, etc.)
- **Modern web browser** for testing (Edge, Chrome, Firefox, Safari)

# Architecture

## Key Components

| Component | Description | Location |
|---|---|---|
| RDClientHost.html | Main entry point for web client | Web root |
| Themes Folder | Theme storage directory | %ProgramFiles%\Rds\Web\App_Themes |
| CSS Files | Style sheets for theming | Theme folder |
| JavaScript Files | Client-side logic | Theme folder |
| Image Assets | Logo, backgrounds, icons | App_Themes\YourTheme\images |

## Directory Structure

```
%ProgramFiles%\Remote Desktop Services\Web Access\App_Themes\
├── Default/
│   ├── theme.css
│   ├── logon.css
│   ├── theme-rtl.css
│   └── images/
│       ├── logo.png
│       ├── background.jpg
│       └── icons/
├── CustomTheme/
│   ├── theme.css
│   ├── logon.css
│   ├── theme-rtl.css
│   └── images/
```

# Getting Started

## Step 1: Create Theme Directory

bash

```
# Navigate to themes folder
cd "%ProgramFiles%\Remote Desktop Services\Web Access\App_Themes"

# Create new theme directory
mkdir MyCustomTheme
cd MyCustomTheme

# Create subdirectories
mkdir images
```

## Step 2: Copy Base Files

Copy the following files from the Default theme:

- `theme.css` - Main stylesheet for connection center
- `logon.css` - Login page stylesheet
- `theme-rtl.css` - Right-to-left language support

bash

```
# Copy from Default theme (adjust path as needed)
copy ..\Default\theme.css .
copy ..\Default\logon.css .
copy ..\Default\theme-rtl.css .
```
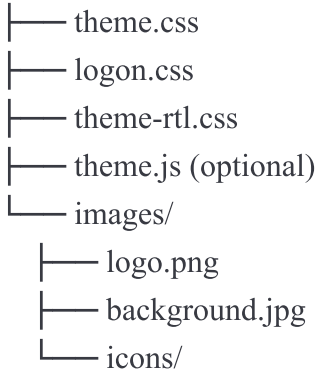
## Step 3: Create Folder Structure

Ensure your theme has this structure:

```
MyCustomTheme/
├── theme.css
├── logon.css
├── theme-rtl.css
├── theme.js (optional)
└── images/
    ├── logo.png
    ├── background.jpg
    └── icons/
```

# Customizing Login Page

## logon.css Examples

### Brand Logo

css

```css
/* Logo and branding */
.brandinglogo {
    background-image: url('images/mylogo.png');
    background-size: contain;
    background-repeat: no-repeat;
    width: 300px;
    height: 100px;
    margin: 0 auto;
}
```

### Background Styling

css

```css
/* Login page background */
body.logon {
    background-color: #f0f0f0;
    background-image:
        linear-gradient(rgba(0, 0, 0, 0.3), rgba(0, 0, 0, 0.3)),
        url('images/background.jpg');
    background-size: cover;
    background-position: center;
    background-attachment: fixed;
}
```

## Form Container



css

```css
/* Login form container */
.formcontainer {
    background-color: #ffffff;
    border-radius: 8px;
    box-shadow: 0 2px 10px rgba(0, 0, 0, 0.1);
    padding: 30px;
    max-width: 400px;
    margin: 0 auto;
}

/* Form title */
.formtitle {
    font-size: 20px;
    font-weight: 600;
    color: #333333;
    margin-bottom: 20px;
    text-align: center;
}
```

## Input Fields



css

```css
/* Text and password inputs */
input[type="text"],
input[type="password"] {
    width: 100%;
    border: 1px solid #cccccc;
    padding: 10px 12px;
    margin: 8px 0;
    border-radius: 4px;
    font-size: 14px;
    box-sizing: border-box;
    transition: border-color 0.3s ease;
}

input[type="text"]:focus,
input[type="password"]:focus {
    outline: none;
    border-color: #0078d4;
    box-shadow: 0 0 5px rgba(0, 120, 212, 0.3);
}
```

**Buttons**

css

```css
/* Login button */
.button,
input[type="button"] {
    width: 100%;
    background-color: #0078d4;
    color: white;
    border: none;
    padding: 10px 20px;
    border-radius: 4px;
    cursor: pointer;
    font-weight: bold;
    font-size: 14px;
    transition: background-color 0.3s ease;
    margin-top: 15px;
}

.button:hover,
input[type="button"]:hover {
    background-color: #005a9e;
}

.button:active,
input[type="button"]:active {
    background-color: #003d7a;
}
```

**Error Messages**

css

```css
/* Error messages */
.errormessage,
.error {
    background-color: #ffebee;
    color: #d32f2f;
    border-left: 4px solid #d32f2f;
    padding: 12px;
    margin: 15px 0;
    border-radius: 2px;
    font-weight: 500;
}

/* Warning messages */
.warning {
    background-color: #fff3e0;
    color: #e65100;
    border-left: 4px solid #e65100;
    padding: 12px;
    margin: 15px 0;
}
```

## Checkboxes and Links

css

```css
/* Checkbox styling */
input[type="checkbox"] {
    margin-right: 8px;
    cursor: pointer;
}

/* Links */
a {
    color: #0078d4;
    text-decoration: none;
    transition: color 0.3s ease;
}

a:hover {
    color: #005a9e;
    text-decoration: underline;
}
```

# Customizing Connection Center

## theme.css Examples

### Overall Layout



css

```css
/* Page styling */
html, body {
    margin: 0;
    padding: 0;
    background-color: #f5f5f5;
    font-family: 'Segoe UI', -apple-system, BlinkMacSystemFont, sans-serif;
    color: #333333;
    height: 100%;
}

* {
    box-sizing: border-box;
}
```

## Header Bar

css

```css
/* Header/Navigation bar */
#header,
.header {
    background-color: #0078d4;
    color: white;
    padding: 15px 20px;
    box-shadow: 0 2px 5px rgba(0, 0, 0, 0.1);
    display: flex;
    align-items: center;
    justify-content: space-between;
}

/* Header logo */
.headerlogo {
    background-image: url('images/logo-white.png');
    background-size: contain;
    background-repeat: no-repeat;
    width: 40px;
    height: 40px;
    display: inline-block;
}

/* Header title */
.headertitle {
    font-size: 18px;
    font-weight: 600;
    margin-left: 15px;
    display: inline-block;
}
```

## Workspace Tiles

css

```css
/* Desktop/Application tiles container */
.workspaces,
.workspace-grid {
    display: grid;
    grid-template-columns: repeat(auto-fill, minmax(200px, 1fr));
    gap: 15px;
    padding: 20px;
}

/* Individual workspace item */
.workspaceitem,
.workspace-tile {
    background-color: white;
    border: 1px solid #e0e0e0;
    border-radius: 6px;
    padding: 15px;
    cursor: pointer;
    transition: all 0.3s ease;
    box-shadow: 0 1px 3px rgba(0, 0, 0, 0.05);
}

.workspaceitem:hover,
.workspace-tile:hover {
    box-shadow: 0 4px 12px rgba(0, 0, 0, 0.15);
    transform: translateY(-2px);
    border-color: #0078d4;
}

/* Workspace icon */
.workspace-icon {
    width: 48px;
    height: 48px;
    margin-bottom: 10px;
}

/* Workspace title */
.workspacetitle,
.workspace-name {
    font-size: 16px;
    font-weight: 600;
    color: #000000;
```

```css
    margin: 10px 0 5px 0;
}

/* Workspace description */
.workspacedescription,
.workspace-description {
    font-size: 13px;
    color: #666666;
    line-height: 1.4;
}
```

**Navigation Menu**

css

```css
/* Side navigation menu */
.navmenu,
.sidebar {
    background-color: #f9f9f9;
    border-right: 1px solid #e0e0e0;
    padding: 0;
    width: 220px;
}

/* Menu items */
.navmenuitem,
.menu-item {
    padding: 12px 20px;
    color: #333333;
    cursor: pointer;
    border-left: 3px solid transparent;
    transition: all 0.3s ease;
}

.navmenuitem:hover,
.menu-item:hover {
    background-color: #e8e8e8;
}

/* Active menu item */
.navmenuitem.active,
.menu-item.active {
    background-color: #e3f2fd;
    border-left-color: #0078d4;
    color: #0078d4;
    font-weight: 600;
}
```

**Buttons**



css

```css
/* Primary button */
.primarybutton,
.btn-primary {
    background-color: #0078d4;
    color: white;
    border: none;
    padding: 8px 16px;
    border-radius: 4px;
    cursor: pointer;
    font-weight: 500;
    transition: background-color 0.3s ease;
}

.primarybutton:hover,
.btn-primary:hover {
    background-color: #005a9e;
}

/* Secondary button */
.secondarybutton,
.btn-secondary {
    background-color: #ffffff;
    color: #0078d4;
    border: 1px solid #0078d4;
    padding: 8px 16px;
    border-radius: 4px;
    cursor: pointer;
    font-weight: 500;
    transition: all 0.3s ease;
}

.secondarybutton:hover,
.btn-secondary:hover {
    background-color: #f0f8ff;
}

/* Danger button */
.dangerbutton,
.btn-danger {
    background-color: #d32f2f;
    color: white;
```

```css
    border: none;
    padding: 8px 16px;
    border-radius: 4px;
    cursor: pointer;
}

.dangerbutton:hover,
.btn-danger:hover {
    background-color: #b71c1c;
}
```

## Dialogs and Modals



css

```css
/* Modal/Dialog overlay */
.modal-overlay {
    position: fixed;
    top: 0;
    left: 0;
    right: 0;
    bottom: 0;
    background-color: rgba(0, 0, 0, 0.5);
    display: flex;
    align-items: center;
    justify-content: center;
    z-index: 1000;
}

/* Modal dialog */
.modal {
    background-color: white;
    border-radius: 8px;
    box-shadow: 0 5px 40px rgba(0, 0, 0, 0.3);
    max-width: 500px;
    width: 90%;
    padding: 20px;
}

/* Modal header */
.modal-header {
    border-bottom: 1px solid #e0e0e0;
    padding-bottom: 15px;
    margin-bottom: 15px;
}

/* Modal title */
.modal-title {
    font-size: 18px;
    font-weight: 600;
    color: #333333;
}

/* Modal content */
.modal-content {
    padding: 15px 0;
```

```
    }

/* Modal footer */
.modal-footer {
    border-top: 1px solid #e0e0e0;
    padding-top: 15px;
    margin-top: 15px;
    text-align: right;
}

.modal-footer .button {
    margin-left: 10px;
}
```

# Adding Assets

## Image Specifications

```
Asset Type   Format      Size          Optimization
Logo         PNG     300x100px         <100KB
Background   JPG     1920x1200px       <500KB
Icons        PNG     32x32 or 48x48px  <50KB each
Favicon      ICO     16x16px           <10KB
```

## Image Integration



CSS

```css
/* Logo on login page */
.brandinglogo {
    background-image: url('images/company-logo.png');
    background-size: contain;
    background-repeat: no-repeat;
}

/* Background with overlay gradient */
body.logon {
    background-image:
        linear-gradient(rgba(0, 0, 0, 0.3), rgba(0, 0, 0, 0.3)),
        url('images/background.jpg');
    background-size: cover;
    background-position: center;
}

/* Desktop icon */
.icon-desktop {
    background-image: url('images/icon-desktop.png');
    width: 48px;
    height: 48px;
}

/* Application icon */
.icon-app {
    background-image: url('images/icon-app.png');
    width: 32px;
    height: 32px;
}
```

# Creating images

## Logo Creation

- Use transparent PNG format
- Ensure text is readable on colored backgrounds
- Test at different zoom levels
- Keep file size minimal

## Background Image

- Use JPG format for compression
- Choose subtle patterns or photography
- Ensure good contrast for overlaid text

- Optimize dimensions for web

# Responsive Design

## Mobile-Friendly Theme



css

```css
/* Extra small devices (phones) */
@media (max-width: 480px) {
    body {
        font-size: 14px;
    }

    .formcontainer {
        max-width: 95%;
        padding: 15px;
    }

    input[type="text"],
    input[type="password"] {
        font-size: 16px; /* Prevents zoom on iOS */
    }

    .workspaceitem {
        width: 100%;
        margin: 10px 0;
    }
}

/* Small devices (tablets in portrait) */
@media (max-width: 768px) {
    #header {
        padding: 10px 15px;
    }

    .headertitle {
        font-size: 16px;
    }

    .navmenu {
        display: none;
    }

    .workspaces {
        grid-template-columns: repeat(auto-fill, minmax(150px, 1fr));
        gap: 10px;
        padding: 10px;
    }
}
```

```css
    .workspaceitem {
        padding: 10px;
    }
}

/* Medium devices (tablets in landscape) */
@media (max-width: 1024px) {
    .workspaces {
        grid-template-columns: repeat(2, 1fr);
        gap: 15px;
    }
}

/* Large devices (desktops) */
@media (min-width: 1025px) {
    .workspaces {
        grid-template-columns: repeat(auto-fill, minmax(250px, 1fr));
        gap: 20px;
    }
}
```

## Responsive Typography

css

```css
/* Responsive font sizing */
body {
    font-size: 16px;
}

h1 { font-size: 28px; }
h2 { font-size: 24px; }
h3 { font-size: 20px; }

@media (max-width: 768px) {
  body { font-size: 14px; }
  h1 { font-size: 22px; }
  h2 { font-size: 18px; }
  h3 { font-size: 16px; }
}

@media (max-width: 480px) {
  body { font-size: 13px; }
  h1 { font-size: 20px; }
  h2 { font-size: 16px; }
  h3 { font-size: 14px; }
}
```

# Deployment

## Windows Server 2012 R2 - 2019

**Step 1: Prepare Theme Files**

bash

```bash
# Ensure all files are in the correct location
%ProgramFiles%\Rds\Web\App_Themes\YourThemeName\
├── theme.css
├── logon.css
├── theme-rtl.css
└── images/
```

**Step 2: Configure IIS**

   1. Open Internet Information Services (IIS) Manager
   2. Navigate to **Remote Desktop Web Access** application
   3. Right-click and select **Explore** to verify theme files

**Step 3: Update Configuration (if needed)**

Edit `%ProgramFiles%\Rds\Web\web.config`:

xml

```xml
<configuration>
  <appSettings>
    <add key="ThemeName" value="YourThemeName" />
  </appSettings>
</configuration>
```

**Step 4: Restart Services**

bash

```bash
iisreset /restart
```

**Step 5: Clear Cache**

Users should clear browser cache:

- **Edge/Chrome**: `Ctrl + Shift + Delete`
- **Firefox**: `Ctrl + Shift + Delete`
- **Safari**: `Cmd + Shift + Delete`

# Windows Server 2022 with Windows 11

   1. Deploy theme to same directory structure
   2. Configuration may be handled through Group Policy or PowerShell
   3. Access `https://servername/rdweb` to verify

# Advanced Features

## Custom JavaScript (theme.js)

javascript

```javascript
// Custom theme initialization
(function() {
    'use strict';

    document.addEventListener('DOMContentLoaded', function() {
        console.log('Custom theme initializing...');

        // Initialize branding
        initializeBranding();

        // Setup event listeners
        setupEventListeners();

        // Apply custom behaviors
        applyCustomBehaviors();

        console.log('Custom theme loaded successfully');
    });

    function initializeBranding() {
        var header = document.getElementById('header');
        if (header) {
            header.setAttribute('data-company', 'MyCompany');
            console.log('Branding initialized');
        }
    }

    function setupEventListeners() {
        var workspaceItems = document.querySelectorAll('.workspaceitem');

        workspaceItems.forEach(function(item) {
            item.addEventListener('mouseenter', function() {
                this.classList.add('active');
            });

            item.addEventListener('mouseleave', function() {
                this.classList.remove('active');
            });
        });
    }
```

```javascript
    function applyCustomBehaviors() {
        // Add custom behaviors here
        var buttons = document.querySelectorAll('.primarybutton');
        buttons.forEach(function(btn) {
            btn.addEventListener('click', function(e) {
                console.log('Button clicked:', this.textContent);
            });
        });
    }
})();
```

## CSS Custom Properties (Variables)

css

```css
/* Define color scheme as CSS variables */
:root {
    --primary-color: #0078d4;
    --primary-dark: #005a9e;
    --primary-light: #e3f2fd;
    --background-color: #f5f5f5;
    --surface-color: #ffffff;
    --text-color: #333333;
    --text-secondary: #666666;
    --border-color: #e0e0e0;
    --border-radius: 6px;
    --shadow-small: 0 1px 3px rgba(0, 0, 0, 0.05);
    --shadow-medium: 0 4px 12px rgba(0, 0, 0, 0.15);
}

/* Use variables throughout theme */
.primarybutton {
    background-color: var(--primary-color);
    color: white;
    border-radius: var(--border-radius);
}

.primarybutton:hover {
    background-color: var(--primary-dark);
}

body {
    background-color: var(--background-color);
    color: var(--text-color);
}

.workspaceitem {
    background-color: var(--surface-color);
    border-color: var(--border-color);
    box-shadow: var(--shadow-small);
}
```

## Dark Mode Support

css

```css
/* Dark mode support */
@media (prefers-color-scheme: dark) {
    :root {
        --primary-color: #0078d4;
        --background-color: #1e1e1e;
        --surface-color: #2d2d2d;
        --text-color: #ffffff;
        --text-secondary: #b0b0b0;
        --border-color: #404040;
    }

    body {
        background-color: var(--background-color);
        color: var(--text-color);
    }

    .workspaceitem {
        background-color: var(--surface-color);
    }
}
```

# Testing

## Testing Checklist

- ☐ Logo displays correctly on both login and connection center
- ☐ Colors match brand guidelines
- ☐ All buttons are clickable and properly styled
- ☐ Forms are properly aligned and functional
- ☐ Mobile layout is responsive on tablets
- ☐ Mobile layout is responsive on smartphones
- ☐ No broken image links
- ☐ No console errors in browser DevTools
- ☐ Login page displays correctly
- ☐ Connection center displays workspaces
- ☐ Hover effects work as intended
- ☐ Page loads quickly (<2 seconds)
- ☐ Accessibility: color contrast is sufficient
- ☐ Tested in multiple browsers

## Testing on Multiple Browsers

☑
✓

✓ Microsoft Edge (latest)
✓ Google Chrome (latest)
✓ Mozilla Firefox (latest)
✓ Apple Safari (latest)
✓ Mobile Safari (iOS)
✓ Chrome Mobile (Android)

## Browser DevTools Inspection

☑
✓

javascript

```javascript
// Open console (F12) and check for errors
// Check applied CSS: Right-click > Inspect
// Mobile simulation: Ctrl+Shift+M
// Performance: Ctrl+Shift+I > Performance tab
```

# Best Practices

## Performance

- ☑ Optimize images aggressively using tools like TinyPNG
- ☑ Minimize CSS and remove unused styles
- ☑ Use CSS variables for maintainability
- ☑ Avoid inline styles and scripts
- ☑ Lazy load images when appropriate
- ☑ Minimize HTTP requests
- ☑ Use modern image formats (WebP with fallback)

## Accessibility

- ☑ Maintain WCAG AA color contrast minimum (4.5:1 for text)
- ☑ Include alt text for images
- ☑ Ensure keyboard navigation works
- ☑ Use semantic HTML
- ☑ Avoid color-only indicators
- ☑ Test with screen readers

# Security

- ✅ Validate and sanitize all user inputs
- ✅ Use HTTPS for all connections
- ✅ Avoid inline scripts
- ✅ Use Content Security Policy headers
- ✅ Keep dependencies updated
- ✅ Don't embed sensitive information in CSS/JS

# Maintenance

- ✅ Document all customizations
- ✅ Keep backups of original theme
- ✅ Version control your themes
- ✅ Test before deploying to production
- ✅ Create a development/staging environment
- ✅ Maintain changelog

---

# Troubleshooting

## Theme Not Appearing

**Problem**: Custom theme is not showing up

**Solutions**:

bash

```
# Clear IIS cache
iisreset /restart

# Clear browser cache (Ctrl + Shift + Delete)

# Verify theme folder name matches configuration
# Check that all CSS files are present
# Restart RDS services
```

## Images Not Loading

**Problem**: Images are broken or missing

**Solutions**:

- Verify image file paths are relative: `url('images/logo.png')`

- Check image file permissions (IIS must have read access)
- Verify image files exist in the correct folder
- Check file names are case-sensitive on Linux servers
- Use browser DevTools (F12) to see exact error

## Styling Not Applied

**Problem**: CSS changes aren't appearing

**Solutions**:

```
✓  bash
```

```bash
# Hard refresh browser: Ctrl + F5
# Clear browser cache completely
# Check CSS syntax is valid (use CSS validator)
# Check for higher specificity CSS rules overriding your styles
# Verify IIS has permissions to read theme folder
```

## Login Page Issues

**Problem**: Login page not styled correctly

**Solutions**:

- Verify `logon.css` exists in theme folder
- Check image paths in CSS are correct
- Ensure IIS has read permissions on theme files
- Test in private/incognito window
- Check browser console for errors (F12)

## Performance Issues

**Problem**: Page loads slowly

**Solutions**:

```
✓  bash
```

## CSS Specificity Issues

**Problem**: Your CSS rules are being overridden

**Solutions**:

css

```css
/* Use more specific selectors */
#main .workspaceitem { /* more specific */ }

/* Use !important only as last resort */
.button { color: blue !important; }

/* Avoid conflicting class names */
```

## Right-to-Left (RTL) Languages

**Problem**: RTL languages not displaying correctly

**Solution**: Maintain `theme-rtl.css` with RTL-specific styles

css

```css
/* theme-rtl.css */
body[dir="rtl"] {
    direction: rtl;
    text-align: right;
}

body[dir="rtl"] .workspaceitem {
    margin-left: 0;
    margin-right: 10px;
}
```

---

# FAQ

**Q: Can I use a custom theme with multiple RDS servers?** A: Yes, copy your theme to each server's App_Themes folder.

**Q: How do I revert to the default theme?** A: Remove or rename your custom theme folder, restart IIS.

**Q: Can I use JavaScript in my theme?** A: Yes, but keep it minimal for security and performance. Store in `theme.js`.

**Q: Is my custom theme preserved after RDS updates?** A: Usually yes, but always backup your theme before applying updates.

**Q: Can I customize the RDS client (not just web)?** A: This tutorial focuses on RD Web Access. Native client customization differs.

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# Contributing

Contributions are welcome! Please:

1. Test your changes thoroughly
2. Document any new features
3. Ensure accessibility compliance
4. Optimize images
5. Submit pull request with clear description

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# License

This tutorial is provided as-is for educational purposes. Customize as needed for your organization.

MIT License - See LICENSE file for details.

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# Resources

- Remote Desktop Services on Microsoft Docs
- IIS Configuration Reference

- [WCAG 2.1 Accessibility Guidelines](#)
- [CSS Tricks - A Complete Guide to Grid](#)
- [MDN Web Docs - CSS Reference](#)

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# Support

For issues or questions:

1. Check the [Troubleshooting](#) section
2. Review the [FAQ](#)
3. Check browser console (F12) for errors
4. Refer to Microsoft RDS documentation
5. Consult your system administrator

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**Last Updated**: 2024
**Maintainer**: RD Web Theme Development Community

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**Quick Start Summary**

bash

```bash
# 1. Create theme directory
mkdir "%ProgramFiles%\Rds\Web\App_Themes\MyTheme"

# 2. Copy base files from Default theme
# 3. Customize theme.css and logon.css
# 4. Add images to images/ subfolder
# 5. Restart IIS
iisreset /restart

# 6. Test at https://yourserver/rdweb
# 7. Clear browser cache if changes don't appear
```

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Made with ❤️ **for** Remote Desktop administrators and developers