

# Selection - Background Estimation for Wjets and Zjets (2016)

<b>Central</b>	<b>Trigger</b>	HLT_IsoMu24	
	<b>Muon Selection</b>	$p_T(\mu) > 30 \text{ GeV}$ $ \eta(\mu)  < 2.1$ Tight ID Isolation: $I < 0.15$	
		<b>W+jets</b>	$N(\mu) = 1$ $50 \text{ GeV} < m_T(\mu, \text{MET}) < 100 \text{ GeV}$
		<b>Z+jets</b>	$N(\mu) \geq 2$ $60 \text{ GeV} < M(\mu, \mu) < 120 \text{ GeV}$ Opposite Charge
	<b>*MET Criterion</b>	*MET > 250 GeV	

Recalculated \*MET = vector sum of the default MET and muon(s)

*Dijet pair should be the one with the largest invariant mass*

**CR1) CENTRAL: Central Selections + Vetoes**

**CR2) CENTRAL + VBF: Central Selections + VBF + Vetoes**

<b>VBF</b>	<b>Jets Definition</b>	$p_T(j) > 60 \text{ GeV}$ $ \eta(j)  < 2.5$ Loose ID $N(j) \geq 2$ $\Delta R(j, \mu) > 0.4$
	<b>VBF Criteria (DiJet Selection)</b>	$\eta(j_1)\eta(j_2) < 0$ $ \Delta\eta(j_1, j_2)  > 3.8$ $M(j_1, j_2) > 1 \text{ TeV}$

<b>Veto</b>	<b>Electron Veto</b>	$p_T(e) > 10 \text{ GeV}$ $ \eta(e)  < 2.5$ Medium ID
	<b>Tau Veto</b>	$p_T(\tau_h) > 20 \text{ GeV}$ $ \eta(\tau_h)  < 2.5$ 1 prong $\Delta R(\tau_h, \mu, \text{or } e) > 0.3$ Tau_idDeepTau2017v2p1
	<b>B-tagged Jets Veto</b>	$p_T(b) > 30 \text{ GeV}$ $ \eta(b)  < 2.4$ Deep CSV Medium WP

*Btag SF applied, No BJet overlap removal*